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V. Elizabeth. Symons
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EFFECTS OF COGNITIVE AWARENESS TRAINING ON ADOLESCENT ADHD BOYS IN A SEMESTERED SECONDARY SETTING.

by

Elizabeth Symons

A Thesis
Submitted to the Faculty of Graduate Studies and Research through the Faculty of Education in Partial Fulfilment of the Requirements for the degree of Master of Education at the University of Windsor

Windsor, Ontario, Canada

1995

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ABSTRACT

Utilizing a cognitive awareness training program, this study sought to develop a viable group support system for 4 adolescent boys in a semestered secondary setting. Locally there were no support programs available to them. It was felt that a heightened sense of cognitive awareness brought about by increasing their knowledge of the etiologies, methods of diagnosis and assessment, treatments, and interventions for ADHD would enable them to perform better academically and be involved in less frequent bouts of disruptive behavior in their classrooms. These results would be reflected tangibly in their classroom teachers’ perception of the severity of their behavior, from pretest to posttest. It was postulated that their marks would be higher at the end of the intervention semester, and that the subjects and their classroom teachers would express a desire to continue the cognitive awareness training sessions into another semester, seeing it as a valuable and viable school activity.

The results supported this only partially. The inconsistency of improvement in teacher perceived behaviors from pretest to posttest was disappointing. Utilizing referrals to Vice Principals the behavioral results were positive; however, on the Conners Teacher Rating Scale-28 only 2 subjects showed improvements in their teachers’ eyes at posttest. All of the subjects responded positively in the evaluation of the Cognitive Awareness Training sessions, as did their teachers in the evaluation of the Teacher
Workshop session. Based on these results it was clear that further investigation of this intervention was merited. It would be preferable at another time to expand the sample size, and possibly pursue the study from a longitudinal perspective.
DEDICATION

To my Man From La Mancha
who dared to give me my
Impossible Dream
ACKNOWLEDGEMENTS

I would like to express my appreciation to my thesis committee: Dr. Noel Williams, Dr. Erika Kuendiger, and Dr. Anne McCabe, for their most helpful criticism and comments.

Next I would like to thank my valued colleague Marg Micsinszki, for teaching me how to use Word Perfect, and always being there ready to lend a hand and to give encouragement. In the same vein to my son Brock, his tireless efforts in trying to unravel my many errors when borrowing his computer, and his adamant insistence that I learn the hard way, from trial and error, have provided me with another skill, and more importantly another example of his everpresent generous support for his Mother.

Finally to my Boys who never doubted that what we were pursuing together would be of benefit to them, and who never once complained about some of the strange alleys down which I led them. I wish all their teachers could see them in the light in which I was so privileged to do.
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CHAPTER I

INTRODUCTION

A. The Dilemma

Attention Deficit Hyperactivity Disorder (ADHD) is the most common neurobehavioral disorder in children (Epstein, Shaywitz, Shaywitz, & Woolston, 1991). Partnered by Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD), it makes up the triumvirate of Disruptive Behavior Disorders with their dimension of externalizing behavior. In North America, ADHD constitutes the most common reason for referral of children to mental health practitioners (Barkley, 1990; Ross & Ross, 1982). In 1972 using a broad set of definitions, Trites, Douglas, Lynch and Ferguson (cited in Casey, 1993), estimated the prevalence of the disorder ranged from 1% to 20%. Currently 3% to 5% of the school-aged population are identified as ADHD (Barkley, 1990; Conners, 1993; McBurnett, Lahey, & Piffner, 1993; Robin, 1993). When ADHD is comorbid with other disruptive disorders the prevalence rises to 8% to 9% (Conners, 1993).

As with Learning Disabilities (LD) there are no common physical markers to identify ADHD. However, the vast dimensions of externalizing behavior: inattention, impulsivity, and hyperactivity are readily recognized. They have an early onset and are relatively chronic; thus they affect adjustment across many
domains and generally predict adult social outcomes. Barkley (1990) described ADHD as a developmentally disabling disorder focused along the three axes of inattention, behavioral inhibition, and the regulation of activity to situational demands. It can devastate students' academic progress, the quality of their family life, and preclude meaningful peer relationships. It often shows an overlap with the various indices of academic underachievement in children. The skill deficits of ADHD children render them unable to meet the demands of teachers, family, and friends, resulting in a long history of negative interaction with their environment. This is a powerful predictor for a host of negative outcomes in later life like lowered self-esteem, personality disorders, and academic underachievement (Parker & Asher, 1987; Wender, 1979).

At the secondary level the situation worsens. Students are at risk for more serious drops in educational performance than before. Delinquency is definitely associated with school failure by adolescence (Hinshaw, 1992). Their drop out rate is over 30% compared to 10% of control children; depression, aggression, and substance abuse are but a few of the associated side effects (Barkley, 1990; Robin, 1993).

Many types of educational environment and curricula have been suggested for these students. Currently most researchers advocate a multimodal approach to treatment that is geared to assisting the student medically, psychologically, and behaviorally (Barkley, 1990; Breen & Altpeter, 1990; Goldstein & Goldstein, 1990; Robin, 1993). However, research has yet
to prove the extent of impact that specific childhood interventions have on outcomes in adolescence. Add to this the fact that investigators have examined very little data on interventions occurring in the actual classroom (Fiore, Becker, & Nero, 1993). Clinical settings and laboratories have been the preferred research sites, and intervention practices specific to the needs of adolescents are noticeably absent in current research (Burcham, Carlson, & Milich, 1993). An ever increasing number of secondary students presenting with serious symptomology are surfacing in the schools of the Windsor Board of Education, where no vital on site team approaches are readily available. Lack of resources, qualified personnel, training programs, and clinical facilities have placed the burden for management directly on parents and teachers alike. The latter, isolated from resources and knowledge of treatment interventions may become more negative in interactions with these students, further exacerbating their poor academic and social achievement. In turn a further reduction in self esteem may ultimately result in school failure and drop out. Clearly ADHD must be seen as a neuropsychological impairment of the student moulded by the pressures of the environment to its final form (Barkley, 1990). Indeed the equation must read: Biology X Environment = Severity of ADHD (Robin, 1993). The need for development of interventions that are readily accessible to educators is of paramount importance, mindful that the intervention is intended only to maximize the students' likelihood for success, never to cure or normalize them. This study represents such an attempt.
B. Literature Review

An extensive review of the literature was begun to ascertain the nature and success rate of documented interventions that assist ADHD students. It was immediately apparent that the issue was one of extreme complexity. Most of the research impinged to a greater or lesser degree on the ultimate treatment of the disorder; however, etiologies, assessment, diagnoses, and treatments were all inextricably intertwined, among the paradigms currently in vogue at the particular moment. Therefore it was decided to examine the rich and multifaceted history of the disorder as a framework from which to view the research in those areas that had and continued to impact on Educational 
Interventions in the Multimodality/Multidisciplinary Treatment approach favoured by most researchers (Abikoff, 1987; Barkley, 1990; Conners, 1993; Goldstein & Goldstein, 1990; Robin, 1993; Whalen & Henker, 1991).

Historical Overview

Goodman and Gilman, 1975 (cited in Goldstein & Goldstein, 1990) reported that centuries ago restless infants had been prescribed opium by the Greek physician Galen. The babies response had been a positive one. Subsequently, the few published papers concerned with inattentive, restless, and overaroused behavior in children were largely medical in nature ascribing the behaviors to residual effects of brain injury (Barkley, 1990; Epstein, Shaywitz, Shaywitz, & Woolston, 1991; Goldstein & Goldstein, 1990). In 1902
Sir George Frederick Still gave a series of lectures to the Royal College of Physicians in which he described 20 children in his clinical practice who were aggressive, defiant, ruthless, inattentive, and unable to internalize rules and limits. They appeared to be spiteful, cruel, and dishonest. Still felt this was quite unnatural relative to the behavior of normal children. In true Edwardian fashion the doctor characterized these children as exhibiting morbid deficits in moral control (Barkley, 1990; Epstein et al., 1991; Goldstein & Goldstein, 1990). Still was the first to note that the disorder occurred in males more frequently than females, and that it usually arose before eight years of age. Despite these remarkably prescient findings, but possibly influenced by the fashionable Darwinian social perspective on childhood disorders, Sir George regarded hyperactivity as a social problem thereby segregating behavioral individuals to the lower classes (Barkley, 1990).

From 1917 to 1918 a world outbreak of encephalitis occurred. A number of children who survived this infection were left with behavioral and cognitive sequelae. Thought to be the result of brain injury, this was termed Post Encephalitic Disorder Syndrome and its severity caused Hohman (1922) to recommend placing these children in institutions for care. There some success was reported using simple behavior modification programs and increased supervision (Barkley, 1990). Epstein et al. (1991) stated that during this era other clinicians were linking the descriptions of similar behaviors to traumatic brain injury or a variety of other childhood nervous system infections.
Bradley (1937), a physician who worked with emotionally disturbed children, began to experiment with stimulant drugs. He recorded that for a length of time the children were calmer, less oppositional, and better able to pay attention and learn. In the same year Molitch and Eccles, 1937 (cited in Goldstein & Goldstein, 1990) supported Bradley's findings while investigating the effects of benzodrine on the intelligence scores of children.

The most influential and longlasting support for a specific behavior syndrome arising from underlying central nervous system (CNS) cause or damage, came from the work of Strauss and fellow colleagues (Barkley, 1990; Epstein et al., 1991; Goldstein & Goldstein, 1990). World War II had given investigators the means to study various head wounds which often resulted in restless inattentive behavior. This directly corroborated the idea that brain damage or dysfunction produced these same effects in children. Werner and Strauss (1941), and Strauss and Lehtinen (1947) developed their theory that the major difficulty for these children was one of distractibility. Their recommendations for educating these children included placement in dull minimal stimulation classrooms with frosted windows where teachers wore drab colours and were not allowed to wear jewellery. It should be noted that the research literature has never supported this theory (Kessler, 1980). Strauss also felt that psychological disturbances in themselves were evidence enough to support brain injury as their cause. This theory evolved into the concept of minimal brain damage and was softened into minimal brain dysfunction (MBD),
a concept that was ultimately regarded as too nebulous and all encompassing, and showing little neurological basis (Kirk, 1963).

In the late 1950's a number of neurological investigations were carried out. The most famous was that of Laufer and Denhoff (1957) who felt that the excessive activity level of the child was the salient feature of this disorder. They ascribed the cause of this hyperkinetic syndrome to some type of injury or dysfunction of the diencephalon (part of the brain consisting of the thalamus and hypothalamus). The disorder was now identified as one of hyperactivity in combination with secondary symptoms of impulsivity and short attention span. These symptoms were thought to be outgrown at puberty. The second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM II; American Psychiatric Association, 1968) concurred by creating the Hyperkinetic Reaction Disorder of Childhood disorder (Barkley, 1990).

Stimulant medication, psychotherapy, and minimal stimulation classrooms still held sway as the preferred treatments depending upon where one's allegiance lay, and as the confusion reigned, a split occurred in the medical and educational communities. The former produced an entirely medical model to explain the behavioral and cognitive symptomology based on the old MBD model, while the educators highlighted the academic and language difficulties of these children Kirk, 1962 (cited in Epstein et al., 1991).

In the 1970's the bent of research was toward attention deficits. During an historic address given to the Canadian Psychological Association in 1972,
Douglas suggested that hyperactivity was not the main problem for these children, but rather their deficits in sustained attention and impulse control. Douglas (1985) confirmed at this time that attention deficits were not common to all areas. This researcher's findings demonstrated that ADHD children were quite capable of encoding, storing, and retrieving many types of nonverbal as well as verbal information. What they could not do was deploy continuous and sustained attention on tasks of minimal interest while inhibiting responses to inappropriate stimuli or at inappropriate times. So influential was Douglas' research that deficits in impulse control and sustained attention were incorporated into the formal definition of the disorder. DSM-III (American Psychiatric Association, 1980) renamed the disorder Attention Deficit Disorder (ADD), recognizing the greater importance of attention and impulse control over hyperactivity in the diagnosis of the disorder. At the same time a shift was seen in the focus of research, diagnosis, and treatment (Goldstein & Goldstein, 1990). There was a rapid rise in the use of stimulant medication as the treatment of choice for hyperactive children in school. The volume of literature on medication issues rose to grand proportions and this treatment approach became the best researched therapy in child psychology (Barkley, 1990).

The name of this disorder has often changed, but for 50 years the basic treatment has remained constant: pharmacological intervention with one of the CNS stimulant drugs. Methylphenidate, primarily Ritalin; d-amphetamine, Dexedrine; or pemoline, Cylert have been the stimulant medications of choice.
(Swanson, Cantwell, Lerner, McBurnett, & Hanna, 1991). Woolrich, 1990 (cited in Whalen & Henker, 1991) produced findings that showed 88% of the children considered hyperactive had received methylphenidate, and that from 1971 to 1987 the percentage of elementary-age school children in Baltimore County, Maryland on medication rose from 1% to just under 6%, and stimulant medication was regarded as the most efficacious short term intervention for ADHD students.

There had been a host of well controlled experiments documenting the ameliorating effects of Ritalin and Dexedrine on the core symptoms of inattention, impulsivity, and overactivity as well as improvement in the vital areas of aggressive behavior and peer relations (Barkley, 1990; Hinshaw, 1991). However, while impressive gains in academic productivity and accuracy had been demonstrated, their effects on test scores on standardized achievement tests were less positive. Swanson (1992) emphasized the limitations of psychostimulants alone, noting no long-term improvement on academic achievement or reduction in antisocial behavior. Improvement was only temporary and affected learning/achievement to a lesser degree than behavior/attention. The debate on their clinical impact raged on.

Several beliefs as to the cause of hyperactivity also emerged at this time: the environment; allergic or toxic reaction to food additives such as preservatives in the child's diet (Feingold, 1975); societal tempo i.e. rapid technological development and cultural change; and poor parenting. These are
recognized factors, although there was little supporting evidence that they were a primary cause (Barkley, 1990; Conners, 1993; Goldstein & Goldstein, 1990). Currently there is little doubt among researchers that there are multiple etiologies for ADHD. When examined the evidence favouring genetic predisposition was strong; however, brain injuries might still account for a small percentage of ADHD in children. Conners (1993) suggested that biological insults during pregnancy such as: mothers who smoked or abused drugs when pregnant, who suffered from toxemia, anoxia or anaemia, had breech birth with forceps or premature labour might lead to ADHD in the child.

Yet for the past century investigators had been suggesting an underlying neurological basis for ADHD. This belief stemmed from research utilizing electrophysiological measures, positron emission techniques (PET), magnetic resonance imaging (MRI), and cerebral blood flow patterns as a means to indicate morphological differences in the brains of ADHD individuals.

Attentional mechanisms could be studied from a variety of perspectives: neuroanatomical, neurochemical, and neurophysiological (Figure 1). (1) the neuroanatomical approach zoomed in on the location of the specific areas of the brain thought to be utilized in the regulation of attention and the inhibition of motor activity eg the frontal lobe. Here PET scan studies have indicated reduced brain glucose utilization especially in the right frontal area possibly decreasing cortical arousal in the areas often associated with executive control and language (Riccio, Hynd, Cohen, & Gonzalez, 1993).
Figure 1. Medial Aspect of the Brain in Sagittal Section
Concurrent research on cerebral blood flow by Pontius, 1973 (cited in Riccio et al., 1993) indicated a decreased metabolism in the right caudate. Riccio et al. (1993) also declared that right greater than left asymmetry appeared absent in ADHD children when compared to controls. However, Welsh and Pennington (1988) cautioned that developmental alterations in prefrontal functions alone might not indicate the presence of ADHD.

(2) The neurochemical approach focused on the role of neurotransmitters that aid communication among the neuronal circuits involved in ADHD, specifically the catecholines (dopamine and norepinephrine) thought to affect a variety of behaviors like attention, motivation, inhibition, and response of the motor system (Riccio et al., 1993). Theories abounded in this area all based on too little production of dopamine or norepinephrine, and supported empirically by the efficacy of clonidine and psychostimulants like Ritalin in treating ADHD individuals.

(3) The neurophysiological basis for ADHD arose from the failure of the first two models to account for the host of other behaviors associated with the disorder (Voeller, 1991). Disruptions along the loop systems thought to connect the frontal lobes, basal ganglia, and thalamus might prevent the maintenance of a sufficient arousal level or conversely an adequate inhibition/selective attention level have been postulated by Riccio et al. (1993). Voeller (1991) suggested that possibly ADHD should be viewed as a cluster of different behavioral deficits (attention, impulsivity, and hyperactivity) possessing a specific neural
substrate of differing severity, occurring in variable constellations, but having a common response to psychostimulants. These hypotheses on the precise etiology of ADHD only served to highlight the complex nature of the disorder, and to reinforce the wide dimensions needed for adequate treatment.

Another player entered the stage in the 1970’s in the person of psychophysiological approaches to hyperactivity. Innovative and positive research was being carried out utilizing cognitive-mediational strategies. Cognition involved knowledge and how it could be applied to everyday situations. It influenced what to teach beginners; it helped to determine the nature of knowledge differences between experts and novices; and it aided in how best to accomplish the goals of instruction (Sugden, 1989).

Cognitive-mediational therapies used with attention deficient and learning disabled children had their genesis in the work of Luria, 1959; 1961; and Vygotsky, 1962 (cited in Goldstein & Goldstein, 1990). These Russian psychologists hypothesized that behavioral self-control was developed via a three stage process: (a) external mediation by others, (b) self-generated external directions or talking to oneself, and (c) covert internalized speech. These ideas have been translated into various self-instructional training programs falling under the aegis of cognitive behavior modification (CBM). Originally these mediations were developed to deal directly with the impulsive, thoughtless, disorganized approach that hyperactive children have toward social and academic situations. It was felt that the mediations would lead to better
maintenance and generalization of behavioral improvements (Barkley, 1990). Today the original technique used to alter thinking skills has been expanded to include self-recording, self-evaluation, and attributional training (Goldstein & Goldstein, 1990). In all of these Meichenbaum (1977) stressed the importance of active student involvement, noting that as they were taught to think, they gained self-control and the ability to modify their behavior as they interacted with their environment. Their locus of control was becoming internal.

Diagnosis

The American Psychiatric Association (APA) in their Diagnostic and Statistical Manual for Mental Health Disorders have presented definitions that have become the most widely accepted method for diagnosing attention disorders. As stated previously in this chapter, the first categorization on the attention deficit syndrome, "Hyperkinetic Reaction of Childhood" appeared in DSM-II (APA, 1968). Here the diagnosis was based on the clinicians decision whether the clinical features presented by an individual matched those in the DSM description. McBurnett et al., (1993) felt that these diagnoses could be subject to variance in interpretation, and that reliability could suffer because of "criterion variance" (Spitzer & Williams, 1980) cited in McBurnett et al., 1993). DSM-III (APA, 1980) enlarged the assessment using a multiaxial system and added specific criteria for a case to meet, before receiving the diagnosis of a specific syndrome. A minimum of behavioral criteria were to be present before
symptoms were regarded as viable. These 14 symptoms were arranged into three groups: inattention (5 symptoms), impulsivity (5 symptoms), and hyperactivity (4 symptoms). A ratio of at least 3:3:2 in these categories was needed for the diagnosis of ADD with hyperactivity. A ratio of 3:3:1 indicated ADD without hyperactivity. Criticisms surfaced concerning the empirical data base for these required symptoms from different groups, and this led to the revision of the manual (McBurnett et al., 1993).

DSM-III-R (APA, 1987) found insufficient basis for subgrouping the symptoms. A single list (Table 1) of 14 symptoms appeared and any 8 of them constituted the diagnostic criterion for ADHD. ADD without hyperactivity was not incorporated in this version of the manual, but a distinct category of undifferentiated attention deficit disorder (UADD) was included, but it had no specific diagnostic criteria and was relegated to a "catchall for oddments" position, ill defined and nebulous.

Although factor analysis studies of attention deficit symptoms were emerging when DSM-III-R (APA, 1987) was being developed, they had not influenced its creation. Now the APA began to develop new criteria for inclusion in DSM-IV. Field trials were conducted on the possible options, and a draft document was produced that led Conners (1993) after viewing it, to suggest that DSM-IV was to be on the market soon, probably to be replaced by DSM-IV-R instantly.
**TABLE 1**

**DSM III-R Criteria for Attention deficit-Hyperactivity Disorder (APA, 1987)**

Note: Consider a criterion met only if the behavior is considerably more frequent than that of most people of the same mental age.

<table>
<thead>
<tr>
<th>A.</th>
<th>A disturbance of at least six months during which at least eight of the following are present:</th>
</tr>
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<tr>
<td>(1)</td>
<td>often fidgets with hands or feet or squirms in seat (in adolescents, may be limited to subjective feelings of restlessness)</td>
</tr>
<tr>
<td>(2)</td>
<td>has difficulty remaining seated when required to do so</td>
</tr>
<tr>
<td>(3)</td>
<td>is easily distracted by extraneous stimuli</td>
</tr>
<tr>
<td>(4)</td>
<td>has difficulty awaiting turn in games or group situations</td>
</tr>
<tr>
<td>(5)</td>
<td>often blurts out answers to questions before they have been completed</td>
</tr>
<tr>
<td>(6)</td>
<td>has difficulty following through on instructions from others (not due to oppositional behavior or failure of comprehension), e.g., fails to finish chores</td>
</tr>
<tr>
<td>(7)</td>
<td>has difficulty sustaining attention in tasks or play activities</td>
</tr>
<tr>
<td>(8)</td>
<td>often shifts from one uncompleted activity to another</td>
</tr>
<tr>
<td>(9)</td>
<td>has difficulty playing quietly</td>
</tr>
<tr>
<td>(10)</td>
<td>often talks excessively</td>
</tr>
<tr>
<td>(11)</td>
<td>often interrupts or intrudes on others e.g., butts into other children's games</td>
</tr>
<tr>
<td>(12)</td>
<td>often does not seem to listen to what is being said to him or her</td>
</tr>
<tr>
<td>(13)</td>
<td>often loses things necessary for tasks or activities at school or at home (e.g., toys, pencils, books, assignments)</td>
</tr>
<tr>
<td>(14)</td>
<td>often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking), e.g., runs into street without looking</td>
</tr>
</tbody>
</table>

Note: The above items are listed in descending order of discriminating power based on data from national field trial of the DSM III-R criteria for Disruptive Behavior Disorders.

<table>
<thead>
<tr>
<th>B.</th>
<th>Onset before the age of seven.</th>
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<tr>
<td>C.</td>
<td>Does not meet the criteria for Pervasive Developmental Disorder.</td>
</tr>
</tbody>
</table>
It would appear that there were to be two subject groups: inattention (IA) and hyperactive-impulsive (HI) each with 9 symptoms listed. Again a minimum number of symptoms must be present for the individual to qualify. The overall diagnostic category was still called ADHD, but two new subtypes had been created: primarily inattentive, similar to ADD without hyperactivity; primarily hyperactive, similar to no prior category; and combined type, similar to ADHD (Table 2). McBurnett et al.(1993) felt that these new diagnostic criteria had positive implications for educational assessment because ADHD symptoms frequently occurred in normal children and in those with different problems than ADHD; therefore a trustworthy measure to differentiate between these was mandatory. Also ADHD evinces many types of impairments and should be managed by multimodality treatment, therefore the clinical diagnosis might direct the family to noneducational interventions that would bolster the educational ones. Precise diagnosis was vital to the ADHD child. Based on subtype, the caregiver had access to probable theories pertaining to that child’s specific needs, thus allowing for selection of appropriate educational supports (Barkley, 1990). This again supported the necessity for multimodality interventions.
TABLE 2

Final DSM-IV Draft Criteria for Attention Deficit Hyperactivity Disorder

A. Either 1 or 2:

(1) Inattention: At least six of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level: (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities. (b) often has difficulty sustaining attention in tasks or play activities (c) often does not seem to listen to what is being said to him or her (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions) (e) often has difficulties organizing tasks and activities (f) often avoids or strongly dislikes tasks (such as schoolwork or homework) that require sustained mental effort (g) often loses things necessary for tasks or activities (e.g. school assignments, pencils, books, tools, or toys) (h) is often easily distracted by extraneous stimuli (i) often forgetful in daily activities

(2) Hyperactivity-Impulsivity: At least six of the following symptoms of hyperactivity-impulsivity have persisted for six months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity: (a) often fidgets with hands or feet or squirms in seat (b) leaves seat in classroom or in other situations in which remaining seated is expected (c) often runs about or climbs excessively where it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness) (d) often has difficulty playing or engaging in leisure activities quietly (e) often talks excessively (f) often acts as if "driven by a motor" and cannot remain still Impulsivity: (g) often blurts out answers before questions have been completed (h) often has difficulty waiting in lines or awaiting turn in games or group situations (i) often interrupts or intrudes on others

B. Onset no later than 7 years of age.
C. Symptoms must be present in two or more situations (e.g. at school, work, and at home).
D. The disturbance causes clinically significant distress or impairment in social, academic, or occupational functioning.
E. Does not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder, and is not better accounted for by a Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder.
Code based on type:

314.00 Attention-deficit/Hyperactivity Disorder, Predominately Inattentive Type; if criterion A(1) is met but not criterion A(2) for past 6 months

314.01 Attention-deficit/Hyperactivity Disorder, Predominately Hyperactive-Impulsive type; if criterion A(2) is met but not criterion A(1) for past 6 months

314.01 Attention-deficit/Hyperactivity Disorder Combined Type; if both criterion A(1) and A(2) are met for the past 6 months

Coding note: for individuals (especially adolescents and adults) who currently have symptoms that no longer meet full criteria, "in partial remission" should be specified.

314.9 Attention-deficit/Hyperactivity Disorder Not Otherwise Specified

This category is for disorders with prominent symptoms of attention-deficit or hyperactivity-impulsivity that do not meet the criteria for Attention-Deficit/Hyperactivity Disorder.

Multimodality Interventions

There is little doubt that the problems called ADHD demanded multimodal approaches. They optimized the therapeutic effect and produced better outcomes as the child moved into adulthood (Barkley, 1990; Conners, 1993; Goldstein & Goldstein, 1990; Whalen & Henker, 1991). In a classic study Gittleman, Abikoff, Pollack, Klein, Katz, and Matz, 1980 (cited in Barkley, 1990) compared 61 ADHD children randomly assigned to three groups with three possible interventions: methylphenidate, placebo and behavior therapy, and methylphenidate and behavior therapy. The children were rated by parents, teachers, and physicians on global improvement and direct classroom observations. The study had many shortcomings, but the results suggested that behavioral therapy alone was the least effective rated at 53%, stimulant medication more effective at 81%, and combined medication and behavior therapy 100% effective. Hinshaw (1992) noted that for ADHD children using stimulant intervention alone, the medication typically failed to bring academic and social behavior into the normal range. Therefore that author advocated behavioral and pharmacological interventions combined as the treatment of choice.

Goldstein and Goldstein (1990) suggested that a multimodal treatment model offered a combination of interventions that would effectively manage the large array of problems experienced by ADHD children, but cautioned that this was not to be thought of as a cure, nor had it been demonstrated that
multimodal treatments would lead to better outcomes in adulthood.

Unfortunately research has yet to discover the type or extent of childhood intervention that impacted to any substantial degree on the adolescent or young adult outcome of ADHD (Barkley, 1990). This author cited the multimodality study of Satterfield, Satterfield, and Cantwell (1980; 1981) that suggested if such a treatment approach was maintained over several years into early adolescence, the prognosis for these children might be altered. The treatment consisted of medication, classroom consultation, and individual counselling of the children plus special education. At the same time parents were counselled and trained in child management. However, even Barkley (1990) admitted that the constraints of the local situation in the school, the home, and the clinical setting would affect this ideal.

Today it is important to adhere to the principal that students with ADHD need the services of the educational and clinical communities (McBurnett, Lahey, & Pfiffner, 1993). Neither can address these issues in isolation, but Barkley's previous statement explained why this was difficult if not often well nigh impossible.

Educational Interventions

Fiore, Becker, and Nero (1993) reviewed the current research based nonpharmacological interventions pertinent to educating ADHD students. They found that investigators had examined very little data on interventions
performed in actual classrooms. Clinical settings and laboratories were the favoured sites. Similarly intervention practices specific to the needs of adolescents were glaringly absent from the literature (Burcham, Carlson, & Milich, 1993). It appeared probable that no specifically developed classroom programs geared to attention problems were available because: problems of attention and hyperactivity were once viewed as transitional in nature, outgrown in puberty; clinicians relied heavily upon medication; and educators viewed that special education placement as the appropriate setting for ADHD children (Goldstein & Goldstein, 1990). Of note was the finding that none of the multitude of special settings and curricula had demonstrated miraculous results, and in reality the majority of ADHD students exhibiting arousal and attention problems spent all of their school years in regular classrooms. Interestingly Reid, Maag, and Vasa (1994) claimed that they were unaware of any non-medical treatment(s) specific to ADHD that had not already been used in special education classrooms with other exceptional students identified under the current disability criteria used in the United States. Yet students with ADHD exhibited a wider range of difficulties in their classrooms as opposed to any other environment. Problems with starting tasks, staying on task, completing tasks, making transitions, interacting with others, following through on directions, organizing multi-step tasks, and consistently producing work at normal levels were but a few of these difficulties (Fowler, 1992).
Effective treatment must be begun with the teachers' knowledge and attitude toward the disorder itself. Only then could teachers target the desired area of change with any degree of success (Barkley, 1990; Conners, 1993, Goldstein & Goldstein, 1990; Robin, 1993). If teachers realized that due to their disinhibition, these students were managed by the moment, that planning did not precede performance, but that they knew what to do in a general sense, then the planning could be done for the students. Alternatively, given plenty of motivation to encourage their own use of planning they might have more success at controlling their impulsive learning styles. Silver, 1992 (cited in Fowler, 1992) stated that ADHD children are not so much unable to learn, but hampered by their problems with inattention and impulsivity, are often rendered unavailable for learning.

Behavior Therapy strategies that used reinforcement and punishment to reduce or implement target behaviors or Behavior Therapy were the most popular in the classroom because of their inexpensive nature, ready adaptability to different settings, and speed of establishment (Barkley, 1990). Usually these consequences which may be positive (teacher attention, tokens) or negative (ignoring, time out, response cost) were used in some combination before clinically significant improvements were noted. While positive consequences might seem overly simplistic, Barkley (1990) felt that it required much skill to deliver the consequence in a genuine manner at the appropriate moment. The same author cited Douglas (1985) as stating that ADHD children had elevated
reward thresholds and needed more frequent and stronger rewards than their normal peers.

Suspension, a negative consequence often used to punish severe behavior should be used with caution. It could become a pleasant vacation situation. Overall one should always be on the alert for side effects when utilizing negative consequences, and there is little evidence that treatment gains generalized and were maintained (Barkley, 1990; Goldstein & Goldstein, 1990). Cognitive Behavioral Interventions (CBI) emphasizing the development of self-control were touted as a means to correct this concern. At the same time they were thought to produce positive changes in sustained attention, hyperactivity, and impulse control (Fiore, Becker, & Nero, 1993).

While cognitive strategy training (CST) techniques have been shown effective for inattentive children, some critics argued that only Learning Disabled or normal children were aided while academically deficient ADHD children were not Ryan, Weed, and Short, 1986; Wong, 1985 (cited in Abikoff, Ganzales, Reiter, Blum, Foley, & Klein, 1988). CST in academically deficient boys on stimulant medication produced no basis for the belief that performance and academic achievement were positively affected; neither was their self-esteem or attributional perceptions of academic function (Abikoff et al., 1988). The authors stated that these results were not surprising considering the many sided academic impairment in ADHD children, given the fact that CST addressed only one side on the child’s problems. To see academic improvement one must
have addressed academic skills and relevant problem solving strategies. Douglas, 1980; Kaufman and Hallahan, 1979; Meichenbaum and Asarnow, 1979 (cited in Abikoff et al., 1988). Barkley (1990) noted that many cognitive intervention studies have addressed disruptive off task behaviors; however, there had been no concomitant improvement in academic achievement. The author suggested directly targeting areas in which changes were desired. This supported Abikoff's (1991) statement that there had been no empirically observed generalization of skills taught from one targeted area to another.

One study that of Kirby (1984) showed a positive result after including generalization training in the cognitive therapy intervention. The findings were still inconsistent and it had been shown that the majority of empirical evidence was against the usefulness of Cognitive Strategy Training (Abikoff, 1987, 1991). The cost involved in their widespread use, in light of the large number of staff that were required, had rendered them less acceptable. However, Barkley (1990) noted the value of Cognitive Behavioral Therapy (a type of Cognitive Strategy Training) when taught directly to the child's parents and teachers to be utilized in their many daily interactions with that child. Goldstein and Goldstein (1990) felt that CST were of definite value in improving academic skills. When used for certain techniques like self-evaluation/self-monitoring and presented to ADHD students who had the ability to do their assignments, but were unable to remember them as needed, these strategies were of benefit (Conners, 1993). Zentall (1993) suggested that for ADHD students their lack of attention was in
reality better described as an attentional bias that hinted at adequate attention, memory, and comprehension, but connected with certain time intervals, tasks, and circumstances. This attentional bias could cause deficits in educational performance. This author felt that all new, complicated, or unstructured tasks required selective attention. Any practised task that reached a uniform level required selective attention. The difference for the ADHD student was once the novelty wore off so did the sustained attention. Difficulty maintaining attention could and did lead to more serious errors in performance, and an increase in the students activity over the length of time eg the start to the finish of a test, assignment, or homework.

In repetitive educational tasks ADHD children had greater problems as they avoided rehearsal unless greatly reinforced Hallahan, Turner, Kauffman, and Graybeal, 1978 (cited in Zentall, 1993). It was also noted that activity (hyperactivity) in ADHD students was typically variable. Usually this had more social than educational consequences. Where it did impinge heavily upon educational outcomes was in situations such as: not knowing where their books were, failure to find or even attempt homework, incomplete assignments rarely if ever handed in. Again this was directly attributed to their insufficient repetition of activity patterns that would have established these routines.

Impulsivity caused many serious academic errors for the ADHD student. Their inability to wait, to think through or reflect on a problem handicapped them severely. They responded immediately to what was striking or instantly
available, therefore they did poorly on multiple choice questions, lacked proper
planning skills, did not read instructions or failed to wait for assistance.
Zentall (1993) noted that possibly the last one might have arisen from ADHD
students difficulty in formulating such requests for help. Acting on Zentall's
theories, the following series of principals that teachers might utilize in their
classrooms to remediate activity, impulsivity, and sustained attention were listed
by Fowler (1992):

Principals of Activity Remediation

1. Do not set out to reduce activity, rather channel it into admissible
   practices. The teacher might allow the student to have a Seventh Inning
   Stretch if it did not disturb the class.
2. Utilize the students activity level in a way that can be rewarded. The
teacher might allow this student to take the attendance down.
3. In planning lessons the teacher should include activities that require
   speaking, moving about the room.
4. Instruct the student how to ask questions that are pertinent to the topic at
   hand.

Principals of Impulsivity Remediation

1. Teach the student how to work on other tasks while waiting for
   assistance. The teacher could allow the student to work on something
   else, doodle, or even daydream. This might horrify some teachers, but it
   is a simple way to accommodate the ADHD student's needs.
2. Never assume that the impulsive outbursts or behavior are aggressive in origin. Teach the student not to interrupt i.e. how to conduct a proper conversation, how to listen when another student is answering.

3. Teach them appropriate social routines, how to greet people, how to thank people, how to ask for something.

4. Reward them for gradually increasing the length of time they can wait.

Principals of Sustained Attention Remediation

1. Shorten the time required on task.

2. Break tasks into small chunks.

3. Give directions as simply and concisely as possible.


5. Do not make time on task a goal unless the requisite alterations have been made in the student's environment.

Most researchers felt that a team effort of parents, teachers, guidance councillors, special education teachers, psychologists, administrators, and the adolescent functioned best (Barkley, 1990; Conners, 1993; Flore, Becker, & Nero, 1993; Robin, 1993). The University of California-Irvine, Child Development Centre had produced three such models for school-based intervention with elementary ADHD students. Barkley described them as the best education programs solely designed for ADHD students to be found in the United States. Their combined educational and clinical approach appeared to hold the best promise for the future, not only to serve ADHD students' needs,
but to reduce the likelihood of serious secondary antisocial problems developing in adolescence or adulthood.

All this seemed to imply that no single program could meet the requirements of all ADHD students. Practices unique to the ADHD adolescent were glaringly absent to date in the research (Burcham et al., 1993), and teachers looking for help in the literature were cautioned to remember that few of these interventions had been classroom tested, generalization was limited, and that researchers had failed to compare their results among heterogeneous groups of ADHD students (Fiore et al., 1993). A resolution of this problem would not prove to be an easy one. Barkley (1990) considered an ideal program of primary interventions would include: teacher and peer administered consequences, home-based consequences, CBT, and modification of factors related to academic tasks and the environment. This author along with Conners (1993), Goldstein & Goldstein, (1990), and Robin, (1993) recommended that treatment involved an integrated approach utilizing other interventions plus psychotherapy. It was felt that until adolescents had accepted the nature of their disorder, they were not likely to buy wholeheartedly into any help that was offered to them. To this end, individual therapy was recommended for the ADHD teenager (A.Robin, personal communication, October, 1993). Many students have not come to accept the reality of their disability despite parental reinforcement of professional diagnosis. Counselling should not depress them over what they can not do, rather it should seek to help them accept their
limitations and find ways to prevent their disability from creating significant problems for them (Barkley, 1990). Treatments must stress their individual differences and their strengths (leadership, spontaneity, creativity, and potential energy) that could be capitalized on effectively (Zentall, 1993). Goldstein and Goldstein (1990) suggested as did Robin (1993), that these initial goals might be accomplished to some extent in group sessions. All the authors agreed that an explanation of the nature of ADHD was central to the program, as was the role of medication in treatment. Methods of diagnosis, structuring of an educational program, and problem solving skills were also seen as vital components. The present study was based primarily on these.

C. The Present Study

Most ADHD children do not show problems that require long term psychotherapy; however, all ADHD children are faced with repeated failures that make them good candidates for the development of an external locus of control, feelings of helplessness, and no ability to come to grips with their difficulties in meeting the expectations of their environment (Goldstein and Goldstein, 1990). In children with externalizing behavior disorders, especially ADHD, when compared to normal children of comparable intelligence, the likelihood of failure for the former is 2% to 3% greater, and in adolescents delinquency definitely appears associated with school failure (Hinshaw, 1992). Years of skill deficit produced a serious history of negative interaction with the
environment which significantly impacted upon the student's personality producing life-long patterns. Much research was needed before any definitive treatment prescriptions would be realized for students who exhibit the duo of externalizing behavior and academic failure. The present study addressed these research findings.

Goldstein and Goldstein (1990) recommended that all ADHD children should experience a short term counselling program enabling them to develop an understanding of how they coped with their environment, and the reasons for the difficulties they experienced. This was the basis for the "cognitive awareness" approach of the present study. By raising the students knowledge about and perception of their disorder, it was hoped that they would interact more efficiently with their environment.

Recognizing that the preferred multimodality treatment was unavailable to the majority of Windsor ADHD secondary students, the intervention was designed to provide group support for four adolescent ADHD boys in a semestered secondary school, who were experiencing academic and behavioral difficulties. The reason for choosing a weekly group set up was influenced by the belief of Goldstein and Goldstein (1990) that a small group discussion setting was preferable as many ADHD students were not good candidates for larger group settings where their hyperactivity, impulsivity in blurring out responses, and difficulty staying focused on the task could cause serious problems. Upon completion of the initial stages of the sessions it was felt that
motivation and improved coping skills could be addressed through cognitive strategy training without the adverse effects of the aforementioned problem behaviors. Since the research indicated that a group leader must be sensitive to the fact that ADHD students frequently have issues relating to themselves, their families, and their teachers; a means of dealing with such needs was built in by having the students help to design the group format to include a special time for this.

In any educational intervention it was absolutely essential that the classroom teacher had a basic understanding of the nature of ADHD. Informed teachers are active, motivated participants in the treatment, whereas ill informed ones may be uncertain, passive, and resistant to change (Goldstein and Goldstein, [1990]). Barkley (1990) suggested that in the short term a positive teacher-student relationship was beneficial to improving academic and social functioning, and that it might increase the chance of long term success. Therefore it was recognized that the teachers were an integral part of this study. Fourteen were involved with the 4 boys due to the timetabling set up in a secondary school. Their permission and cooperation, their responses to the Conners Teacher Rating Scales-28 (CTRS-28) questionnaire, and their ultimate evaluations were vital to the program. Accordingly a Teachers' Workshop was held early in the intervention to educate and inform them about ADHD and the purpose of this study.
The boys' sessions were thought to be inexpensive to run, capable of promoting feelings of self-worth, a ready means of developing skills that might be generalized to other areas, and it was hoped that the sessions would teach the boys ways to advocate for themselves at school and with their families.

D. **Research Questions and Hypotheses**

Based on the review of the literature the following research question was addressed: After a course of cognitive awareness training, would there be a difference in the teacher rated behavior and the academic achievement of mainstreamed adolescent ADHD boys in a semestered secondary setting? The following results were hypothesized:

1. The cognitive awareness training would be effective in improving academic results reflected in the subjects' final exam marks.

2. The cognitive awareness training would be effective in lowering the teachers' perception of the severity of the subjects' reported behaviors at posttest.

3. The cognitive awareness training would be effective in lowering the frequency and severity of disruptive behavioral incidents in the classroom.

4. The boys would wish to continue with the group sessions due to these positive results.
5. The teachers would show an interest in learning more teaching methods and strategies appropriate for the needs of ADHD students in their classrooms.

6. Since this study had to be descriptive by nature due to the small sample size, it was felt that other hypotheses would arise during the course of the intervention, and that they would be addressed as they appeared and affected the group.
A. Subjects

The subjects, 4 ADHD males were drawn from one school population. All of them had been professionally diagnosed as ADHD prior to their entry into secondary school. This was particularly important as clinically referred and diagnosed children share a disorder, and it was felt that students identified from non referred samples could include a wider group of students with behavioral difficulties, only some of whom actually had ADHD (Abikoff & Klein, 1992). They ranged in ages from 14 to 16 years. At the time of the study they were mainstreamed in regular classrooms at the advanced and general levels. All showed average to high average scores on the Wechsler Intelligence Scale for Children - Revised (WISC-R), Full Scale IQ ranging between 85 and 115. All had experienced at least one failure in previous semesters, and possessed a record of behavioral incidents in their Ontario Student Record (OSR) folders, and in the Vice Principals' Anecdotal Records, or had self disclosed such incidents in conjunction with their parents prior to the formation of the Group. At the time of the study they were experiencing behavioral and academic difficulties, and had been referred to the Learning Support Teacher (LST) for academic assessment and/or assistance. One of the students in the study had
been personally requesting help from the LST for two years prior to the beginning of the Group.

Consent to proceed with this study was obtained from all the parents in private conferences. However, the subjects themselves were interviewed and acquainted with the purpose of the study, and without their personal consent the study would not have proceeded. To protect their anonymity the subjects were referred to from eldest to youngest as S1, S2, S3, and S4. All the Mothers reported that their pregnancies had been without incident, their deliveries normal, although S4 had been in an incubator for 24 hours at birth. Every boy had reached developmental milestones at appropriate times.

All the boys were described as very active toddlers. Two of them S2 and S4 had required stitches for mild head injuries due to falls resulting from their active lifestyle. S3 and S4 had allergies and suffered from ear infections, and all the boys had siblings at home who did not show the symptoms of ADHD. However, two of the Mothers confessed to showing the same behavior patterns as their sons did, and one parent had a brother who had ADHD. S3 was the only one whose Mother was unaware of any other ADHD individuals in the family, although a psychologist's report in his OSR revealed that his Father was supposedly ADHD.

S1: Was the eldest in the group 16.5. He had attended three different elementary schools before entering high school age 13.11. He was
described by his grade school teachers as impulsive, aggressive, easily
distracted, and yet, they reported that he learned easily with little effort.
Typical comments on his report card indicated that he needed to
exercise better self-control, to take more care with and responsibility for
his work, constantly failed to hand in work, tended to waste time and
assignments if done were poor or incomplete. The comment that he
found it difficult to socialize with his peers because of his inappropriate
behavior appeared often. There were several behavioral incidents on the
playground that required notifying his parents, and several in school
suspensions had occurred in the early grades followed by out of school
suspensions in grades 6 and 7. His father noted that S1 had a strong
fascination with fire and set fires on several occasions, and that he often
cut things up with knives. By this time he was described as
academically still strong, but his parents, encouraged by the school,
decided to take him to a psychiatrist for a private assessment. This was
the first time he was placed on Ritalin to control his hyperactivity. There
were some problems with the medication and as alternatives he tried
Cylert (Pemoline) and Dexadrine. In 1990 S4 entered high school. At
the end of the first semester his final average was 59.0, and he had
passed all 4 subjects. By the end of the second semester his final
average was 55.0; however, he had failed 3 of his 4 subjects and had
been given a passing grade of 50 in them to allow promotion to grade
10. The next year there were similar results. In the first semester he had an overall average of 61.3, but had failed one subject. Correspondingly in the second semester his average was 58.3, and he had failed one course and been given 50 in it to allow promotion to grade 11. He started to take Ritalin again, but at a very high dosage, and his mother arbitrarily stopped giving it to him as his hyperactivity seemed to be under control. He then moved into the district of the school in which this study was conducted. It was on the basis of his grade 10 marks and some behavioral concerns (inattention, failure to complete answers on tests) raised by the teachers in his new school that he was referred to the LST for assessment and support. A WISC-R was administered at this time by the school psychologist. S1's intellectual functioning was within the High Average range (84%ile, 109-120 DIQ) with little difference noted between verbal/linguistic functioning (84%ile, 108-120 DIQ) and visual/spatial functioning (79%ile, 103-119 DIQ). Significant short term memory difficulties for both auditory and visual information were noted. At this time he still suffered from a lingual lisp that had been addressed early in his elementary career.

S2: Was 16.3 when the study began. His Mother noted in the Social and Health History record, completed when he was enrolled in school, that he had been born with a slight heart murmur, had no allergies, and
as a result of an accidental head injury when 5 years of age the Public Health Nurse visited the family regularly. He was the eldest of three children. As a toddler it was recalled that he had frequent colds, sleeping difficulties, bed wetting, fears and tantrums. Later he was often angry and would fall down and bang his head, was afraid of bugs and dark windows. He was taken to a local psychiatrist for assessment because of these behaviors. S2 was immediately put on Ritalin to calm him down his Mother had stated. He entered the Head Start Program at his local Public School and was described as bright, making good progress except that he had some difficulty in listening and speaking. In grade 2 mention of his behaviour surfaced again as he had difficulty sitting still and listening. The following year in grade 3 although his academic marks were all very good, the teacher noted he was very talkative, poor at listening, and needed immediate gratification at the expense of his classmates. In grade 4 His Mother decided to stop giving him Ritalin. There followed a litany of behavioral incidents after this. His teacher felt that he required constant supervision, was easily distracted and seemed to enjoy disrupting others; while at the same time he was extremely careless, and often failed to complete assignments. The next year there was a change in his teacher’s comments. His fine academic performance was praised, and even though some behaviour problems were described, they appeared less troublesome to this particular
teacher. On speaking to that teacher at the time of the study, it was learned that something traumatic had happened to S2 at this time, although the school never knew officially what it was, but from that time on things just seemed to fall apart for him. From grade 5 to grade 8 the number of problems with inattention, poor immature behaviour, missed assignments, constant wasting of time, lack of preparation for tests, lack of cooperation, and lack of effort (although he did get 100% in French one year, and his love of Music was apparent), increased dramatically. By grade 8, in 1990 he was again taken to a psychiatrist and assessed as ADHD and placed on Ritalin for yet another time. However, S2 stated that he did not like the side effects of his Ritalin, that he felt out of control over his body and being quite short in stature he was afraid that he would never grow. He pretended to take his medication and sporadically would try it again, but he admitted that he never stayed on it long enough to find the appropriate dosage or get over the initial side effects. It was at this time that his negative attitude was first mentioned by his teacher.

He entered high school at the age of 13.9 years and got off to a very poor start academically and behaviorally. Classroom disruptive incidents occurred constantly; documentation of truancies, talking back and swearing at teachers at the slightest provocation were legion. S2 soon developed a reputation that was to haunt him through out all his
scholastic endeavours. Despite several suspensions, conditional re-admissions, interviews with both his parents, nothing seemed to have any effect on his behaviour. It should be noted that his Mother had not informed the secondary school of the ADHD diagnosis until two years after his entry. Then in 1992 the parents were to have taken S2 to the psychiatrist for more testing, and the family were to follow up with a return to stimulant therapy. The LST was supposed to have been informed of this by the Vice Principal as recorded in his log, but this never was done. However, S2 sought this person out at that time and asked if LSTs ever worked with bad kids? He would return again the following year and ask the LST to help him.

Academically things went no better. In the first semester of grade 9 he passed three subjects and was given a 50 to pass in the fourth one. Second semester was identical, yet his final average was 66. The following semester he passed two and failed two subjects, final average 50.5. The second semester again he failed two and passed two subjects, final average 57.5. The next year in the first semester, failed two passed two, however, the final average was now a failing grade of 44.0. It was at this time that he was referred officially to the LST who contacted the school psychologist and together they met with the parents to try to work out a program to assist S2. Because he had come on two separate occasions to ask for help with his problems, the LST felt that
the situation merited special assistance and this study was born. S2's intellectual functioning was in the High Average range FSIQ score (114), Verbal Scale IQ (120) and Performance Scale IQ (106).

S3: Was 15.7 at the beginning of this study. His Mother reported that at the age of three he had undergone a tonsillectomy due to chronic ear problems. His hearing abnormality was confirmed when he was five years old. The eldest of two children, as a preschooler he was described as having a history of temper tantrums, and behavioral difficulties. In grade 1 he was described as spaced out in class, unable to listen or follow instructions often having to have them repeated, having an extremely short attention span, easily distracted, and requiring constantly to be brought back onto task. On a WISC-R his FSIQ was 97 (average range) with a verbal IQ 95, and performance IQ 101. Therefore, it was decided to refer him for a formal neuropsychological assessment. It was discovered that there was mild dysfunction of lateral aspects of the left temporal and prefrontal regions of the brain. His intellectual functioning fell at the lower end of the average range of capabilities. After this it was suggested that he be placed on Ritalin, and S3 was shortly thereafter referred for a psychiatric evaluation, the reasons given were: hyperactivity associated with short attention span, poor attentive ability, easily distracted, poor peer relationships, and
perceptual problems with both verbal and auditory information. All during this time S3 was in speech therapy for a lingual lisp. Here progress was slow hampered by his short attention span. The result of this assessment was that S3 was diagnosed as having Hyperkinetic Syndrome of Childhood and the clinician also noted that his Father was hyperactive. In 1989, S3 was again referred for a Psychological assessment at the request of his grade 5 teacher. His overall level of cognitive functioning fell within the Low Average range of psychometric intelligence (18%ile, 81-91 DIQ) no significant difference between verbal/linguistic related areas (16%ile, 80-90 DIQ) and visual/spatial related areas (25%ile, 85-95 DIQ). After the assessments, a detailed summary of teaching strategies was listed to be utilized by S3's teachers. They included giving him a great deal of structure, hands on experiences with multiple clues, teaching him verbal mediation methods and encouraging him to talk through all steps, make verbal directions concise, and a caution to remember that this boy needed assistance in organizing and regulating his behavior. At the time of the study there was no indication in his OSR that any of this had been put into practice. Comments of homework not done or full of errors, impulsive, careless, blurts out answers, continued to appear with regularity in his report cards. Within three years he had been withdrawn from the regular classroom for extended periods, and it was suggested that a program of
Behavior Modification be set up in his classroom. This was never done.

The following year another educational and psychological assessment were conducted because of his constant inability to attend, behavior problems, short attention span, poor progress, lack of effort, lack of academic progress, and low self image. It was noteworthy that his Canadian Achievement Test was invalid due to his impulsive, guessing behavior while taking it.

The psychological report noted that his intellectual functioning was within the Low Average Range (18%ile 81-91 DIQ), with no significant difference in verbal/linguistic score (16%ile, 80-90 DIQ), and visual/spatial 25th %ile, 85-95 DIQ). These findings indicated the same difficulties reported in the earlier assessment; however, there was now a significant difference in the severity of the problem. It was now regarded as moderately severe as opposed to the original diagnosis of mild. Also his academic achievement relative to his peers had dropped to low average. There being no exceptional category for ADHD students, he was designated as Learning Disabled and placed in a Specific Learning Disability classroom. At this time no attempt was made to deal with the ADHD. He therefore continued without proper support, to exhibit serious behavioral problems, was disrespectful of teachers, defied authority, and had great difficulty with personal problems in relation to his peers and to adults.
Upon entering high school half way through the academic year at the start of the second semester, these problems continued to haunt him. He was enrolled in three subjects, spending one period a day with the LST due to a timetable mix up. There followed a series of disruptive behavioral incidents reported by all his teachers, including the LST. His parents were called into the school on several occasions because of these. By the end of the semester he had failed two subjects, and just passed the third. His final average was 48%. The next semester directly preceded this study, and he was given one credit, passed (56) one subject, and failed the other two, final average 47%. He was referred to the LST, became a member of the Group, and happily participated in the study.

S4: Was the youngest of the Group, turning 15 on the first day of the second semester when this study began. He was the eldest of three children, having younger twin sisters. His Mother reported no complications during her pregnancy, although he had been in an incubator for 24 hours at birth. All developmental milestones were reached somewhat early especially creeping, walking, and talking. Like S2 he was a very active child and required stitches for a head injury when the was three and a half years old. He was allergic to chocolate, red food dye, and grape drink his Mother stated. He was reported to be
healthy when he was enrolled in the Head Start Program; however, his
Mother expressed some concern over ear problems that occurred in the
winter, a runny nose, and frequent rashes from harsh soaps. She
reported that he was nervous, over active, clumsy, and a discipline
problem. S4 was ambidextrous, had good manual dexterity, but he was
small in stature and weighed only 44 pounds. He was placed in the
Head Start Program in May prior to entering kindergarten in September.
His first day was successful, but thereafter difficulties arose. He was
seen as too sociable, having poor listening skills, very aggressive both
verbally and physically, and constantly in need of praise. It was felt that
S4 had a good deal of potential if he could develop more self discipline,
and that he could be helpful when he put his mind to it. It would appear
that he was a noisy child as there were constant references to him using
his big voice as opposed to his little voice one assumed.
In August, S4 and his family were at the beach for a weekend outing.
S4's Father was caught in an undertow and drowned while S4 looked on.
In the following month he entered kindergarten. His report card
indicated very good progress academically and behaviorally. All the
comments were positive. S4 was felt to be a creative child with a good
sense of humour (something he still exhibits), who enjoyed taking part in
discussions. His results on the Smith-Francis Reading Readiness Test
were at the 97th percentile. Yet in grade 1 difficulties in completing seat work,
concentrating, sitting still, and talking out were readily apparent. Now he also had difficulty creating stories on paper on his own, but orally was very good at this task. It was also noted that he was an energetic child who was not eager to please. His teacher found that he needed constant reminders to stay focused, and was concerned that even though he was promoted into grade 2, he would need much support or he would fall behind. This turned out to be a self-fulfilling prophesy as the next year he failed grade 2. His teacher reported cryptically on the second time around that everything was developing as expected. S4 tended not to listen, did not pay close attention to the lessons when they were being taught, did not work hard enough to succeed, could not wait for his turn, was unaware of the rights of others on the playground, was easily distracted, and tended to rush through his work with no apparent concern for neatness or accuracy. His report cards for this grade and the next were missing from his OSR, but a referral to a School Education Conference Committee (SECC) was initiated as his academics were falling apart. An educational assessment at this time, using the Peabody Individual Achievement Test (PIAT), indicated that he was performing at grade level at the 72%ile, and his score on the Peabody Picture Vocabulary Test (PPVT) was at the 63%ile. Therefore, at this time his mother decided to send him to a private religious academy, where he entered grade 4 in September. There appeared to be some
improvement in academics at this time, but the easy distraction, lack of concentration, lost, misplaced, or incomplete assignments were still plaguing him. S4 continued to exhibit too much aggression on the playground, to talk out too much, and to require much more self discipline. Apparently he was also guilty of some sinful secular activity causing his grade 5 teacher to note that devotion time was not meant for merry making. By grade 6 there was great improvement. No negative comments were recorded, indeed he seemed to be maturing and controlling his verbal outbursts while sharing with others. In grade 7 things fell apart again and S4 was resorting to all his former behaviour patterns, although it was declared that he had a good foundation in the Christian faith.

Interestingly S4 was always described as showing genuine if sometimes misguided kindness which brings to mind the comments of his kindergarten teacher about his pleasant sense of humour. At the grade 8 level this same strength was mentioned when he was taken by his Mother to be assessed by a neuropsychologist. The results indicated that S4 was mild ADHD. His WISC-R FSIQ was 100 (50thile), with a Verbal IQ of 91 (27thile), and Performance IQ of 109 (73thile). His higher order processing deficiencies were noted and his specific areas of difficulty were explained for his teachers. Several remediation techniques were suggested for them to use. It was stressed that now
and in the future it was important for S4's teachers and the school
personnel involved with him to understand his pattern of strengths and
weaknesses in order that goals and expectations could be set for him
that would be within his capabilities. The entire report was sent to the
secondary school that he was to attend in September, in the expectation
that all his teachers would be informed of its contents. It was filed in his
OSR and remained there until his first semester English teacher,
desperately searching for some clue to S4's violently unorthodox
classroom behaviour and lack of academic success, found it and notified
the LST. It should be noted that his Mother believing that the staff was
aware of S4's disorder did not mention it at the first Parent Teacher
Interviews.

He managed to pass all his courses that semester with a 63% average,
and by this time he was working with the LST who placed him
immediately on the list as a candidate for the Group as a possible way to
rectify the damage done the school's serious oversight. He was
immediately presented as a candidate for IPRC and was designated as
an exceptional pupil.
B. **Instrumentation**

The following tests and measures were used to obtain the data used in this study:

1. **Wechsler Individual Achievement Test (WIAT)** was used to determine a base level for academic achievement, and to rule out the possibility that serious academic deficits were a cause of problem behavior in the subjects. This test is a comprehensive measure for determining academic difficulties and learning disabilities, and is suitable for ages 5 to 19. Standard scores are produced by age and grade, percentiles and grade equivalents. Norms for fall, winter, and spring are available, and the validity of the data has been tested on special groups including ADHD students.

2. **Conners’ Teacher Rating Scales-28 (CTRS-28)** is a list of 28 behaviors characterizing patterns of behavior that can be rated by teachers with 1 of 4 responses: not at all, just a little, pretty much, and very much (Appendix B). There are 4 categories: A Conduct Problem, B Hyperactivity, C Inattentive-passive, and D 10-item Hyperactivity Index. It is used by clinicians when assessing ADHD. Originally it was designed to identify hyperactive children, characterize their behaviors, and compare them to levels of appropriate normative groups. However, after many years of research it has proven useful in characterizing symptoms of other behavioral problems. Quick-Score forms include all
the necessary material for administering, scoring, and profiling the
instrument, and the CTRS-28 can be administered to multiple teachers
simultaneously. Raw test scores are converted directly into t-scores,
which have a mean average of 50, a standard deviation of 10, and are
linear. Utilizing the interpretive guideline table provided by Conners t-
scores can be interpreted.

In this study the ratings given by the teachers were used as a
convenient means to determine which behaviors affected the individual
classroom teacher, and to what intensity. Utilizing Conners' interpretive
ranges as a basis for a pretest and posttest approach, the effect of the
intervention upon these could then be analyzed.

3. The Cognitive Awareness Instruction program was developed by the
researcher to be used in a series of group sessions. Cognitive
Awareness for the purpose of this study referred to a heightened state of
knowledge brought about by instruction that allowed the subjects to alter
their perceptions, and thinking skills about their ADHD, thereby providing
them with an internal locus of control over their daily functioning in
specifically targeted areas. In this sense cognition equated with
perceiving, knowing, and thinking. The instruction was designed
following the pattern of the group therapy sessions described in the
various multimodal treatments noted in the Literature Review in Chapter I
(Barkley, 1990; Conners, 1993; Goldstein & Goldstein, Robin, 1993). It consisted of the following topics:

a. An explanation of the nature of ADHD as seen from an historical perspective, current definitions, threats to adolescent development and success in school.

b. Diagnosis and Assessment of ADHD explaining how the following are used: rating scales; teacher, parent, and student questionnaires; interviews, and physical examinations.

c. A simple survey of brain anatomy as understood by the students from their Biology courses, followed by an examination of its relationships to currently accepted causes of ADHD; myths about medication, its side effects, and alternatives to Ritalin; information processing, and cognitive skills.

d. School problems were addressed. As alternatives to present thinking, cognitive strategies and problem solving models were discussed, and strategies developed to meet the situations that each student perceived to be deterring them the most. These individual strategies were rehearsed in the sessions, and were then put into practice in each individual's classroom.

e. Personal responses to ADHD were considered, the sessions evaluated, and follow up was discussed.
4. Vice Principals' Logs (VPL) were surveyed to assess the frequency of classroom behavioral incidents and the severity of consequences resulting from classroom expulsion due to disruptive behavior.

5. Ontario Student Record (OSR) file survey provided the data needed for sample selection, and was the source of past school histories and marks from the previous semester.

C. Procedures

Initially the study was discussed with the school Principal, whose consent was sufficient to satisfy the needs of the Board of Education for the City of Windsor's Research Committee. At this time a report of the proposed study was scrutinized and filed before the study was begun. A review of the OSRs and VPLs was conducted to identify the possible population from which the sample would be selected. Immediately following selection of the sample their parents were contacted and their consent was obtained. Before the study could begin, the 4 students selected for the sample were interviewed privately to ascertain if they wished to participate in it, and to allay any personal doubts or concerns that they might have about the proposed study.

This single group received instruction to enhance their perceptions of their disorder for a period of 15 consecutive weeks during one semester of their secondary school career. Forty minute weekly group sessions were conducted on a 4 period rotational basis to ensure lost class time was shared equally
during the period of the study. These sessions were held in the LST Resource Room and taped in order that they might be played back to the students when conditions in the group sessions rendered the moment appropriate in the eyes of the researcher, and or the students.

At the first formal session the boys were acquainted with the purpose of the group, that of ADHD student support within their school environment. They were told that the support group had been requested originally by a member of their current group, and the proposed format of the group was discussed with them. Opportunity was afforded them to help design this, specifically to build in a place in the structure of the group sessions to accommodate the very typical ADHD students' need to vent their frustrations over difficulties encountered in their school environment in a constructive manner. As a result the first and the last five minutes of each session were available to them to talk freely about any problem that was hampering their successful functioning in the classroom, without the tape recorder running. The boys were allowed to decide the order of priority for these needs, and their decisions were not challenged by the researcher. Originally the boys agreed to keep logs of these problems, and were given notebooks that could be brought to each session for the purpose of deciding what problem they would address at the next meeting. The researcher soon learned the full implication of the comment that ADHD children forget to remember, and the notebooks were subsequently recycled for use as folders in which to keep materials generated during the sessions.
To facilitate proceedings and indirectly reinforce methods of curbing impulsivity in the classroom and when dealing with peers, it was agreed that only one person was allowed to speak at any time. Visual cues to ensure this were put in place, and strictly enforced. As the sessions proceeded a few changes in their structure were made, if the group and the researcher felt that they would benefit the boys and the purpose of the study. It was agreed that if topics or concerns arose directly from the materials presented in the sessions, they would be addressed by the researcher or any member of the group who had knowledge or experience in that area.

From the start commitment to the group was mandatory, and respect for the needs of the other members was a requisite for membership. As it turned out these concerns were never a problem. The boys bonded successfully from the start, and all sessions thereafter followed the general mode of active learning with the researcher leading the instruction initially, and gradually fading into the role of facilitator and ultimately resource source by the end of the intervention. By doing this it was hoped that the sessions would reinforce some of the teaching methods used in the boys' classrooms, and at the same time provide the novelty of approach that is so vital to the ADHD student.

After the first meeting to set the ground rules, the subjects were asked to produce a list of individual areas of concern that proved troublesome to them. Their responses included anxieties over their medication, whether their behavior was in reality fun or grief causing for them, and their feelings of less worth in
the eyes of their peers if they knew that they had ADHD. Since these
dovetailed neatly into the planned study sessions, it was decided to proceed
with those previously selected topics of the Cognitive Awareness Instruction
(Table 3) as planned by the researcher.

The third session presented an abbreviated version of the convoluted
history of ADHD. This was utilized as a vehicle from which to address a
general definition of ADHD. From here a session was held to discuss
neurological features of the disorder, having first presented some basic brain
anatomical structure review utilizing a colouring book approach. This led neatly
into the session on medication and some of its side effects, and the following
session on Information Processing utilizing Kirby and Williams (1991) approach
(Appendix B). The sessions progressed to a discussion of the Integrated
Cognitive Behavioral Model (Goldstein & Goldstein, 1990). Based on this
model the subjects produced an adapted form that they felt met the behavior
that was currently the most troublesome for them, and that they could handle in
their individual classrooms (Appendix C).

At this stage of the study, having obtained the needed support of the
school administration, an inservice workshop was conducted with the teachers.
They filled out the CTRS-28 on each boy that they taught that particular
semester. The nature of ADHD was explained to them, as was the design and
purpose of the study. Information packages on ADHD complete with teaching
suggestions (Appendix D) were handed out. In the next session the CTRS-28
TABLE 3

Proposed Schedule for Cognitive Awareness Training

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explanation of Study, Subjects' Contribute to Design, Ground Rules</td>
</tr>
<tr>
<td>2</td>
<td>Discussion Subjects' Areas of Concern as a Directive for Future Sessions</td>
</tr>
<tr>
<td>3</td>
<td>History of ADHD</td>
</tr>
<tr>
<td>4</td>
<td>Diagnosis and Assessment of ADHD/Teacher Information Workshop</td>
</tr>
<tr>
<td>5</td>
<td>The Brain and ADHD</td>
</tr>
<tr>
<td>6</td>
<td>Medication: Myths and Realities</td>
</tr>
<tr>
<td>7</td>
<td>W.I.A.T. Administered privately to each Subject</td>
</tr>
<tr>
<td>8</td>
<td>Information Processing: What, How, Where, and Why</td>
</tr>
<tr>
<td>9</td>
<td>Cognitive Strategy Interventions</td>
</tr>
<tr>
<td>10</td>
<td>Goldstein and Goldstein's Integrated Behavior Model: Explained and Adapted to Subjects' Unique Needs</td>
</tr>
<tr>
<td>11</td>
<td>Personal School Problems derived from Subjects' Personal CTRS-28 and Teachers' CTRS-28 Ratings used to Create Individual Strategies for each Subject</td>
</tr>
<tr>
<td>12</td>
<td>Observe Utilization of Strategies in the Classroom</td>
</tr>
<tr>
<td>13</td>
<td>Observe Utilization of Strategies in the Classroom</td>
</tr>
<tr>
<td>14</td>
<td>Discussion of Strategies with Subjects related to Utilization in the Classroom</td>
</tr>
<tr>
<td>15</td>
<td>General Evaluation, Where to next semester?</td>
</tr>
</tbody>
</table>
was explained to the boys. They were asked to fill out their responses to their
own behavior just as their teachers had done. The researcher then tabulated
the results from the two groups and in the next session the subjects had a
chance to compare their results with those of their teachers.

At the same time the WIAT was administered individually to each
student. This was done to obtain a current assessment of the subjects' 
academic achievement level for comparison with their academic results after
the Cognitive Awareness Instruction program ended one week prior to their final
examinations for the semester. It also afforded the researcher a good
opportunity to note the unique features of each subject's reaction and approach
to testing for possible feedback to their teachers.

The next sessions were utilized to ascertain what areas of their
environment were most troublesome for the students, and to train them in
individual cognitive strategies that they helped create, following the steps listed
in their revised version of the Integrated Cognitive Behavioral Model. Finally
these strategies were to be taken back to the individual classrooms for use by
the subjects with their teachers' permission.

Data collection from OSRs and VPLs continued throughout. At the end
of 15 weeks the teachers completed a posttest CTRS-28, and filled out a
questionnaire on their response to the ADHD workshop information.
Concurrently the students completed an evaluation of their group sessions.
When final examinations were over, the students results were recorded, and the data analysis begun.

D. Data Analysis

Since the convenience sample was so small, it was necessary to employ descriptive statistical measures to summarize the data obtained during the study, and then interpret it. However, t-scores were obtained from the classroom teachers' responses to the two CTRS-28. This data was scrutinized to determine if there was a change in the central tendencies on pretest and posttest behavior data. Comparisons were made of the subjects' WIAT results and their actual exam results to see if they performed at a level commensurate with their individual achievement levels. Results of the Teacher Workshop Evaluation and the Subjects' Evaluation of the Group Sessions were tabulated and interpreted. Any data or observations that had arisen during the course of this descriptive study were noted, analyzed, and related in the appropriate section or in the concerns raised in the Discussion in Chapter IV.
CHAPTER III

RESULTS

A. WIAT

The total composite scores of the subjects revealed that all of them were above the mean value for ADHD children as predicted by the WIAT in Table 4. S1's total score was 112 placing him at the upper limit of the second Standard Deviation (SD) above the total mean. S2's score of 104 placed him in the second SD above the total mean, and S3 and S4 with identical scores of 94 fell within the first SD above the total mean. The composite scores of the WIAT are grouped under the general headings of: Reading, Mathematics, Language, and Writing. The subjects' individual scores in these areas are summarized in Table 5. All were located in the first SD above the composite mean for the Writing section. S1's Reading, Mathematics, and Language scores, 110, 110, and 120 respectively, fell in the second SD above the composite means. S2's Reading score 113 was at the upper limit of the second SD above the composite mean, Mathematics 106 was at the upper limit of the first SD above the composite mean, and Language at 96 was down at the lower limit of the first SD below the composite mean. S3's scores of 100, 90, and 110 respectively, placed him in the first SD above the composite mean for Reading.
TABLE 4

Means and Standard Deviations of WIAT subtests and Composite Scores for Children with ADHD

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>91.3</td>
<td>11.7</td>
</tr>
<tr>
<td>Mathematics</td>
<td>92.2</td>
<td>15.3</td>
</tr>
<tr>
<td>Language</td>
<td>106.0</td>
<td>10.3</td>
</tr>
<tr>
<td>Writing</td>
<td>87.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Screener</td>
<td>89.6</td>
<td>16.4</td>
</tr>
<tr>
<td>Total</td>
<td>92.5</td>
<td>9.8</td>
</tr>
</tbody>
</table>
TABLE 5

Subjects' WIAT Composite Standard Scores

<table>
<thead>
<tr>
<th>Subject</th>
<th>Reading</th>
<th>Mathematics</th>
<th>Language</th>
<th>Writing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M=91.3</td>
<td>M=92.2</td>
<td>M=106</td>
<td>M=87.2</td>
<td>M=92.5</td>
</tr>
<tr>
<td></td>
<td>SD=11.7</td>
<td>SD=15.3</td>
<td>SD=10.3</td>
<td>SD=13.3</td>
<td>SD=9.8</td>
</tr>
<tr>
<td>S1</td>
<td>110</td>
<td>110</td>
<td>120</td>
<td>96</td>
<td>112</td>
</tr>
<tr>
<td>S2</td>
<td>113</td>
<td>106</td>
<td>96</td>
<td>101</td>
<td>104</td>
</tr>
<tr>
<td>S3</td>
<td>100</td>
<td>90</td>
<td>110</td>
<td>89</td>
<td>94</td>
</tr>
<tr>
<td>S4</td>
<td>88</td>
<td>99</td>
<td>112</td>
<td>91</td>
<td>94</td>
</tr>
</tbody>
</table>
down slightly below the composite mean for Mathematics, and in the first SD above the composite mean for Language. S4 was in the first SD below the composite mean for Reading with 88, in the first SD above the composite mean for Mathematics with 99, and 112 in Language was in the upper region of the first SD for the composite mean.

A graph constructed to record the subjects' percentiles for these composite test results (Figure 2), indicated that some areas were definitely troublesome to the subjects. Language was low for S2, S3 had difficulty in Mathematics and Writing, while S4 appeared to have problems in Reading and Writing. S1 was the only student in the group who appeared to have no specific areas of concern. An ipsative comparison of the mean subtest scores carried out in the development of the WIAT revealed that ADHD children's lowest scores occur for Basic Reading, Spelling, and Numerical Operations. This hypothesis was felt to be valid as these subtests require the greatest concentration and attention to detail. It was noted that all these skills are required for success in a secondary academic setting, and that it was possible that they could have a negative influence on examination results. However, it should be noted that at the time of testing S4 was taking courses at the advanced level and meeting with success, while S1, S2, and S3 were taking courses at the general level. It was felt that these findings were typical of ADHD students' results on the WIAT and that the subjects could be considered to have sufficient academic achievement to date that would allow them to
Figure 2. Comparison of Subjects' Composite Subject Percentiles - WIAT

[Graph showing percentiles for Reading, Mathematics, Language, and Writing for subjects S1, S2, S3, and S4]
perform successfully in their current academic placements. Therefore it should be possible to rule out lack of basic academic skills as a reason for poor academic performances past and present.

B. **CTRS-28**

Using the CTRS-28 as an instrument by which the teachers could provide pretest and posttest ratings on the subjects yielded a broad spectrum of results. Not all 4 teachers for each individual student took part in the pretest and posttest. Therefore only only 3 teacher ratings for each of the categories were utilized for each student to provide consistency. It should be noted that the 3 teachers were not the same individuals for each of the subjects. This is normal in a secondary setting where different course selections, different levels of difficulty, and different grades preclude all students from sharing the same teacher for any individual subject.

For purposes of comparison the teachers' ratings were grouped according to Conners' ranges listed in Table 6. It appeared that the subjects were seen by different teachers in quite disparate lights. The ranges covered included anything from very much above average through to slightly below average in both the pretest and posttest results. The overall levels of increase from pretest to posttest went as high as 4 ranges in Category A Conduct problems, Category B Hyperactivity, Category D Hyperactivity Index, with the
<table>
<thead>
<tr>
<th>RANGE</th>
<th>GUIDELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 70</td>
<td>Very much above average</td>
</tr>
<tr>
<td>66 to 70</td>
<td>Much above average</td>
</tr>
<tr>
<td>61 to 65</td>
<td>Above average</td>
</tr>
<tr>
<td>56 to 60</td>
<td>Slightly above average</td>
</tr>
<tr>
<td>45 to 55</td>
<td>Average</td>
</tr>
<tr>
<td>40 to 44</td>
<td>Slightly below average</td>
</tr>
<tr>
<td>35 to 39</td>
<td>Below average</td>
</tr>
<tr>
<td>30 to 34</td>
<td>Much below average</td>
</tr>
<tr>
<td>Below 30</td>
<td>Very much below average</td>
</tr>
</tbody>
</table>
exception of Category C Inattention, where an increase of only 2 ranges was the greatest observed.

S1's results from pretest to posttest (Figure 3) for teachers one (T1), two (T2), and three (T3), indicated positive results with lowered t-scores in Category C Inattention for all teachers, and in Category D Hyperactivity Index for two of the three teachers.

T1  These ratings were the only ones to show lower t-scores from pretest posttest: In Category A results in the same range, average, with t-score lowered from 71 to 68 at posttest. Category B down 1 range from above average to average, t-score lowered from 62 to 51 at posttest. Category C lowered range, slightly above average to average, t-score lowered from 57 to 55 at posttest. Category D down 1 range, much above average to above average, t-score lowered from 68 to 63 at posttest.

T2  Rated Category A up 1 range from slightly below average to average, t-scores raised from 44 to 51 at posttest. Category B showed the same range average with t-scores up from 49 to 51 at posttest. Category C same range average, with t-scores lowered from 51 to 49 at posttest. Category D same range average, t-scores lowered from 52 to 50 at posttest.
Figure 3. S1-CTRS-28, Pretest and Posttest t-scores (all teachers)

- A: Conduct problem
- B: Hyperactivity
- C: Inattentive passive
- D: Hyperactivity index

Legend:
- □ Pretest
- ■ Posttest

Categories:
- Very much above average
- Much above average
- Above average
- Slightly above average
- Average
T3 Rated Category A same range average, t-scores up from 47 to 51 at posttest. Category B was up 1 range from slightly below average to average at the upper limit with t-scores raised from 42 to 55 at posttest. Category C fell within the same range average, t-scores lowered from 49 to 47 at posttest. Category D was the same range average, but t-scores advanced from the lower limit of 45 to the upper limit 54 of the range.

Overall S1's ranges for Category A 2 remained the same, and 1 went up; Category B 2 went up 1 range, and 1 went down 1 range; Category C all remained in the same range; Category D 1 went down 1 range, and 2 remained the same. It would appear that statistically there was no great change from pretest to posttest for S1. All posttest scores remained in the average range with exceptions only in categories A and D; however, these were ratings given by T1 who rated S1 lower in range from pretest to posttest than T2 and T3, therefore they could for the purposes of this study be regarded as positively statistically significant as far as S1 was concerned. S1's results showed that T2 and T3 indicated mildly negative changes at posttest in B and D therefore it would appear that there was only slight improvement in their perception of S1 in the Hyperactivity and Hyperactivity Index categories after the intervention.

S2's results from pretest to posttest (Figure 4) remained in the average to slightly above average range with the exception of T1's ratings. Overall this
Figure 4. S2-CTRS-28, Pretest and Posttest t-scores (all teachers)

The graph shows the comparison of pretest and posttest scores for different categories over three time points (T1, T2, T3). The categories include:

- A: Conduct problem
- B: Hyperactivity
- C: Inattentive passive
- D: Hyperactivity index

The bars are color-coded with Pretest in white and Posttest in black. The y-axis represents the score range from 40 to 100, and the x-axis represents the time points. The legend indicates the levels of performance:

- Very much above average
- Much above average
- Above average
- Slightly above average
- Average
teacher showed the most marked elevation in t-scores for S2, placing him in
the very much above average range at posttest for all categories but C.

T1  Results from pretest to posttest were dramatically raised from an
average range, t-score 54 up to a very much above average, t-score in
85 in Category A. Category B went from above average range, t-score
62 at pretest to very much above average range, t-score 94 at posttest.
Category C moved from average range, t-score 44 pretest; up to slightly
above average at posttest, t-score 60. The next Category D rated in the
slightly above average range, t-score 56 pretest; moved up to very much
above average range, with a t-score of 85 posttest.

Using Conner's suggested levels of significance for indicating a problem,
it would appear that T1 had experienced significant change in perception of
S2's behavior from pretest to posttest, and this could be explained possibly in
terms of T1's strong personal bias; recognizing it as a threat to the internal
validity of the testing.

T2  Rated S2 in Category A in the average range, t-score 47 pretest; with
the same results at posttest. Category B showed average range, t-score
55 pretest; moving to the slightly above average range, t-score 59 at
posttest. Category C was average range, t-score 47; same range, t-
score 51. In Category D there was no change from pretest to posttest.
The range remained average, and the t-score was 50.
The range and the t-scores in Category A average range and t-score of 44 were constant from pretest to posttest. In Category B the same constant results were obtained, average range, t-score 52. Category C showed average range from pretest to posttest, but the t-scores went from 44 to 45. Again in Category D the average range held from pretest to posttest while the t-scores were 52 and 53 respectively. The findings of T2 and T3 might indicate that the intervention was keeping S2 in holding pattern as the overall increase in t-scores given to this subject was not significant when viewed from Conner's ranges and diagnostic cutoff points.

S3's teacher ratings from pretest to posttest are detailed in (Figure 5).

Initially rated the subject in Category A in the slightly below average range, t-score 44, moving to slightly above average range, t-score 58. This was a jump up through 1 range. In Category B rated in the average range, t-score 46 to the above average range, t-score 62. A movement up through 2 complete ranges. In Category C ratings in the average range, t-score 45, moved to the above average range, t-score 64. This represented a jump up through 2 complete ranges into the subsequent range. In Category D the initial range was slightly below average, t-score 43 and moved up through two complete ranges to above average, t-score 65.
Figure 5. S3-CTRS-28, Pretest and Posttest t-scores (all teachers)
In all categories S3's t-scores were higher at posttest indicating a negative result with this teacher.

T2 In Category A rated the subject in the very much above average range, t-score 85 at pretest remaining in the same range but with a lowered t-score 81 at posttest. In Category B very much above average range, t-score 87, lowered to the base of the same range, t-score 71. In Category C very much above average range, t-score 73 was lowered 1 range to much above average, t-score 68. In Category D very much above average range, t-score 85 remained in the same range; however, the t-score was lowered to 81.

While t-scores in these ranges would be considered statistically significant if one were utilizing the CTRS-28 as a diagnostic tool; nevertheless they represented a drop in activity level from pretest to posttest in all 4 categories thus providing S3 with a positive result from this teacher.

T3 In Category A above average range, t-score 61 remained constant from pretest to posttest. Category B very much above average range, t-score 84 stayed in the same range with t-score raised to 91. Category C very much above average range, t-score 73 moved down to the base of the same range, t-score 71. In Category D very much above average range, t-score 76 in the same range but t-score up to 79.

This teacher showed positive results' from pretest to posttest in Categories A and C, but negative results were indicated in Categories B and D.
Overall when all of the possible 12 changes in t-scores are viewed it appeared that S3 had: 6 higher t-scores at posttest indicating a negative result, 5 lower t-scores at posttest indicating a positive result, 1 constant t-score at posttest, which seems to indicate a draw or stalemate depending on one's choice of perspective. This evidence appears clearer utilizing the Conners' ranges as S3 remained constant in range in Category A, Category B, Category C, and Category D.

S4's teachers ratings from pretest to posttest showed the following pattern (Figure 6). All teachers ratings were clustered in the average, slightly above and slightly below average ranges with the exception of T2 who showed an increase of two full ranges at posttest in Category B.

T1 In Category A rated S4 in the slightly below average range, t-score 44 at pretest, up to average range, t-score 54 at posttest. Category B was in the average range, t-score 49 pretest, same range, t-score up to 52 at posttest. Category C showed slightly below average range, t-score 48 pretest, same range, t-score 45 at posttest. While Category D was in the average range, t-score 48 pretest, same range, t-score up to 50 at posttest.

All t-scores were up in the 4 categories for T1; however, with the exception of Category A, the discrepancies were minimal even if negative. Therefore using Conners statement to clinicians to use their discretion in interpreting scores
Figure 6. S4-CTRS-28, Pretest and Posttest t-scores (all teachers)
close to the range limits, it was felt that as the ranges were all low therefore they could be seen as positive results.

T2  This teacher placed S4 in Category A in the slightly above average range, t-score 58 at pretest, and lowered to average range, t-score 54 at posttest. Category B range was in the slightly above average range, t-score 58 pretest; up through 2 full ranges to very much above average range, t-score 75 at posttest. Pretest Category C showed slightly above average range, t-score 57; down to the average range, t-score 45. In Category D the range was slightly above average range, t-score 56 at pretest; up to above average range, t-score 61.

T2's ratings showed elevated t-scores at posttest indicating a negative result in Categories B and D, both measures of Hyperactivity; while they were lowered at posttest in Categories A and C indicating a positive result in Conduct and Inattention problems. However, of all the teachers this one indicated the greatest divergence, both positive and negative, in the ratings given to S4 from pretest to posttest.

T3  In Category A the range was average, t-score 47 at pretest; down to slightly below average range, t-score 44 at posttest. Category B was slightly below average range, t-score 42 at pretest; moving up to average range, t-score 46 posttest. The range in Category C was slightly below average range, t-score 44 at pretest; raised to average range, t-score 45
at posttest. Category D showed slightly below average range, t-score 43 at pretest; moving to the average range, t-score 48 at posttest.

This teacher indicated positive change at posttest in Categories A and C, and negative changes at posttest in Categories B and D. These results reflected the same perceptions as T2, and T1 in the latter categories.

It would appear that ratings of Hyperactivity increased after the intervention. Two teachers perceived an improvement in Conduct, while only one recognized any improvement in Inattention. These were disappointing results in pure terms; however, it was noted that the ranges were not diagnostically significant to begin with and only in the average range at the end. It seemed possible that over the course of any semester initial impressions of students would alter slightly, therefore these slight elevations would not be as significant as those observed in other subjects in the very much above average range.

C. Cognitive Awareness Program

Initially, describing the Cognitive Awareness Sessions from a holistic perspective, and thereafter highlighting some of the more meaningful vignettes that occurred during this part of the study would seem appropriate. At the start, the atmosphere and activity of the group sessions were typical of ADHD students' classroom behaviour: a bit rowdy, lots of interruptions, self-deprecation, and perpetual movement. The actual information giving began
well as the situation was a novel one, and the subjects' interest was high. This interest was maintained to varying degrees throughout the sessions depending on the individual's current situation. Playing back the tapes of the sessions revealed that there was always off topic commentary and interjection, but that a natural hierarchy evolved within the group in order to control these outbursts. S1 was the one who usually drew the group back into focus when they wandered, although there were a few occasions when he too required reminders from the researcher. Interestingly, the subjects themselves were very much aware of these behaviors, and after the initial sessions became adept at policing their own and other members of the groups' behaviors. When they discovered that doodling helped keep them on track, they automatically reached for markers and scrap paper at the start of every session. However, they did rely on the researcher to have this equipment on the table when they entered the room, and on the occasions that this was not done they did not bother to ask for these materials.

As expected there was a certain amount of difficulty in adhering to the ground rules, but as the sessions progressed the subjects became more adept at finding unique ways to comply with these. A range of polite requests, direct put downs, bribery, and occasionally skilful working of the conversation back on topic without upsetting the offending party were noted throughout the course of the sessions. These occurred in random fashion and no one method appeared to be favoured. The noise level, and off task behaviour levels appeared to
stabilize after the first two sessions. There were exceptions when subjects forgot to take their medication and/or had a situation with a teacher that caused them anxiety; however, the subjects became quite receptive to other members' needs and seemed to know when one of the group was in serious need of support. No apparent third session fall off was noticed, and the interest and participation level remained high throughout the semester.

Members seemed to bond quickly, and when S2 developed serious personal problems the other members of the group became almost protective, and spent much of their free time outside of the sessions, encouraging him to seek professional help and ensuring that he was not left alone in dark times. They all encouraged him to try going back on medication as a means to help in school. This was interesting as S4 had been particularly reluctant about taking Ritalin when it was first prescribed for him, but he found no end of reasons and personal examples to use when urging S2 to take his. These problems occurred after the session on Medication which was very well received by the group and engendered much discussion and questioning amongst them.

As an introduction to the sessions the researcher had asked all the subjects to list the individual behaviors that they felt interfered with their success in academic and social settings. Their lists were sadly revealing. S1 reported the he liked to set fires, was interruptive, inattentive, liked to work in groups because he got to talk and the work load was split up i.e. he stood a better chance of getting something to hand in to the teacher, he was full of
anger and liked to hammer on cans when younger to reduce his frustration level. This seemed a sad but appropriate prologue to the sessions.

S2’s initial record of his problems was a lengthy one. It was immediately apparent that he viewed himself in a most negative light. He felt that he was interruptive, inattentive, his anger out of control, very impulsive, constantly interrupting his teachers. He made funny noises in class, was restless and often played with his work. Shyness was a problem for him, and he felt that he was very judgemental of others openly declaring himself to be a racist while adopting the mode of dress and mannerisms of the Skinheads. Noise bothered him unless he was drugged up. This did not refer to taking Ritalin which he steadfastly refused to do, but rather to his own personal forms of self medication. The most annoying interruption in class for him was when an announcement came over the PA system and interrupted the teacher during a lesson. As with S1, he preferred to work in groups as he got to talk and express his ideas while the formal written work was often done by another member of the group.

S3’s list included talking out, acting without thinking, interrupting the teacher by speaking out in class, doodling in the margins and all over his work, fidgeting, and making very judgemental remarks and holding strongly biased opinions about racial groups. Again it was noted that group work was cool as everyone got to talk.
S4's items were very similar to the other subjects'. Interrupting the
teacher, not paying attention, and acting impulsively without thought were at the
top of the list. There was a lot of anger inside this individual just as S1 had
expressed, but the way S4 handled it was to blow up and go berserk at home.
Apparently at school this violent behavior was more under control. Tapping and
throwing a pen about the classroom, doodling, singing out loud in class,
fidgeting, and voicing true comments about people in the classroom completed
the list.

In the initial session explaining the nature and historical perspective of
ADHD the subjects were fascinated by Still's 1902 terminology when describing
patients as showing morbid deficits in moral control. They persisted in referring
to this throughout the sessions. Indeed it became their humorous logo, and
whenever difficulties arose they explained them in terms of this quotation!
However, they were incensed when they attended a lecture at one of the
meetings of the local Children and Adults with Attention Deficit Disorder
(CHADD) group, and a visiting psychiatrist referred to ADHD as their disease.
More than anything else this descriptor was a source of indignation that
remained with them for the rest of the sessions, and was mentioned frequently
in their discussions for the duration of the semester. For the subjects disorder
was the appropriate and acceptable term.

The threat of ADHD to adolescent development was a natural topic for
the group, and it was a recurring theme in most sessions. The subjects
became more adept at recognizing these threats in their personal situations as the sessions progressed. They were often able to explain a particular difficulty in terms of some information that had come from prior sessions such as forgetting to take medication on that day, or that the incident occurred as a result of impulsive behaviour, or could have been avoided by using their personal strategy. At this point it might be noted that a record of the number and frequency of these incidents throughout the sessions would have probably been beneficial in the interpretation of the results.

Diagnosis and assessment was well received by the group as they all had some horror story to relate from their personal experiences. It was at this stage that the woefully inadequate treatment facilities available to the Windsor community really struck home. Upon learning of the methods available in other centres the boys became somewhat frustrated and were determined to find out more about ADHD. S4 went so far as to suggest that he would like to become a psychologist and treat ADHD children, as only people with this disorder were truly able to understand the dilemma faced by young people afflicted with this curse. This is a goal that he has persisted with to date, modifying it only to the extent that he may have to become a psychometrist if he does not get better marks in Math.

Several of the subjects remembered that their parents had filled out rating scales when they were trying to find out what caused their offsprings' problems, but it appeared that they had no concept of how these scales
worked. Therefore time was spent in looking at various ones. Very quickly this proved an uninteresting topic to the group and was scrapped. However, when the subjects learned that their teachers were utilizing the CTRS-28 they decided spontaneously to rate themselves using the same scale in order to compare their personal perceptions of their difficulties with those registered by their teachers on the pretest CTRS-28. These results turned out to be very revealing when graphed and later compared to the average of the teachers initial assessments of the boys. It appeared that the boys rated themselves more harshly than their teachers did initially. This is not surprising in the light of their disorder where due to constant academic and social failures, the subjects have extremely low feelings of self-esteem.

S1 rated himself (Figure 7) in the very much above average range for all the scales but Inattention in which he considered himself to be above average. This was compared to the results of his teachers' pretest scores and it appeared that he was consistently worse in his own eyes than in their's.

S2 showed a similar pattern (Figure 8), being much harsher in his personal ratings than his three teachers were at pretest. He ranked himself in the very much above average range for all categories but Q Inattention which was much above average.

S3 again rated himself more harshly than did the teachers at pretest (Figure 9). With the exception of Category Q which was in the much
Figure 7. S1-CTRS-28, Self rated t-scores

conduct problem
hyperactivity
inattentive passive
hyperactivity index

very much above average
much above average
above average
slightly above average
average
Figure 8. S2-CTRS-28, Self rated t-scores
Figure 9. S3-CTRS-28, Self rated t-scores

<table>
<thead>
<tr>
<th>Column</th>
<th>Conduct Problem</th>
<th>Hyperactivity</th>
<th>Inattentive Passive</th>
<th>Hyperactivity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>60</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>B</td>
<td>90</td>
<td>90</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>C</td>
<td>60</td>
<td>50</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>D</td>
<td>40</td>
<td>40</td>
<td>60</td>
<td>90</td>
</tr>
</tbody>
</table>

mean 50

diagram labels:
- very much above average
- much above average
- above average
- slightly above average
- average
above average range, all of his self ratings were in the very much above average category.

S4 followed suit (Figure 10) and rated himself very much above average in all categories but Q which was above average. It is noteworthy that all the subjects felt that they did not have as severe a problem with Inattention as with the other categories. This seemed to support the general view expressed by the research cited in the Literature Review that ADHD students do not see their disabilities as such in comparison to the views held by teachers and parents.

The session on brain anatomy and the possible causes of ADHD was accepted enthusiastically by all members. Possibly due to prior Science courses they were all somewhat familiar with the terminology and diagrams, and therefore able to make educated contributions to the lecture. They expressed opinions openly and seemed relieved to know that there was a neurobiological explanation for their disorder. It was at this point in the sessions that S3 and S4, who had shown extreme embarrassment and reluctance to have students without ADHD know of their disorder, began to speak more openly about their problems in the presence of non ADHD students.

Medication was probably one of the best attended to of all the sessions, and all the subjects contributed and partook of it to the full. It appeared that there were many concerns about the side effects of Ritalin. Many popular misconceptions concerning medication were cleared up; for example that Ritalin stunts one's growth permanently. The boys particularly liked the chart
Figure 10. S4-CTRS-28, Self rated t-scores

- A: Conduct problem
- B: Hyperactivity
- C: Inattentive passive
- D: Hyperactivity index

- very much above average
- much above average
- above average
- slightly above average
- average
summarizing these effects (Appendix E) that the researcher obtained when attending a workshop on ADHD presented by Dr. Conners, whose name was now familiar to the subjects from the discussions of the history of ADHD, and the use of various Conners' Rating Scales during diagnosis. This was the one handout that no one forgot to take away from the session with them. Sadly though, S2 who steadfastly refused to take medication as it "messed up his head", was not moved to change this opinion, and he continued to self-medicate using other substances.

The session on Information Processing was a boisterous one. At one point in the tape it became difficult to keep them all together until the researcher explained their behavior to them by creating a colourful chart based on the research of Kirby and Williams (1991). This graphic construction seemed to pull them together and get the point across. It should be noted that for a short time thereafter they made direct reference to this topic, but it was not mentioned much in the later sessions of the intervention where it had been hoped that they would use their cognitive strategies and possibly create new ones to help them adapt to academically and socially problematic events.

Cognitive Strategies and their uses was a session well received by all the subjects initially. It was felt that since they had been informed at great length about information processing in the previous session, and verbal mediation was mentioned and modelled directly and indirectly by the researcher continually during the sessions; this probably gave them sufficient background
data coupled with the novelty of the topic to grab and hold their attention for the duration. Also, the fact that the boys had listed their own perceptions of their problematic behaviors gave them a more focused view from which to address this topic. Using the Goldstein and Goldstein (1990) Integrated Cognitive-Behavioral Model as a basis for explanation and study of this approach, the subjects attained a level of familiarity with this topic relatively quickly. This allowed them to come up with the notion that they probably needed to adapt the particular model to suit their personal needs. Accordingly some of the steps in Goldstein and Goldstein's model were removed. The provision for externally administered contingencies was felt to be unenforceable since the classroom teachers were not inclined to become heavily involved in the administration of this program. The researcher would then have to undertake the role of reinforcer and visit every classroom to see that some feedback was given to the subjects regarding their positive or negative use of their strategy.

Initially the subjects created their own statements, followed the pattern of the researcher modelling their individual strategies out loud, they then rehearsed them out loud, they were faded gradually, and ultimately were memorized and internalized by each subject. It soon became apparent that it was not going to be possible for the researcher to be present in the individual classrooms to monitor their use. The subjects suggested writing out their personal strategies, laminating them and placing them on their desks in their individual classroom. On the surface this seemed to be an appropriate way to
circumvent the problem of having only the classroom teacher, if they so chose, to monitor their use, and it was deemed worthy of a try.

S1 addressed the behavior of inattention. The commands he followed were: 1. Stop off topic action; 2. Look directly at the speaker; 3. Pay attention to the speaker; 4. THEN SAY I'M WORTH IT! The strategy was written out and laminated by the subject. It was returned to the researcher's mailbox a week later having been left in a classroom. This seemed to indicate that the teacher was not overly concerned with the student using the strategy as it had not been given back directly to S1. The subject was surprised when the researcher returned the strategy to him as he was unaware that he had lost it. Therefore it appears that S1 was not utilizing the strategy in any of his classes on a regular basis. Clearly relying on the student and the classroom teacher to monitor the strategy's use though accepted by both initially, in the last resort was not a viable method to utilize in this type of intervention. Unfortunately at this stage in the study there was not time to put an alternative plan into place. A chance had been taken that the support in the classroom would be there; however, it was not to be.

S2's strategy was one to be used when he was taking tests. He wanted to improve his confidence in his own ability, and there was an observed shift in his locus of control from an external one to a more internal one than at the start of the intervention, witnessed in his strategy. His strategy was to be used when he read over test questions and then proceeded to answer them: 1. Read the
question over completely from start to finish; 2. Say I think I can do it; 3. If when I am partially done the question I start to say I can't do this or its taking too much time and I want to quit, go to 4 at once; 4. Say its taking a bit of time, but I'm figuring it out so keep going; 5. I think its cool when I then complete the question. S2 was observed using this strategy in class when taking a Chemistry test. He appeared to make use of it for most of the test in that he stayed focused on his work and completed all the questions; however, he greatly annoyed those students seated close to him by his fidgety behavior while he was so employed. The regular teacher did not cue him in any way or contribute to his utilization of the strategy. He did achieve a relatively better mark on this one test, but again the researcher was not permitted to view him in any other test situations in any other classrooms. His better performance could have been a result of better preparation for this test, the use of his strategy, or the fact that he did turn around and see the researcher observing him about two thirds of the way through the test, or any combination of these factors. It was frustrating not being able to observe him in other situations, and there was no way to tell if he employed his strategy in other disciplines or during his final examinations.

S3's strategy addressed shouting out and interrupting the class. The steps proposed were: 1. Think what will happen if I do shout out now; 2. Say I will get into trouble; 3. Try to answer and speak calmly; 4. Give myself a compliment for doing this. Again the researcher was able to observe a
segment of S3's English class. Even though S3 was aware that he was being observed he made no outward attempt to employ the strategy, despite several prompts from the researcher. Again the classroom teacher had felt that it was not feasible for personal involvement in this process at that particular time.

S4's strategy was designed to help curb impulsive responses. 1. Say I will get into trouble if I do this; 2. Try hard to stop myself from blurting out remarks; 3. Say I'm great and I really did well. No opportunity was afforded the researcher to observe if S4 did indeed use the strategy; however, it was reported that he felt he would try some other strategies next year if this one helped him to pass from grade 9 to grade 10.

Evaluation was the last group session. Here a simple evaluation of the program was undertaken by the boys. They were asked to rank the 6 most informative and useful sessions of their own selection, beginning with the session they felt of the most benefit to them personally, and they were to answer the following questions:

1. Do you want to continue the group next year?
2. Did the group help you, and if so tell how?
3. Which do you think helps you more, taking medication or getting support in the group?
4. Did you feel that you were more in control of your behavior as a result of your increased knowledge after the group sessions?
5. Do you believe that your marks will improve because of your participation in the group and what you learned there?

The boys all responded completely to the ranking section; however, when it came to the five questions they did not answer them all. Even though they were given explicit directions to answer all the questions, some of the boys answered selectively or at best lumped their answers together. Question 4 was never addressed directly. It was noted that this was their last session together that semester, and it was hoped that their incomplete responses might have been influenced by the imminent threat of exams beginning the next day. The subjects' rankings appear in Table 7.

S1 ranked the sessions as follows: 1. The Brain; 2. Medication; 3. Behavior Rating Scales; 4. Characteristics of ADHD; 5. Cognitive Strategies Instruction; 6. Sharing in the Group as part of the Threat to Adolescent Development Session. His answers to the questions were selective and interesting. He wished to continue with "THE GROUP" (his capitals), as he felt it gave him time to vent his own feelings and to listen to those of the group while trying to relate to them. He also thought that Ritalin helped him focus himself, but that he preferred the group because of the people in it. This empathy was apparent on many occasions during the sessions. S1 was also the student who immediately assumed the leadership role in the group, and he was the one who never missed a single session.
TABLE 7

Subjects' Ranking of the 6 Most Informative and Useful Sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD Characteristics</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The Brain</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Medication</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Behavior Rating Scales</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C.S.I.</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Personal C.S.I.</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Sharing in the Group</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>
S2 was absent for this session, and never handed in his responses even though a sheet was given to him during the course of the final examinations. This would appear to be hardly unusual behavior for an ADHD student even in the best of times. Verbally he affirmed that he wanted to continue with the group next year.

S3 ranked the sessions as follows: 1. Behavior Scales; 2. The Brain; 3. Cognitive Strategy Instruction; 4. Making the Cognitive Strategy; 5. Sharing in the group as part of the Threat to Adolescent Development; 6. Medication. His answers to the questions were typical of this student's approach to written work in that they were all jumbled together. Yes, the group should be continued next year as it helped the subjects to build strategies for coping with problems and to learn more about ADHD. Sharing personal difficulties in the group made them feel a little bit more comfortable about themselves. However, it should be noted that S3 had addressed several key issues at length here, and one word answers were usually the norm for this student, who then went on to say that both the group and Ritalin really helped him personally therefore he wanted to have the support of both.

S4 rated the sessions in this way: 1. Behavior Scales to target problem areas; 2. Sharing in the group as part of the Threat to Adolescent Development; 3. Using Personal Cognitive Strategies; 4. Cognitive Strategy Intervention; 5. Medication; 6. The Brain, how it works in ADHD students and how information is processed. Yes the group should continue next year in answer to
question 1. Yes, it helped this subject personally as he now knows that many others have ADHD besides himself in response to 2. The question about Ritalin was answered this way; it helped to calm him down more, but he felt that the group had helped him also even if he did not know which one worked the best.

D. Vice Principals’ Logs

For purposes of this study infractions recorded in the VP Logs were rated on a scale of 1 to 4 with 4 being the most serious. The number and severity level were then added up to quantify the results. An in-school suspension was rated 1; truancy was rated 2; parents called in for an interview concerning the problematic behavior situation rated 3; and five day or more out-of-school suspensions rated 4. The subjects results are summarized in Table 8.

S1 was the only one of the subjects who had avoided major references in the VP Logs in the semester directly preceding the study. The litany of behavioral incidents that had occurred at previous schools and were recorded in his OSR had not been repeated at the current school. Possibly the short time he had been enrolled here had not been sufficient for him to establish a reputation and history of disruption. There were some minor complaints from teachers concerning his laxness in completing assignments, his unfocussed attitude, apparent laziness, and some minor classroom behavioral irritations. It appeared that the teachers themselves had been handling these disruptions.
TABLE 8

Number of V.P. Referrals due to Disruptive Classroom Behavioral Incidents
Recorded Before and After Intervention

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Before Intervention</th>
<th>After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S2</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>S3</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>S4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>10</td>
</tr>
</tbody>
</table>
There was nothing to indicate that he had been suspended over any of these to date. This pattern continued throughout the study.

S2 had 5 in-school suspensions, 1 truancy, 1 parents interview, and 1 out-of-school suspension for a total of 14 in the semester directly preceding the intervention. In the semester of the intervention he had 1 in-school suspension for a total of 1. Clearly something was keeping his behavioral incidents under control.

S3 had three in school suspensions and one out of school suspension for a total of 6 in the semester prior to the intervention. During the intervention a total of 8 points were racked up due to 4 in school suspensions culminating in one 5 day out of school suspension.

S4 had a total of 5 prior to the intervention, with 3 one day inschool suspensions and 1 two day inschool suspension. During the intervention only one inschool suspension was recorded for a total of 1 point.

E. Marks Comparison

S1's marks (Table 9) show an average of 65.3 in the semester prior to the study, and a drop to 63.0 after the intervention. They followed the same pattern of 2 subjects dropping off after midterm and 2 subjects improving after midterm. It is impossible to reach anything other than a speculative theory because the academic subjects were all different due to the semesterset up of the school. But the one subject that was constant in both semesters, Family
<table>
<thead>
<tr>
<th>Before Intervention</th>
<th>After intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Studies GEN 53/60</td>
<td>Music ADV 85/80</td>
</tr>
<tr>
<td>Physical Education GEN 76/64</td>
<td>Mathematics GEN 50/40</td>
</tr>
<tr>
<td>Biology GEN 65/70</td>
<td>English GEN 70/76</td>
</tr>
<tr>
<td>Technical GEN 84/67</td>
<td>Family Studies GEN 71/56</td>
</tr>
<tr>
<td>FINAL AVERAGE 65.3</td>
<td>FINAL AVERAGE 63.0</td>
</tr>
</tbody>
</table>
Studies, improved prior to the intervention and dropped by 15 marks after the intervention. Since the content and grade level of the two courses were different it could be of no special significance in this particular study. It is worth noting that S1 stated adamantly that due to a personality conflict with the Math teacher, he made no attempt to do the assignments or study for tests. Whether this was just an excuse to cover up the typical ADHD trait of incomplete assignments due to inability to attend or to forget to remember assignments, is pure speculation. What is worthy of note is that S1 was embarrassed sufficiently by his lack of success yet confident enough after the intervention to draw it to the attention of the group.

S2's marks (Table 10) in the semester prior to the intervention showed 2 failures Math and Tech, and a final average of 44 percent. In the semester of the intervention he failed only 1 subject English and his teacher noted that this was due to failure to complete and hand in required assignments. His final average improved to a passing grade of 54.3 percent. It is also worthy of note that he passed the subject of the teacher, T1, who ranked him so severely at posttest time on the CTRS-28. Something was in place during the intervention semester that contributed to S2's success. Possibly he had more interest in his subjects and therefore was more highly motivated to succeed.

S3's marks in the semester prior to the intervention (Table 11) indicated 2 failures: Math and Physical Education. The former was passed at midterm, while the latter was failed at midterm and at the final exam. The final average
TABLE 10

S2's Midterm and Final Marks Before and After Intervention

<table>
<thead>
<tr>
<th>Before Intervention</th>
<th>After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art GEN 51/51</td>
<td>Computer GEN 81/71</td>
</tr>
<tr>
<td>Geography GEN 37/51</td>
<td>English GEN 50/24</td>
</tr>
<tr>
<td>Math GEN 50/33</td>
<td>Family Studies GEN 86/68</td>
</tr>
<tr>
<td>Tech GEN 50/41</td>
<td>Chemistry GEN 75/54</td>
</tr>
<tr>
<td>FINAL AVERAGE 44.0%</td>
<td>FINAL AVERAGE 54.3%</td>
</tr>
</tbody>
</table>
TABLE 11

S3's Midterm and Final Marks Before and After Intervention

<table>
<thead>
<tr>
<th>Before Intervention</th>
<th>After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama GEN 64/51</td>
<td>Keyboarding GEN 34/27</td>
</tr>
<tr>
<td>History GEN 50/56</td>
<td>English GEN 33/44</td>
</tr>
<tr>
<td>Math GEN 58/36</td>
<td>Math GEN 38/35</td>
</tr>
<tr>
<td>Physical Education GEN 43/46</td>
<td>Science GEN 80/63</td>
</tr>
<tr>
<td>FINAL AVERAGE 47.3%</td>
<td>FINAL AVERAGE 42.5%</td>
</tr>
</tbody>
</table>
was 47.3%. After the intervention he failed 3 subjects: Keyboarding, English, and Math for the second time. All of these were failed at midterm and final exam time. However, it should be noted that the Science course that he passed showed 80 at midterm and this was the highest mark that S3 had achieved to date in secondary school. The drop at final exam time was to 63 which for S3 was a good mark. The final average was 42.5%. S3 had no valid explanation to offer for his lack of academic success, but he was distressed by it. It would appear that the intervention had not aided him in achieving academic success.

S4's marks in the semester preceding the intervention (Table 12) were all passing grades. One subject Science was taken at the advanced level. The final average was 63.3%. After the intervention all the subjects were taken at the general level, were passed and the final average was improved to 67.5%. On the surface it might appear that the intervention could have had a positive effect in raising his marks.

It was felt that by themselves marks were a poor criterion of success or failure of the intervention as there are always so many extraneous variables that could and do affect exam performance, classroom testing results, and the subjective marks that are part of today's evaluation schemes. Since educators still rely on them heavily as indications of academic success or failure, and as no perfect evaluation scheme has been created to this date; then one might
TABLE 12
S4's Midterm and Final Marks Before and After Intervention

<table>
<thead>
<tr>
<th>Before Intervention</th>
<th>After Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>English GEN 65/64</td>
<td>Art GEN 75/75</td>
</tr>
<tr>
<td>French GEN 77/62</td>
<td>History GEN 74/63</td>
</tr>
<tr>
<td>Science ADV 58/64</td>
<td>Math GEN 63/50</td>
</tr>
<tr>
<td>Technical GEN 76/63</td>
<td>Physical Education GEN 85/82</td>
</tr>
<tr>
<td><strong>FINAL AVERAGE 63.3</strong></td>
<td><strong>FINAL AVERAGE 67.5%</strong></td>
</tr>
</tbody>
</table>
assume that S1 and S3 had not been aided academically by the intervention, while S2 and S4 had been.

F. **Teacher Workshop**

Administrative pressure necessitated holding the workshop with the teachers during a lunch hour early in the start of the semester. It was attended by all the subjects' teachers with the exception of 3. One had been in a car accident, one had another meeting to attend, and the last just did not show no reason being given. After an introduction by the vice principal in order to lend some administrative support to the study, the researcher asked the teachers to fill out the CTRS-28. Those who were absent were requested to fill it out upon their return. The nature of ADHD and the purpose of the current study were outlined briefly, and the methods that the researcher intended to employ were described. Their cooperation was asked for and received, and an information package was given to all with copies reserved for the absentees. This package included and ADHD Fact Sheet for Parents and Teachers (Barkley, 1990); sheets describing some of the more serious behavioral symptoms as they related to specific areas of the brain (there were several Science teachers in the group), several pages of teaching suggestions and classroom modifications, a list of the possible side effects of the four most common medications used to treat ADHD individuals, the modified Cognitive-Behavioral Model (Goldstein & Goldstein, 1990) to be utilized by the boys in their Cognitive Strategy
Intervention, and an information sheet on the local ADHD/ADD Family Support Group’s meeting schedule. They all expressed interest in the project, and for the most part felt that the subjects were not causing too many difficulties at that moment. Several of them came to the researcher afterwards and requested further information on specific areas mentioned in the handouts. It should be noted that two of them returned on three occasions during the study to ask for more information regarding specific situations that had arisen in their classrooms.

During the course of the semester most of the teachers talked about the subjects and often gave anecdotal reports on incidents that occurred in their own classrooms. In conversation they appeared to be interested and support the group, but over time, all of them felt it unfeasible to ask them to become more actively involved in the study. To supervise and record the use of CSI’s in their classrooms would take too much time away from their other students who for the most part were core city students, characteristically disruptive and unmotivated, requiring the teachers’ constant attention if any learning was to occur in their particular classrooms.

Table 13 shows the percentage of positive responses to the ADHD Workshop Survey (Appendix F) given to them at the end of the semester. Nine of 12 possible teachers, 75%, responded. Possibly this was due to the fact that June is a very busy month for teachers as the school year winds to a close, or that they were involved with marking deadlines and the traditional Professional
TABLE 13

Survey of Teacher Workshop Effectiveness

<table>
<thead>
<tr>
<th>Positive Response %</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Did you find the workshop informative?</td>
</tr>
<tr>
<td>89%</td>
<td>Were you able to look over the resource material on ADHD?</td>
</tr>
<tr>
<td>100%</td>
<td>Was the material presented informative?</td>
</tr>
<tr>
<td>100%</td>
<td>Did you feel that you could use some of the teaching suggestions with the ADHD students in your classes?</td>
</tr>
<tr>
<td>75%</td>
<td>Did you actually use any of these suggestions in your classes with ADHD students?</td>
</tr>
<tr>
<td>100%</td>
<td>Are you interested in learning more about ADHD and its subtypes?</td>
</tr>
</tbody>
</table>
Activity Days Programs that are mandatory for the last three days of school. However, the results of the survey indicated generally that they felt they had been informed, they had read and utilized some of the resource material, and that they were interested in learning more about ADHD. There was 100% positive response to question 1, 89% positive response to 2. 100% positive response to all remaining questions with the exception of number 5: Did you try any of these suggestions in your classes? Seventy five percent responded positively and 25% negatively. There were several comments stating that the workshop was well done, and one in particular stated that more practical knowledge was needed to help teachers handle these students. With such a positive response it would seem that development of more workshops and other collaborative ways to share information on ADHD students' needs were merited.
CHAPTER IV

DISCUSSION

This heuristic study was designed to develop a viable group support program for ADHD adolescents in a semestered secondary setting. Since intervention practices geared specifically to the needs of adolescents were glaringly absent from the literature, as was data on interventions used in actual classrooms (Fiore, Becker, & Nero, 1993), it was felt that this study might prove an effective and inexpensive way to address the individual therapy component of the multimodality treatments advocated by researchers like Barkley, 1990; Conners, 1993; Goldstein & Goldstein, 1990; Hinshaw, 1992; Robin, 1993). Utilizing a cognitive awareness training program to raise the students' knowledge and perception of their disorder, it was hypothesized that they would interact more effectively with their environment. This would be evinced by an improvement in the subjects' final examination marks; a decrease in the severity and frequency of disruptive behavioral classroom incidents, and a lowering in the teachers' perception of severity of subjects' teacher rated behaviors from pretest to posttest; and an indication that the subjects wished to continue the support group. It was expected that various other issues would arise during the intervention producing hypotheses that could be dealt with at that time.
The results support these to some degree. However, the consistency of improvement in the pretest and posttest teacher rating results were disappointing. Subjects showed major improvement in the frequency and severity of disruptive classroom behaviors, yet this was not reflected in the posttest CTRS-28 results. Two of the subjects' marks showed improvement after the intervention. All of the subjects responded positively in the evaluation of the Cognitive Awareness Training sessions, as did the teachers in their response to the Teacher Workshop Session. Again the heuristic nature of this study was stressed. The results are best addressed category by category in specific detail, before summarizing resulting research concerns and questions at the end of the chapter.

A. Improved Academic Results

The WIAT results revealed that while 3 of the subjects showed weakness in different areas of the subtests, overall their total scores indicated that they were above the mean and should possess sufficient academic skills and background to be successful in their current courses. This was viewed optimistically in light of the fact that ADHD students usually lack many of the scholastic bases upon which academic success at the secondary level depends. However, the final marks' average percentages achieved by 2 of the subjects showed a drop rather than the anticipated rise. Therefore it was necessary to assume that other characteristics probably springing out of the
subjects' ADHD symptomology caused S1 and S3 to have poorer marks at the end of the intervention. Inattention while lessons were being taught, inattention producing a failure to complete assignments or if completed failure to remember to hand them in, could have contributed to their lack of academic success. Low feelings of self-esteem, apparent in all the subjects ratings of themselves on the CTRS-28 could have lead to apathetic approaches in the daily classroom learning situation, and caused them possibly unwittingly, not to prepare and/or to organize effectively for tests and examinations. Support for this came from S3's acute embarrassment when his failure to pass Mathematics was commented upon negatively by a teacher in front of other students. All the subjects revealed such incidents during the intervention, indeed there was not a single session when some member did not present such an incident to the group seeking support and advice.

From this it would appear that motivation to succeed may indeed have been present but was overridden by the constraints of ADHD itself. Therefore it would be of even greater importance that cognitive awareness levels in these students be heightened so that they might gain insight into their disabilities and develop suitable ways to control them more efficiently thereby producing successful academic situations for themselves.

Hinshaw (1992) suggested that the overlap between externalized behaviors and underachievement occurred at levels far above chance rates. It was felt a precise definition of underachievement was critical to these figures of
10 to 50 percent, with the higher figures including school failure, low grades, and suspensions. The results of the subjects' final examinations would clearly bear this out for S1 and S3. For them the intervention appeared to have had no effect on academics, whereas S2 and S4 appear to have benefitted by it. The same author felt that reducing problem behavior by itself was not a sufficient intervention for students with overlapping behavior and achievement problems; the promotion of academic success was of crucial importance for them. Clearly this area merits much further investigation to see if a cognitive awareness training program would have sufficient impetus to make any dint in this dilemma's armour.

B. CTRS-28

The results of the CTRS-28 in this study indicated that all of the subjects showed improvement in at least 2 of the 4 categories as rated by at least 1 teacher. Half of the subjects showed improved classroom behaviors in the eyes of their teachers from pretest to posttest if one accepted that S1 showed 7 of 12 ratings as improved, and improved scores from at least 1 teacher in all 4 categories' while S2 showed improved scores in 3 categories. S3 and S4 only showed improvement in 2 of 4 possible categories and only for 1 or 2 teachers. Therefore it was felt that these ratings were negative in nature. It was recognized that the CTRS-28 as an offshoot of the original CTRS-39 (Conners, 1969) was a rating scale designed originally to provide an instrument to indicate
how children's behaviors were affected by medication in outpatient drug trials. Robin (1993) suggested that there were no written guidelines for empirically sound methods to integrate multiple teacher questionnaires from secondary school teachers concerning the same student. Since the intent was to use the CTRS-28 as a measure of improvement or decline resulting from the intervention, this concept was noted during the interpretation of these results. However, in this study it seemed appropriate to use the CTRS-28's 4 scales: Conduct Problems, Hyperactivity, Inattentive-Passive, and Hyperactivity Index as points from which to view the teacher rated changes in behavior from pretest to posttest. It was felt that a general picture of the subjects' behaviors could be documented, and conclusions for future intervention thus drawn. Nevertheless, recognizing the nature of a heuristic study, a more sophisticated design using a larger population to sample from, is probably necessary to accurately determine a relationship between the intervention and these specific behaviors.

Great discrepancies in ratings were noted from teacher to teacher. The subjective nature of any rating scale would account for this, and it should not come as a surprise that the majority of the classroom teachers showed less tolerance of the subjects' behavior as the intervention progressed. It has been well documented that characteristic ADHD disruptive behavior often destroys academic success for its victims (Barkley, 1990; Conners, 1993; Goldstein & Goldstein, 1990; Robin, 1993). Therefore it would seem reasonable to surmise that over time teacher tolerance and patience could be so eroded that inevitably
their ratings for the 4 CTRS-28 scales would increase over any extended time period. Possibly this could be alleviated by increasing the teachers' knowledge and understanding of ADHD itself and proven classroom management techniques. The data shown in the Teacher Workshop Evaluation response would support such a program.

Although the subjects were rated by 3 teachers, these three were not the same individuals for each student. Timetabling precludes this in a semestered secondary setting. In turn this would prevent any direct comparison of results from student to student. Recognizing that this lack of continuity will always be a limiting factor in this type of investigation, one can still address the change in the individual teacher's perception of a student's behavior over the period of the intervention as a directive for future studies.

When the 4 subjects' teacher ratings were overviewed it appeared that the only scale causing the least concern for the teachers was Inattentive, Passive Category C. This was interesting for two reasons. First inattention has been shown to be a major concern for ADHD students in terms of learning and retaining material presented daily in the classroom. S1 and S3's poorer academic showing at the end of the intervention semester were explained in part, by incomplete assignments and gaps in basic knowledge. It seemed reasonable to assume that classroom teachers would have noticed this factor interfering with the subjects' success during the semester, and that they would have addressed it as a concern in their ratings. Secondly, inattention in itself
could have played a large part in the disruptive behaviors exhibited in the classroom, where subjects, unable to stay on track did not respond to teacher reprimands, cautions, or warnings. Possibly teachers were so overwhelmed by the disruptive nature of the classroom behaviors that they did not perceive inattention as a partial culprit, or possibly they were not completely aware of the tripartite nature of ADHD’s definitive characteristics of impulsivity, hyperactivity, and inattention. If the latter were the case it seemed probable that the rougher behavior would overshadow the inattention. This only serves to heighten the need for teacher education in the many facets of ADHD as one of the triad of Disruptive Behavior Disorders.

While these overall results were not supportive of the original hypothesis that the intervention would have a positive effect on the severity of exhibited behaviors from pretest to posttest; yet individually they revealed some positive trends for S1 and S2 allowing speculation that some part of the intervention might be benefitting them. These positive areas should be uncovered and tested further to see if they might be useful to other ADHD students. These 2 subjects were the eldest in the group, S2 being the one who had requested help initially, and perhaps they were more mature and more motivated to avail themselves of the information presented in the sessions. It would be of interest to compare a second semester of intervention to see how they fared in a continuation of this program.
C. Referrals to Vice Principals for Disruptive Classroom Incidents.

The number of disruptive classroom behavioral incidents was decreased from pre-intervention to during-intervention. The total number of referrals for the group before the intervention was 25, and during the intervention it fell to a low of 10. It was hoped that this resulted from an increased awareness of the pitfalls of the adolescent’s behavior as outlined and discussed during the group sessions. Goldstein and Goldstein (1990) felt that the counsellor in group settings must be sensitive to the fact that students often have issues including feelings about themselves, family members, and teachers that could be dealt with within the sessions. Possibly the fact that the subjects in this intervention had a secure place where they could vent their frustrations and receive peer and adult support, before some of these situations escalated into fully fledged classroom disruptions, contributed to this trend. The fact that the subjects no longer perceived themselves alone in terms of their disorder could have had a positive effect on their self-esteem. This might have enabled them to view incidents in their classrooms, be they teacher related or peer related, in a less explosive or threatening light. This in turn could have lessened their volatility. Even though their cognitive strategies apparently were not utilized to address these situations in the anticipated manner, it could be possible that some measure of forethought was instilled into the subjects, rendering them slightly
more cognizant of specific situations where impulsive acts would cost them dearly in terms of suspensions caused by referrals to the VP due to disruptive behaviors.

In terms of severity and frequency S3 was the only one to show poorer results during the intervention period than prior to it. A total for pre-intervention of 6 and post-intervention of 8 was shown. However, the pattern of severity of infractions altered. Initially 3 in school suspensions and 1 out of school suspension were indicated, replaced by 4 in school suspensions with a longer out of school suspension lasting for 5 days accounting for the increase. A possible explanation of this could be that S3's symptoms were the most severe of the group. Difficulty with sustained attention over the years had rendered this subject severely impaired when it came to learning any new skill. In the semester of the intervention, a new complement of teachers might have shown lower overall tolerance for typical ADHD students' behaviors, and possibly might have been less receptive to S3's unique needs. The particular teacher in whose classroom the outburst resulted in a 5 day suspension, was the one who had been absent from the Teacher Workshop because of a car accident. Perhaps it was remiss on the part of the researcher to assume that giving the information to those teachers who missed the workshop was sufficient to ensure they became familiar with the basic tenets of ADHD. Scheduling another workshop for them might have proven a more appropriate means of alerting them to the unique needs of the subjects and the purposes of the
study. The Vice Principal with whom this student dealt might have viewed the number of referrals cumulatively and thereby formed a negative attitude towards the subject's continuing behavior pattern; regarding it as one of not trying or refusing to respect the rights of others in the classroom. This could have been a reflection of that administrator's lack of understanding of the complexities of the ADHD student's behavioral and social skills patterns. It could have caused him to mete out a harsher out of school suspension perceiving S3's infraction as a willful act rather than an impulsive one.

Many adolescents refuse to take their medication as they wish to take control of their lives and see this as another source of control by others according to Goldstein and Goldstein (1990). This subject might not have been taking the prescribed medication at the time, thereby seriously reducing his ability to control these outbursts. Not taking medication regularly was something that he admitted to, but the researcher had no way of checking when this occurred. Taking medication was never stressed as a panacea to end the subjects' problems, and pills were not thought to cure all ills by substituting for skills (Goldstein & Goldstein, 1990). However, it should be noted that S2, who steadfastly refused to take his medication at any time, was very successful in lowering a score of 14 pre-intervention to 1 during the intervention. The frequency and severity of this subject's referrals were dramatically lower. Possibly in this case the newly presented and learned skills were efficiently taking care of behavioral needs.
Other explanations for this could include motivation. S2 was the student who originally asked the researcher for help with bad behavior and lack of academic success. A principal purpose of the Cognitive Awareness Training had been to promote an internal locus of control in all the subjects by allowing them to realize that they could exert control over their own behavior. Many ADHD students do not realize that they have this capacity (Goldstein & Goldstein, 1990). Intellectually S2 had a FSIQ in the High Average range, and this may have provided him with sufficient intellectual ability to appreciate more pragmatically some of the nuances of the Cognitive Awareness Training than S3.

D. Subjects' Evaluation of the Group

The results of the subjects' evaluation of the group were all positive with 100% support for its continuation in the next semester. They all felt good about the sessions as support mechanisms and were adamant in their desire for more of them. This supported the statements of Goldstein and Goldstein (1990) allowing that counselling could increase the times when helplessness is reduced, and provide more motivation enabling the students to increase and improve their coping skills. At the same time one should proceed warily in small groups as initially ADHD children are often not good candidates for these as their impulsivity in responding, staying on track, and hyperactivity deter them. This was not of major concern in this study. It would appear that S1,
S2, S3, and S4 had overcome their original scepticism and found strength in the group setting. Also as mentioned in the Results in Chapter III, a natural hierarchy and structure had evolved within the group as the sessions progressed. It would be of interest to know from a future replication of this study, if this were a phenomenon particular to this group or part of a bonding process that might occur naturally in other groups of adolescents be they ADHD or otherwise?

In terms of which sessions had proven the most interesting to the subjects Behavior Rating Scales rated highly with the 3 subjects who responded. This seemed to be indicative of the high concern ADHD students have about acceptance in and by their community. There appeared to be no direct correlation with an improvement in their teacher perceived behaviors after the intervention, but possibly this is too much to expect when these subjects have had no recourse to full scale multimodality treatments of ADHD at an early age. These might have empowered them to handle these feelings of inadequacy with a backlog of strategies and training. Optimistically, supported by clinicians, family, and teachers they might have developed a greater internal locus of control to achieve this. However, it did indicate that this area of concern must be addressed seriously in any type of treatment designed to facilitate ADHD adolescents' success in the secondary school setting. Indeed it should be a focal point of any future classroom specific intervention.
Cognitive Strategy Intervention was universally viewed as a favoured topic despite the fact that the subjects' CSI's were utilized in a woefully inadequate manner, if at all, in this particular study. This might have indicated that with hindsight, the subjects recognized the potential benefit of these strategies and were willing to explore their use in another semester. As well the subjects might have felt that since they were directly involved in the modification of Goldstein and Goldstein's (1990) Integrated Cognitive Behavioral Model, that they had a direct control in this intervention. At the same time this might have been reinforced when they were allowed to select the areas that their cognitive strategies would address, and to create their own statements thus personalizing their strategies. It was presumed that the lack of knowledgable classroom teacher support, and lack of monitoring in the use of CSI contributed to the defeat of their use in the classroom.

These findings bolstered the need for CSI training for both staff members and students. Cognitive strategies should be taught to students as early as possible so that they could enter high school with a repertoire of these supportive devices already in place. It might be possible that leaving CSI until this late stage does not provide as strong and meaningful a support base as early CSI training has proven to be. CSI might provide an efficacious method of addressing this particular dilemma, although current research did not always support their efficacy in all situations (Barkley, 1990; Breen & Altepeter, 1990), but these findings have not always stood up and are at best of marginal clinical
significance. A repetition of this study over a longer period of time, and with a sample from a much larger population would be needed to generalize these statements with any degree of confidence. Currently it must be regarded as an interesting phenomenon of the present study, and worthy of future investigation.

Sharing in the group as a support to the threat to adolescent development was ranked second to behavior rating scales. This clearly reinforced the subjects' concern with support for the unique problems that an ADHD student experienced daily in the classroom. Goldstein and Goldstein (1990) had indicated that therapy should address the development of an understanding in the child of the nature of their inattention, impulsivity, and over arousal difficulties as they relate to the student's persistent failure to meet the demands of the environment. Sharing in the group allowed the subjects to view and dissect their specific problems thus increasing their problem solving talents, their recognition that certain problems are not unique to them, and enhancing their ability to develop an internal locus of control. Goldstein and Goldstein (1990) also stressed that ADHD students must become active participants in any treatment process. This entire exercise allowed this to happen as the subjects' input guided the specific tasks the group sessions took. One such example was the subjects' rating their own behaviors utilizing the CTRS-28 after hearing that their teachers had done the pretest ratings. Whether it was novelty or curiosity, the graphical representations of their personal ratings mirrored a high degree of negative perception of personal behaviors, than the picture one
might have captured after directly observing the subjects' typical classroom interactions. Their ratings were consistently higher, many in the above average range, than those of the teachers. Further interventions with ADHD students must address this severely damaging area of inaccurate perception, if other problematic areas are to be controlled and moderated with any degree of success.

All Subjects rated the Brain session. Possibly this was due to the familiarity they had with the topic as noted in the Results in Chapter III; or it might have been due to the fact that it was an early topic, and a novel one, presented with an appeal to all 4 basic learning styles: visual, auditory, kinaesthetic, and tactile. It was included in the awareness training sessions with an eye to supporting the Medication session and the one on Information Processing. Interestingly the subjects spent a great deal of time referring to medication in the sessions, but only 2 of them S3 and S4 mentioned it in their ratings in the Evaluation. It had seemed likely that this would be a highly ranked topic for them. Perhaps it was not recognized by them as a novel topic and therefore not included. As Larry Silver (cited in Fowler, 1992) suggested the ADHD student forgets to remember, and it was possible that at the end of the intervention they simply forgot to include this topic. In support of this notion it should be mentioned that CSI and Behavior Rating Scales were dealt with towards the end of the study, and that Sharing in the Group was an ongoing,
highly personal topic. Also taking their medication was addressed in the questions that followed the rankings and it was dealt with in detail at that point.

S1 stated that he felt that Ritalin was OK, but preferred the support of the group to taking medication. This statement was alarming as there was never any intent to down play the necessity of taking medication as a part of the multimodality treatment. The question that was asked of the subjects was judged to be not well thought out in light of this subject's response, and would never be included again as it appeared to sanction an either or approach. Care was taken to speak privately to S1 to assure the researcher that the former did not feel a choice had been or ever was indicated. It might have been that S1 felt this was the answer that the researcher was looking for, and if this were the case it lends an aura of incredibility to all his answers. However, this was pure speculation. S3 and S4 indicated that they needed and wanted to take their medication as it helped them to calm down, but they also wanted to have the continued group support as well. They were uncertain as to which one helped them most and in what situations, but one would not expect this to be apparent to a student with so little clinical background knowledge and experience.

One should at all times strive to explain the potential benefits of medication (Goldstein & Goldstein, 1990) while respecting the adolescents desire to take control of their lives often shown in their refusal to take medication. To reiterate the question was not well thought out, and could have had very serious negative consequences. Care must be taken at all times not
to set up such controversies in the minds of these students when developing any sort of evaluation program.

E. **Cognitive Awareness Training Program**

Psychotherapy is a cognitive intervention. When such therapy is not available to students then educators must provide some interim or at best stop gap measure. The Cognitive Awareness Training was undertaken with a view to promoting a common sense definition of ADHD in the minds of the subjects that would allow them to use that definition as a vehicle to increase understanding of their daily failures. It was to provide a factual explanation of the disorder that the students could use to come to grips with their ADHD and to understand the concept of their individual differences. Many adolescents have these problems and the problems themselves differ in degree based on the demands that their environment places upon them. It was hoped that as the subjects' internal locus of control grew, they would become aware of choice. If they were harassed, they could chose to become angry, aggressive, or ignore the insult.

The strongly positive support given to the continuation of the group by the subjects would appear to support it, and therefore mitigate for its repetition. It was hoped that the subjects would achieve a level of cognitive sophistication that would allow them through understanding, to accept their ADHD and yet not rely on it as a cop out or excuse. The topics as outlined in the Instrumentation
in Chapter II, were chosen with these goals in mind, based on group therapy
sessions of various multimodality treatments noted in the Literature Review. It
was felt that they provided a comprehensive initial approach to subjects deeper
understanding of their ADHD. If the group were to continue then it would be
imperative that the interest level of the subjects be sustained. Possibly they
could be canvassed as to what other areas they wished to explore, what
present topics they wished to readdress or expand upon, and an evaluation of
the group format should be entertained as a means of gauging its
appropriateness for further use. Novelty should never be forgotten as a means
of motivation, and it might be beneficial if some form of public recognition for
participation in the group could be arranged. Perhaps the subjects could be
involved in presentations about ADHD to their classmates, teachers, and even
to outside ADHD parent support groups. Since most secondary schools are
embarking upon peer mentoring programs it would be logical to involve the
subjects with other younger ADHD students entering grade 9 classes. A credit
given for taking this course would certainly be welcomed. The paucity of school
based assessment of current research, and the production of interventions that
speak to the daily dilemmas teachers of ADHD students face (Burcham,
Carlson, & Milich, 1993; Fiore, Becker, & Nero, 1993) surely mandate this. This
study's Cognitive Awareness Training represented such an attempt. Prompted
by a desperate pupil request, it showed some improvement in disruptive
classroom behavior, pupil interest in continued out of class group support, and
teacher desire for more knowledge and effective teaching strategies for use with the ADHD population in their classrooms.

In future such interventions might be modelled using Barkley’s (1990), and Fowler’s (1992) suggestions for appropriate educational environments in which to instruct these students. There is an increase in the literature pointing to other methods of intervention for ADHD that disregard its medical basis in favour of a functional approach for assessment and treatment. Maag and Reid, 1994 support such a theory wherein factors are identified that contribute to observed performance in ADHD students. This information is then organized to select appropriate intervention targets and techniques. Educators so empowered then have a model for creating and implementing interventions with their students who exhibit the characteristic behaviors of ADHD. Cognitive Awareness Training, if further researched and tested, might become such a measure.

F. **Teacher Interest**

The Teacher Workshop was an area of some dissatisfaction. While it was received well, and a strongly positive response to the questionnaire asking teachers to rate its merits and value was shown, it was felt that much more teacher inserviceing was required for competent support of a study such as this. In general terms there was little doubt that the teachers had appreciated the information being given to them, but the fact that only 75% had actually tried
any of the teaching suggestions for ADHD students in their classrooms was disappointing. Clearly one lunch period is not sufficient to accommodate the requirements and expectations for support that this study needed. Sadly administrative decisions curtailed the presentation of further workshops, and that is an area that needs to be addressed in future studies. If a program is to be viable in any school, secondary or otherwise, there must be strong support from administration in terms of time and commitment to its benefits for the entire school population. While the research proposal was accepted initially with support, it was felt that possibly its requirements had not been fully appreciated at that time by the Principal. Merely allowing the project to go ahead with no outright verbal support and no allotted time for explanation at Staff Meetings, and not allowing the researcher to use school time to educate the participating classroom teachers placed severe restrictions on the teachers' ability to attain a sufficient level of knowledge and expertise rendering them comfortable and/or competent enough to take an active part in the use of Cognitive Strategies in their individual classrooms.

It would probably be beneficial to have a series of training workshops set up in a setting outside of the school itself. These should be conducted in school hours with appropriate arrangements in place so that staff do not have to give up precious free time. The materials presented to classroom teachers at this time could be expanded, field-tested and evaluated through trial sessions in the classroom, and the teachers directly involved in the production of a
portfolio of information and strategies deemed necessary for successful intervention. This would certainly enhance the collegial atmosphere of the study and possibly work for the benefit of the student by creating a more informed and enthusiastic classroom teacher.

The positive results from this study in terms of reduced severity and frequency of disruptive classroom behavioral incidents testified to by the VP Log records indicated that teachers were handling more behavioral incidents themselves, and not resorting to classroom expulsions. If for no other reason, it would be worthwhile to revamp the workshop as the teachers responded 100% in favour of repeating the exercise. Clearly on their part there was a desire for more knowledge regarding their ADHD students, and as Barkley (1990) suggested, a positive teacher-student relationship may have significant effect on improved academics and social skills concurrently, while also producing the possible benefit of long term success. Children with ADHD manifest a performance deficit rather than an inability to learn (Fowler, 1992). If their teacher can be made aware of this then classroom relationships are less likely to degenerate causing the student to lose crucial self-esteem and the teacher to become more frustrated, reactive, and negatively interactive Campbell, Endman, & Bernfield, 1972 (cited in Barkley, 1990).

Recognizing the importance of the collaborative team approach present in the multimodality intervention approaches listed in the Literature Review, this study did not have the luxury of such inherent support. The close collaboration
of the researcher, the teachers, and the administrators was crucial to its success. This aspect of the study needed to be addressed and reorganized, realizing that even in clinical situations difficulties can arise that thwart this successful collaboration (Barkley, 1990).

G. **Concerns of Present Study**

Several concerns appeared prior to and during the development of this study: 1. The sample size was small due to the constraints of working with the identified ADHD population found in 1 secondary school. It was regretted that there were not sufficient ADHD students available so that a control group could be set up thereby rendering the results statistically valid. In order to convince administrators of the value of such an intervention it would have helped to have data that could be generalized to the ADHD population at large, even if only within that particular schoolboard. While it appeared that the subjects themselves gained from the study there was no large volume of documentation to support this belief. This could possibly be a deterrent to the repetition of the program in another semester.

2. It appeared probable that a longitudinal study of the subjects would provide more convincing evidence as to the success or failure of the intervention. This would allow for generalizing effects to be noted, any sustained improvements in marks to show, and possible support or recognition of the merits of such a study in the eyes of administration which in turn could
lead to its repetition or adoption as a credit course for ADHD and other students at the secondary level.

3. If funding had been available a better approach to this study might have been to employ and train a small team of investigators to present the workshops and cognitive awareness sessions in a larger number of secondary schools. Thus control groups could have been set up for direct statistical comparison which might have lent more impact to the findings.

4. There were concerns with the Teacher Workshop as teacher knowledge and support were crucial to the use of the Subjects' Cognitive Strategies. It had been planned that this area would be discussed in succeeding meetings with the teachers; however, without the support of administration this was not possible. An attempt was made by the researcher to do this on an informal basis. This proved highly unsatisfactory as teachers' time was fully allocated during most days leaving little opportunity for collegial meetings of sufficient length and interest on the part of the individual teacher to impart this important knowledge sufficiently. In order to correct this at the time the researcher tried to visit the subjects in their individual class settings. This was a futile remedy as there were twelve different settings to be observed for several sessions, some teachers were reluctant to have an observer in their classrooms at any time, and the researcher had to continue with regular Learning Support assignments during the school day thus restricting visitations to a few classes with no systematic or regular continuity. To address this at the
time of the intervention the method of having the subjects carry laminated copies of their strategies with them for use in their classes proved untenable as mentioned previously in the Discussion. However, it was felt that knowledge of the CSI method itself was important to the subjects' overall cognitive awareness, and that this had been achieved. Possibly at a continuation of the intervention these concerns could be rectified and the subjects' again have opportunity to put cognitive strategies to the test, but it seemed that this method was better put into place in a withdrawal setting with continued teacher support, or taught at the elementary level where there was continuity within the individual classroom setting as opposed to the rotational nature of a secondary school.

H. Summary of Research Suggestions

Growing out of the Literature Review, Methodology, Results, and Concerns of the Present Study are several areas that merit further investigation. A list follows summarizing the research and/or educational theories advanced and/or supported in this particular endeavour:

1. Individual counselling/teaching is needed for the ADHD adolescent, but it would appear that it is most beneficial when built into the framework of a multimodality approach, embodying the family, the practitioner, and the school. Yet, when these three components are not readily available, the school must step in and provide awareness support for the individual ADHD student.
2. The lack of self-esteem that contributes so greatly to the ADHD adolescents' lack of academic success and serious social downfall must be addressed. For this reason if for no other, this study should be repeated and expanded as the number of ADHD students continues to increase in secondary schools.

3. The neurobiological nature of ADHD must become common knowledge to all educators and administrators so that they might recognize its significant difference from its partners in the Disruptive Behaviors triumvirate. This would enable them to deal more effectively and humanely with the deviances of impulsivity, hyperactivity, and inattention, viewing them in this context rather than as the acts of personal volition associated with Conduct Disorder and Oppositional Defiant Disorder.

4. In Ontario schools the current practice of ignoring ADHD or lumping it under the umbrella of the Behavioral exceptionality, short changes many students who might benefit from an appropriate special education placement. During 1995 the Minister of Education will review the current definitions of exceptionalities, and it is hoped that ADHD will be recognized. It would be preferable to adopt something similar to the American terminology POHI (Physical or Otherwise Health Impairment) that recognizes ADHD as a medical condition of limited alertness or attention than not to recognize it at all.

5. The Cognitive Strategy Intervention paradigm must be presented to secondary and elementary school teachers alike. This is essential if techniques
such as Verbal Mediation, Cognitive Behavior Modification, and Cognitive Strategy Instruction are to be utilized efficiently in classrooms. Such an approach would surely address many avenues of problematic learning in today's integrated and inclusive situations. These training sessions could follow the pattern of inservice training established for Co-operative Learning; whereby 10 half day sessions are conducted during school hours at a central location with supply teachers being provided to cover classes at the particular board of education's expense. Following such a pattern renders the inservice accessible and attractive to individual teachers.

6. Faculties of Education must ensure that courses to train future teachers adequately, include detailed knowledge of Disruptive Behavior Disorders like ADHD. They surface commonly in classrooms all over the world. It is imperative that teachers have a broad and complete understanding of these disorders in order to compensate for the havoc they wreak in students' lives, and to aid those same students in controlling the symptomology to the fullest possible extent.

7. Research must be developed directed toward classroom interventions, and it must be field tested there. It is imperative that all educators and researchers come to grips with this urgent need, and cooperate to provide such programs to deal with the ADHD students and their teachers' requirements. Recent literature questioning a purely biologically determined
ADHD as opposed to the dynamic of biological and classroom variables supports this.

8. Knowledgeable, trained Special Educators must be available in all secondary schools to support and serve the needs of the ADHD adolescent. Boards of Education should conduct highly detailed studies ascertaining these teachers’ value to staff and students alike, before indiscriminately slashing such programs.
APPENDIX A

Teacher Questions on CTRS-28
1. Restless in the "squirmy" sense.
2. Makes inappropriate noises when s/he shouldn't
3. Demands must be met immediately
4. Acts "smart" (impudent or sassy)
5. Temper outbursts and unpredictable behavior
6. Overly sensitive to criticism
7. Distractibility or attention span a problem
8. Disturbs other children
9. Daydreams
10. Pouts and sulks
11. Mood Changes quickly and drastically
12. Quarrelsome
13. Submissive attitude toward authority
14. Restless, always up and on the go
15. Excitable, impulsive
16. Excessive demands for teacher's attention
17. Appears to be unaccepted by group
18. Appears to be easily led by other children
19. No sense of fair play
20. Appears to lack leadership
21. Fails to finish things that s/he starts
22. Childish and immature
23. Denies mistakes or blames others
24. Does not get along well with other children
25. Uncooperative with classmates
26. Easily frustrated in efforts
27. Uncooperative with teacher
28. Difficulty in learning
APPENDIX B

Information Processing Model, (Kirby and Williams, 1991)
Information Processing Model, Kirby and Williams (1991)
APPENDIX C

An Integrated Cognitive-Behavioral Model (Goldstein & Goldstein, 1990)
Adapted by Students
An Integrated Cognitive-Behavioral Model (Goldstein & Goldstein, 1990)
Adapted by Students

Define the Behavior
Create Individual Statements
Get Feedback
Teach Self-Instruction, Self-talk Techniques
Teacher Model Self-Talk Utilizing Individual Statements
Transfer Control to Students
Seek to Provide Opportunities for Generalization
Intermittently Monitor
APPENDIX D

Teacher Workshop Handout: Teaching Suggestions (Fowler, 1992)
Excessive Activity:

Do not try to reduce activity, rather channel it into an acceptable form of expression.

Encourage directed movement in classrooms that is not disruptive. Allow standing during seat work, give a Seventh Inning Stretch, especially toward the end of the period.

Use activity as a reward.

Give activity reward (errand, clean board, take down attendance to office, organize teacher's desk, take down a display and set up a new one) as individual reward for improvement.

Use active responses in instruction.

Use teaching activities that encourage active responding (talking, moving, organizing, working at the board).

Encourage diary writing, painting, doodling to stay focused while working in a group.

Teach the child to ask questions that are on topic and relevant, and do not accept off topic blurt out ones.
Utilize co-operative learning techniques for gaining silence and then accepting only one person answering in a predetermined turn order.

Impulsivity:

Give the child substitute verbal or motor responses to make while waiting and where possible do encourage day-dreaming or planning in the interval.

Instruct that child on how to continue on easier parts of tasks (or do a substitute task) while waiting for teacher's help.

Have child underline or rewrite directions before beginning, give magic markers or coloured pencils to underline directions or relevant information.

Encourage doodling or play with something (not annoying to others) while listening to instructions.

Encourage notetaking (even just cue words).

Teacher should actively focus on and reward short intervals of waiting and gradually increase the length of time.

Where inability to wait becomes impatience and bossiness, encourage leadership but do not assume that impulsive statements or behavior are aggressive in intent.

Suggest/reinforce alternate ways.

Cue child about upcoming difficult times or tasks where extra control will be needed.
For children who interrupt, teach them to recognize pauses in conversations and how to hang onto ideas.

Instruct and reinforce social routines (hellos, goodbyes, please, thank you).

Inattention:

Decrease the length of the task.

Break one task into smaller parts to be completed at different times.

Give two tasks with a preferred task to be completed after the less preferred one.

Give fewer required repetitions for homework e.g. Math questions, Spelling words.

Use fewer words in instructions, and be prepared to repeat them.

Make tasks more interesting

Work in groups or with partners.

Alternate high and low interest tasks.

Use visual aids when lecturing.

Have child sit closer to teacher.

Increase the novelty especially into later time periods of longer tasks.

Make games out of checking work.

Use games to over-learn rote material.
Do not assume the child is not paying attention just because he/she is looking out the window or at another child. Do not make on-task behavior a goal, without changing the nature of the task or learning environment.
APPENDIX E

Side Effects In Order of Occurrence and Frequency for Dexedrine and Ritalin During First Week of Treatment (Conners, 1993)
Side Effects In Order of Occurrence and Frequency for Dexedrine and Ritalin During First Week of Treatment (Conners, 1993)

<table>
<thead>
<tr>
<th>Side Effect</th>
<th>Dexedrine (%)</th>
<th>Ritalin (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insomnia</td>
<td>60</td>
<td>35</td>
</tr>
<tr>
<td>Anorexia</td>
<td>45</td>
<td>38</td>
</tr>
<tr>
<td>Sadness</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Nausea</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Headache</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
<td>All other side effects less than 5%</td>
</tr>
<tr>
<td>Jittery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cramps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thirst</td>
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<tr>
<td>Rash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX F

Teachers' ADHD Workshop Questionnaire (answered Yes or No)
Teachers' ADHD Workshop Questionnaire (answered Yes or No)

1. Did you find the workshop informative?

2. Were you able to go through any of the resource material that was handed out?

IF YOU ANSWERED YES TO QUESTION 2 THEN COMPLETED QUESTIONS

3, 4, & 5

3. Was this material informative?

4. Did you feel that you could use some of the teaching suggestions in your classes?

5. Did you actually try any of these suggestions?

6. Are you interested in learning more about the developmentally disabling disorder ADHD and its subtypes?

COMMENTS
REFERENCES


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