CHAPTER ONE: INTRODUCTION

1.1 Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is "one of the most misunderstood, misinterpreted and misdiagnosed syndromes researched by professionals today… it is simply a facet of behaviour" (Calhoun, Greenwell-Iorillo & Chung, 1997, pg. 414). There are however, those who believe that ADHD is in fact a biological disorder (Goldstein, 2002; Tamhne, 2004), including educators, while others believe that the behaviour stems from the environment (Leo, 2000; Swart & Pettipher, 2005). This implies that despite the efforts of researchers to shed some light on the topic of ADHD, this is not forthcoming due to conflicting views.

It is no surprise then that there are a range of perceptions and ideas regarding ADHD at any given school; educators who believe that any slight deviation in behaviour is an indication of ADHD, while others argue that the disorder is over diagnosed. Furthermore, there is also controversy surrounding the accepted methods of treatment. Does one medicate, use behaviour modification techniques or adapt the environment to better suit the individual child? This lack of agreement however is not surprising, since a decision regarding whom a child should be diagnosed by - a general practitioner, an educational psychologist, a paediatric neurologist, paediatric psychiatrist or a physiologist, also present a challenge.

Over and above this, the South African Education Department has implemented a policy of inclusion as outlined in the Education White Paper 6 (2001). This policy requires schools to include learners with barriers to learning, including those experiencing ADHD, into their mainstream classes. Educators appear to find this policy difficult to implement as they have not had adequate training to assist their learners in overcoming these barriers to learning and development (Swart & Pettipher, 2000). Since educators have not had training with regards to ADHD, yet are faced with these learners daily, this study aims to explore what teachers know about ADHD. This would have implications for the planning and implementation of programmes to assist educators in dealing with ADHD

1.2 Research Aims

The general aim of the study was to establish the perceptions of foundation phase educators in mainstream public and private primary schools in the Gauteng area towards ADHD.

Specifically the aims were:

- To establish what educators understood about ADHD.
- To establish what the perceived incidence rate of ADHD was.
- To identify what educators perceived to be the causes of ADHD.
- To ascertain educators' perceptions on the possible interventions for learners presenting with ADHD.

- To explore similarities and differences in the educators perceptions of ADHD at private and public schools.

1.3 Research Rationale

There is an increase in ADHD behaviour found in our classrooms. Glass and Wegar (2000) state that it has become one of the most publicized conditions affecting children over the past two decades. Researchers agree that ADHD is diagnosed in approximately five percent of children and this statistic makes it one of the most frequent referrals to school psychologists (Carey & McDevitt, 1995; Curtis, Pisecco, Hamilton & Moore, 2006; Demaray, Schaefer & Delong, 2003; Glass & Wegar, 2000). Despite this however, it is interesting to note that some educators do not believe that ADHD is a real medical condition. Consequently, the question must be asked, 'What do educators know about ADHD?'

Goldstein (2002) found that seventy seven percent of the sample of 550 educators reported that they suspected that they have undiagnosed students with ADHD in their classes. Another study (Glass &Wegar, 2000, Kern, 2007) found that teachers felt that the incidence rate of ADHD was far higher than the accepted average incidence level of five percent. This brings into question educators ability to accurately identify learners who may have ADHD, as opposed to those who are merely hyperactive or inattentive.

Holz and Lessing (2002, pp. 238) had identified the problem that faces educators today and they noted that "educators … are generally not trained to identify or teach learners with ADHD." This is true in the South African context as well. The Education White Paper 6 promotes the inclusion of all learners into mainstream classes. It asserts that classroom educators will be the primary resource for achieving the goal of inclusive education. This means that "educators will need to improve their skills and knowledge, and develop new ones" (Department of Education, 2001, pp. 18). However teacher training does not give teachers the tools to successfully implement inclusive education, which includes learners presenting with ADHD, yet it is what government expects as stated in the Education White Paper 6.

Researchers (Curtis, et al., 2006; Glass & Wegar, 2000) agree that many educators feel that the best way to remediate the problem is through the use of stimulant medication. Other alternatives are sometimes considered, but they are found to be too time consuming.

Based on the conflicting evidence given above, as well as a lack of research in the area, this study examined foundation phase educators' perceptions surrounding ADHD since the symptoms of ADHD usually have their onset in children at this time. This includes their thoughts on the incidence rate, causes and possible interventions for children presenting with ADHD.

It is thus clear that although numerous research studies have been conducted on ADHD, the findings are not conclusive due to the conflicting reports. Furthermore, there is a scarcity of research studies based solely on teachers' perceptions of ADHD. This study aimed to establish the perceptions of foundation phase educators with regards to ADHD as well as to make comparisons between the perceptions of public and private school educators.

1.4 Research Questions

The research study attempted to answer the following questions:

a. What do educators understand about ADHD?
b. What are the perceived incidence rates of learners with ADHD in the educators' classrooms?
c. What do educators perceive as the causes of ADHD?
d. What do educators perceive as the appropriate interventions for learners with ADHD?
e. What are the similarities and differences in educators' perceptions of ADHD at private and public schools?

CHAPTER TWO: LITERATURE REVIEW

The area of educator perceptions concerning ADHD appears to be an under researched domain due to the scarcity of literature on the subject. The existing literature on the educators' perceptions of ADHD will however be reviewed in conjunction with relevant literature concerning the causes, interventions, and incidence rate ADHD.

2.1 Theoretical Framework

ADHD is usually approached from the medical model, which is also known as a deficit model. The medical model proposes that the problem a child experiences is inherent within the child. This means that one needs to look no further than the child in order to find the source of the difficulty. It ultimately focuses on diagnosing the child and treating the symptoms that the child presents with. The medical model has its advantages, as indicated by Koudstaal (2005, pp. 308), who stated that knowing the 'label' a child has will "tell the teacher that the behaviour and other observed features are mainly due to a specific development and not because of a behavioural impairment". Kerins (2004) also notes that classifying or labeling an individual provides a universal language amongst professionals.

A shortcoming, however, with the medical mode approach is that it tends to focus largely on the child with the 'problem'. Another possible issue related to the medical model is the process of diagnosis. The diagnosis of ADHD relies heavily on the behavioural

observations and clinical descriptions of the behaviour by both the educator and parent, which can be subjective.

The eco-systemic model on the other hand acknowledges that interactions between an individual and various systems may either hinder or augment their development (Swart & Pettipher, 2005: van Rooyen, Le Grange & Newmark 2002). Within this approach the focus is no longer on the individual with the disorder, but instead on the interaction between the child and his environment. Consequently, the eco-systemic model attributes inattention to environmental factors that negatively affect the learner, such as teaching style, noise in the classroom, and not only to deficits within the learners themselves.

An additional approach to understanding ADHD is the biopsychosocial approach. This approach says that health outcomes are affected by biological, psychological and social factors (Bradford, 2005). It considers both the past and the present and proposes that "developmental factors encompasses both the roots of behaviour in prior maturation as well as the modulations of that behaviour by the circumstances of the present" (Halasz & Vance, 2002, pp. 554). For ADHD specifically, diagnosis and symptoms should be considered in the context of family, school and community. Furthermore, the biopsychosocial approach also implicates attachment problems in the development of the disorder. (Halasz and Vance, 2002).

One of the major neuropsychological theories of ADHD, as described by Willcutt, Doyle, Nigg, Faraone and Pennington (2003), proposes that its symptoms arise from a primary

deficit in executive functions, where executive functions is defined as neurocognitive processes that sustain an appropriate problem-solving set to accomplish a later goal. The difficulties with executive functioning appear to be reflective of only one important component of the complex neuropsychology of ADHD, despite ADHD being associated with weaknesses in several key executive function domains.

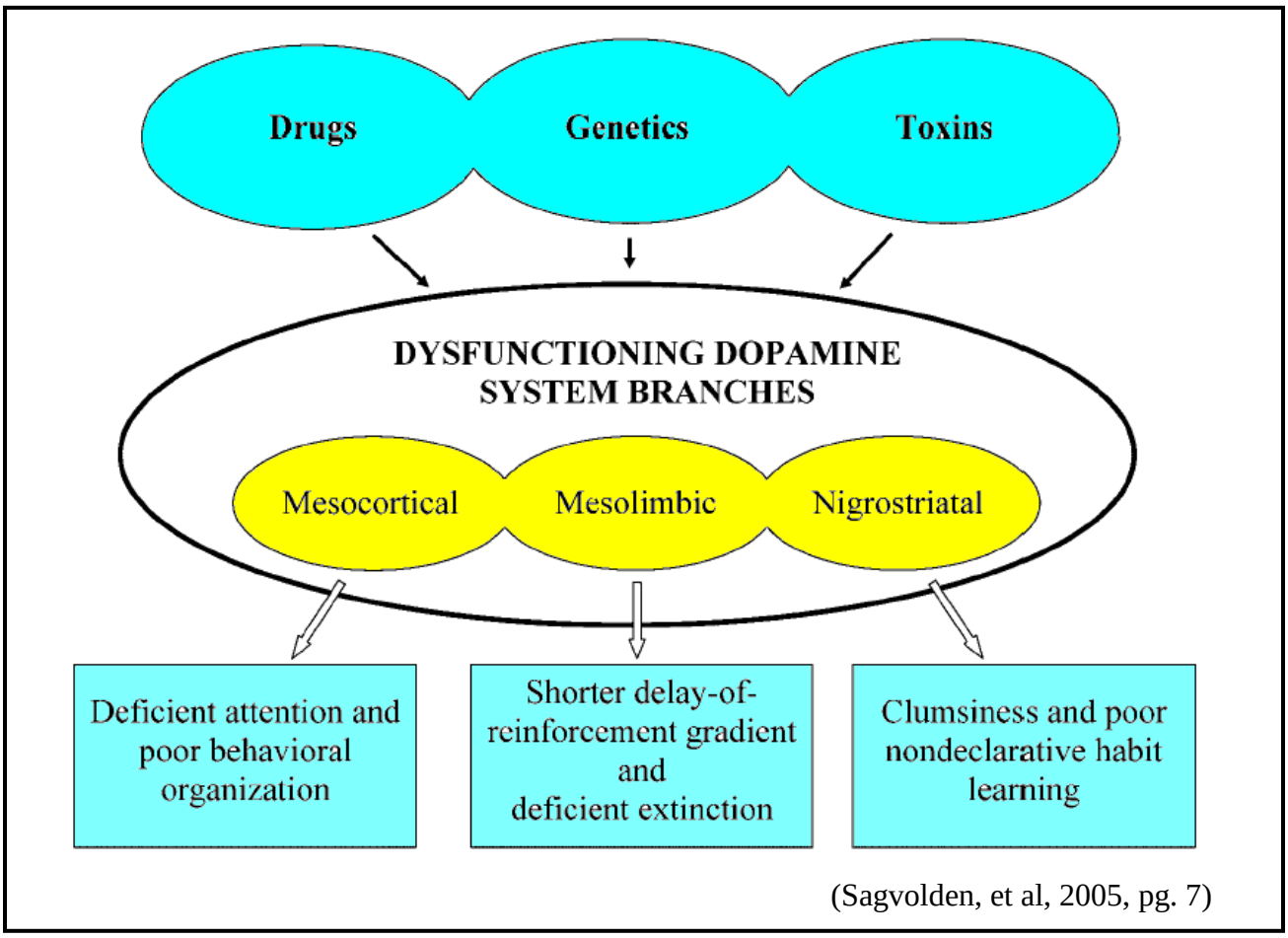
The cognitive-energetic model proposes yet another approach towards understanding ADHD. It approaches the ADHD deficiencies at three distinct levels. The first level postulates a lower set of cognitive processes including encoding, central processing and response organization. The second level of the cognitive energetic model is comprised of the energetic pools; arousal, activation and effort. The third level encompasses a management or executive function system (Sergeant, 1999). It is postulated that deficiencies in these three levels result in ADHD.

The Dynamic Development Theory (DDT) of ADHD is essentially a behavioural theory which displays links to neurological factors. The theory argues that there are two main behavioural processes which cause ADHD:

- altered reinforcement of novel behaviour and,
- deficient extinction of previously reinforced behaviour.

The processes are primarily associated with the hypofunctioning of the mesolimbic dopamine system and will interact with the effects of other hypofunctioning dopamine systems: a hypofunctioning mesocortical dopamine system associated with deficient attention and poor behavioural organization; and a hypofunctioning nigrostriatal

dopaminergic system impairing motor functions and causing poor nondeclarative habit learning (Sagvolden, Johansen, Aase & Russell, 2005). This is illustrated in Figure 2.1.

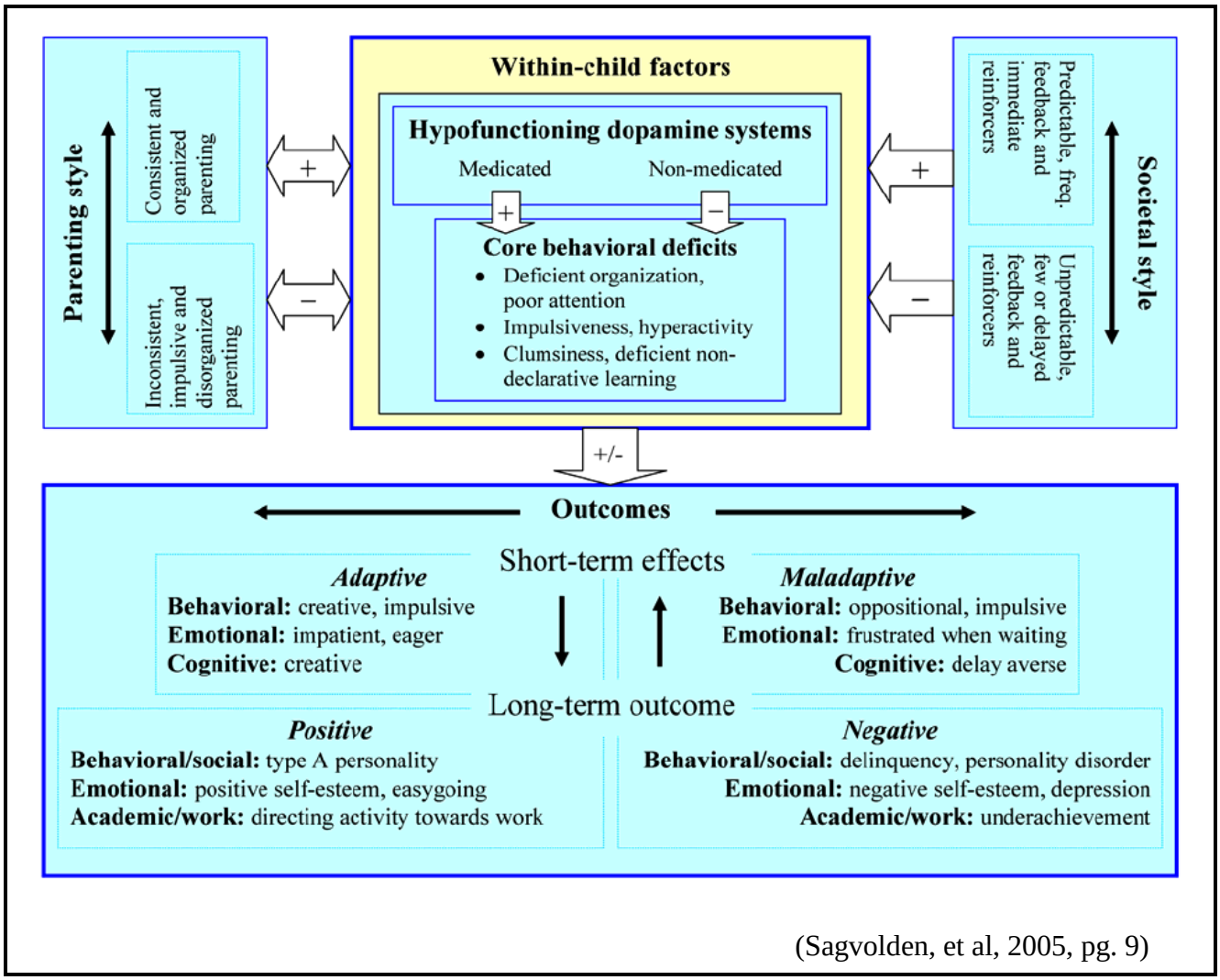


(Sagvolden, et al, 2005, pg. 7)

Figure 2.1: Dysfunction of Dopaminergic Systems and its Effects

The main behavioural selection mechanisms, reinforcement and extinction, are altered in ADHD due to the hypofunctioning dopamine neuron activity (Aase, Meyer & Sagvolden, 2006). The reinforcement processes in ADHD are characterized by abnormally steep and short delay-of- reinforcement gradient and slower extinction of inefficient responses. The resultant behaviour is described as overactive, impulsive and inattentive (Johansen, Killeen & Sagvolden, 2007).

The Dynamic Development Theory (DDT) goes on to propose that the behaviour and symptoms in ADHD are as a result of the interplay between individual predispositions and the environment. Specifically ADHD related variability will differ dynamically as a consequence of context, task and motivational preference. DDT predicts that the exact ADHD symptoms at a particular time will vary and be influenced by factors having either positive or negative effects on the symptom development (Sagvolden, et al, 2005). As shown in Figure 2.2, the core behavioural deficits within the child of poor attention, impulsiveness and clumsiness interact with medication (if prescribed), parenting style and societal style. The parenting style is considered positive if it is consistent and organized, and negative if it is not. In addition, the societal style is thought to be positive if it is predictable, offers frequent feedback and immediate reinforcement. The manner in which the parenting and societal styles impact on the child create ‘positive’ or ‘negative’ behaviours such as creativity and eagerness as opposed to frustration and opposition.



(Sagvolden, et al, 2005, pg. 9)

Fig 2.2: Adaptive and Maladaptive Behavioural Outcomes

(+ sign = beneficial interaction/influence; - sign = unfavourable interaction /influence)

Based on the information discussed thus far, there are distinct models upon which the understanding of ADHD is based. Research shows that educators are more prone to favouring the medical model to address the symptoms and favour medication to alleviate the symptoms of ADHD due to the fast acting nature of the medication (Glass & Wegar, 2000).

Mowbray (2003, pp. 12) asserts that "educators think of these children as the 'me generation' who cannot cope with anything other than instant gratification, who have led disrupted and disheveled early lives dominated by too much television". As a result children are unable to exercise any self control and extended periods of attention. In fact educators have complained about having to 'perform' or 'act' in front of their classes just to keep the children's attention. They argue that children are accustomed to seeing moving pictures and so cannot attend to someone who is standing still. These children are often labelled ADHD by their teachers.

2.2 Features of ADHD

According to Glass and Wegar (2000) Attention Deficit Hyperactivity Disorder (ADHD) is the most commonly diagnosed paediatric psychiatric disorder, this despite it being almost unheard of fourteen years ago. Calhoun, Greenwell-Iorillo & Chung (1997) however proposes that ADHD could be defined as "constant, spontaneous, uncontrollable, overt, purposeless behaviour unconsciously displayed by children." The DSM-IV-TR (American Psychiatric Association, 2000, pp. 78) states that the "essential feature of Attention –Deficit/Hyperactivity Disorder is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development". In the past, hyperactivity was believed to be the underlying impairing symptom in the disorder; it is now believed that impulsivity is secondary to poor impulse control (Sadock & Sadock, 2007).

Inattention may manifest in academic, social or occupational situations. Individuals with this disorder may not pay attention to details or may make careless mistakes in schoolwork or other tasks. Their work is often messy and completed carelessly without considered thought. Individuals often have difficulty sustaining attention in tasks or play activities and find it difficult to persist with tasks until completion. Hyperactivity may be manifested by fidgetiness or squirming in one's seat, by not remaining seated when expected to do so, by excessive running or climbing where it is inappropriate, by experiencing difficulty playing or engaging in quiet leisure activities or talking excessively. Impulsivity manifests itself as impatience, difficulty in delaying responses, shouting out answers before questions have been completed, difficulty in waiting one's turn and frequently interrupting or intruding on others (O'Neill, 1999).

Symptoms of ADHD characteristically worsen in situations that necessitate sustained attention or mental effort or the lack of intrinsic appeal or novelty. Signs of the disorder may therefore be minimal or absent when the individual is engaged in especially interesting activities, receives frequent rewards, is in a one-to-one situation or under very strict control.

Carey and McDevitt (1995) found the aforementioned diagnostic criteria problematic. They questioned when specific behaviour was at the extreme. They queried "at what point does high activity become hyperactivity or normal inattentiveness, pathological attention deficit?" (Carey and McDevitt, 1995, pp. 147). Furthermore additional diagnostic criteria, are that ADHD behaviour must have occurred before the age of seven,

must be present in more than one setting, such as school and home, and must be exhibited over a sustained period of six months (Merrel & Tymms, 2001). The condition is subsequently divided into three subtypes according to the main features of each type, namely ADHD: Predominantly Inattentive Type; ADHD: Predominantly Hyperactive-Impulsive Type; and ADHD: Combined type. Kern (2007) found that educators only referred to the behavioural component of ADHD. This means that the educators only highlighted the inattention and hyperactivity of children with ADHD. Furthermore, only one of the educators distinguished between the various subtypes of ADHD.

Before a clinical diagnosis can be made, certain criteria for each subtype of ADHD must be met. Schoenbrodt (2004) advocates a practical definition focused on general behaviour associated with ADHD rather than on criteria. This definition comprises five components, summarized as follows:

1. *Impulsivity* is demonstrated in behaviours such as interrupting conversations, physical irritation of others, and shifting excessively from one activity to the next.
2. *Inability to sustain attention* is especially evident in the execution of tasks that require mental effort. These signs of distractibility include frequent daydreaming, difficulty with perseverance in schoolwork and exaggerated reactions to external stimuli. This is caused by a short attention span and loose, poorly organized thought patterns.
3. *Over-activity* or *over-arousal,* generally the most noticeable symptom of the hyperactive-impulsive type, is identified by intense, undirected energy, instigating fidgetiness, and the inability to sit still. Compared to their non-hyperactive peers,

children exhibiting this trait move about with extreme speed, believably in relation to their intense emotions.

4. *Difficulty with gratification* is experienced, since these children often need immediate rewards to persist, particularly in schoolwork. Given that they struggle with motivation when only long-term rewards are offered, their performance may improve with more frequent recompense.
5. *Emotions and social skills* are classically affected by ADHD. These individuals experience positive and negative feelings at such extreme levels, that the latter may ignite distress, remarkable enough to get in the way of controlling their emotions. As a result, these children tend to shirk responsibility for their emotional behaviour and cast blame on others (Schoenbrodt, 2004).

Apart from the diagnostic criteria, additional distinguishing features of ADHD could be identified. They are:

- Short attention span and easy distractibility
- Inability to follow instructions
- Demanding extra attention
- Emotional lability
- Irritable
- Impulsive
- Inability to delay gratification
- Low frustration tolerance
- Temper outbursts

- Poor self-esteem (APA, 2000, pp. 87 -88 ; Sadock & Sadock, 2007, pg. 1209)

2.3 Aetiology of ADHD

According to Mowbray (2003, pp. 13) "the condition is thought to be triggered by the interaction between the child's biology and the environment." This is confirmed by Faraone (2005, pp. 7) who states that ADHD is a "multifactorial disorder, caused by the additive and interactive effects of genes and environmental risk factors." This aspect is highlighted by Sadock & Sadock (2007) who noted that emotional disturbance and stressful events, among other anxiety producing life events, contribute to the onset or perpetuation of ADHD.

However, the primary aetiology of ADHD is believed to involve complex interactions of neuroanatomical and neurochemical systems. Giorcelli (2006) suggests that ADHD is a neurobiological developmental disorder, resulting from imbalances in brain chemistry, particularly associated with disparities in neurotransmitters which regulate behaviour. Glass and Wegar (2000) also found that many researchers argue that the behaviours defined as ADHD are the result of neurological malfunctioning in the brain. Carey and McDevitt's (1995) findings added to this by indicating that ADHD is a brain malfunction, which could be genetically determined. This genetic link to ADHD is cited by numerous researchers (A.D.A.M., 2005, Hallowell & Ratey, 1994, Tamhne, 2004). Moreover, by using the positron emission tomography (PET scan), examinations have verified that the

rate at which the brain uses its main energy source-glucose is significantly lower in individuals with ADHD, as compared to those without it. However, research (Leo, 2000) found that there is no significant difference in the PET scans of ADHD males in comparison to the control group males.

Smelter et al. (1996, pg. 413) state that "a diagnosis of ADHD may serve as an explanation for unruly behaviour, which points the blame at the child rather than at the child's environment". Using this medical model approach places the 'problem' squarely at the child's feet and pardons the child and the parent of accountability for the child's social and academic limitations (Smelter et. al., 1996). Swart and Pettipher (2005) however describe the medical model as a deficit model, centred on diagnosing and treating deficiencies within the individual. The authors (Swart & Pettipher, 2005) affirm that human beings don't exist in isolation, but instead are reciprocally influenced and shaped by the societies of which they form a part. Leo (2000, pp. 66) confirms "that the environment matters, that good parenting does have an effect on behaviour, and that educators and parents can improve their teaching and parenting skills". The diagnosis of ADHD serves as a quick fix, because the 'disorder' not the child can then be controlled with medication. Furthermore, medical intervention when applied to the classroom setting only treats the individual and does nothing to change the systemic problems that influence the child's behaviour (Glass & Wegar, 2000).

An alternative view to that of the medical model is the eco-systemic view. Research in this view offers sufficient evidence that the interactions between individuals and their

various systems may either augment or hinder their development (Swart & Pettipher, 2005; van Rooyen, et al., 2002). Within this approach the focus is no-longer on the individual with a 'disorder' but rather on the interplaying social relationships and interactions between these individuals and their environments. It is argued that this method compels adults to adjust their styles to accommodate the needs of youth, and not the other way around. Leo (2000) concurs that there is a link between the child's social environment and the behaviour he displays. He asserts that "we consider ADHD a disease because it makes it difficult to run our schools as we do, like maximum security prisons, for the comfort and convenience of the teachers and administrators who work in them. . . . " (Leo, 2000, pp. 67).

The biopsychosocial approach to understanding ADHD applies a developmental perspective to the possible causes of the disorder. The approach indicates that parenting style, qualities of early attachment, presence of parental and sibling physical or mental illness and social and cultural influences may all have an effect on the development of the disorder (Halasz and Vance, 2002). Specifically one must examine the environment in which the child exists in order to make an accurate diagnosis.

The Dynamic development theory seems to combine the aforementioned theories acknowledging that ADHD does have a biological cause but that the environment and various interactions with others does affect the manner in which ADHD is displayed. Therefore the neurobiology would be viewed as the primary cause of ADHD while the context and task would be considered as exacerbating factors.

While the following factors may exacerbate the symptoms of ADHD, it is not a primary cause of the disorder:

Tahmne (2004) traced the source of the behavioural difficulties in children to a range of physical factors, including genes, and socio-environmental issues such as poverty, social deprivation and parenting problems. This is confirmed by Goldstein (2002) whose survey of 550 educators found that eighteen percent of the educators said that ADHD was as a result of poor parenting. Mowbray's (2003) findings indicated that young children are becoming stressed out by the excessive demands of the modern school system and therefore display symptoms of ADHD. This was confirmed by Calhoun, Greenwell-Iorillo & Chung (1997) who stated that children are experiencing more pain in their lives today due to unemployment, marital problems, substance abuse, general abuse and neglect from parents which causes them to be distractible. In addition, Abelman (2001) found that the more emotional stress a child was under the less able they were to pay attention to class work. Sadock & Sadock, (2000, pg. 1207) makes the point that "stressful psychic events, disruption of family equilibrium, and other anxiety inducing factors contribute to the initiation or perpetuation of ADHD". Consequently, if we examine the school and home system we may find that the child's behavior is symptomatic of a disorder in the school or home situation, and not a neurological disorder (Glass & Wegar, 2000).

Researchers have found a number of causes for the appearance of attentional difficulties. Storbeck (2005) identified that a child who is hearing impaired may appear to be dreamy

and lack concentration. This child may also be talkative, disruptive and display gaps in learning. All of these however are as a result of the hearing difficulty the child may be experiencing and not a disorder. Also, children lacking visual skills may present with poor work, have difficulty reading, paying attention or even exhibit behavioural problems. One can therefore understand why it is possible, even easy to mistake one for the other (Press, 2000). McGee, Brodeur, Symons, Andrade and Fahie (2004) found that children with reading disorders could display inattention and distraction at school.

Some children are oversensitive to sight, sounds and smells. A child like this will experience a sensory overload in a busy classroom, which distracts him making him appear inattentive (Stanley & Greenspan, 2006). Additionally, Kantrowitz and Springen (2003) have found growing evidence that a chronic lack of sleep can mimic the symptoms of attention deficit disorder. The previous findings were confirmed by Kern (2007) where educators in the study noted that the causes of ADHD fell into five distinct categories, that is, physiological, poor diet, emotional difficulties, inadequate parenting and other learning difficulties. Sadock & Sadock (2007) suggested that although food additives, colourings, preservatives, and sugar may cause hyperactive behaviour, no scientific evidence denotes that these factors cause ADHD.

It is interesting to note that Davison and Ford (2001) established that differences in culture could lead to a diagnosis of ADHD. They conducted a study in which semi-structured interviews were administered to 25 participants from four urban schools. The participants included African American parents and educators, and members of the

community who worked with African American parents and children. Davison and Ford (2001) noted that African Americans accepted more activity and voice responses from their children as did their white counterparts. African Americans expected their children to be open, busy, active, robust and boisterous. However, when these children arrived at school they were expected to sit, listen and attend. When unable to do that the children were medicated for hyperactivity.

Goldstein (1992) asserts that a difficult temperament in early childhood changes into or is replaced by ADHD in school. Sadock & Sadock (2007), however, state that temperament should be considered a predisposing factor as opposed to an actual cause. In contrast to this, Carey and McDevitt (1995, pp. 348), felt that the term ADHD is commonly used to "refer to an oversimplified grouping of a complex and variable set of normal but incompatible temperament variations". They believe that many children are being given this diagnosis because there is a poorness of fit between their temperaments and what is expected of the school system. Furthermore, they hold that a behaviour characteristic may or may not be dysfunctional depending on temperament-environment interaction.

The aforementioned highlights the complexity in understanding and conceptualizing the disorder. Consequently, it becomes clear that it is definitely not up to the educator to 'diagnose' ADHD, though they can and should raise questions. In addition, a comprehensive understanding of ADHD would assist the educators in screening for ADHD and then making the necessary referrals. Furthermore, this enhanced understanding would inform their classroom practice.

It is crucial to make sure someone has tested the child's hearing and vision recently, and to ensure that other medical problems have been ruled out (Hallowell & Ratey, 1994). This is to ensure that time is not spent treating the wrong condition (Hallowell & Ratey, 1994). Levine (1994) makes the point that so much is at stake when a child is misdiagnosed since children who experience too much failure early in life are vulnerable to a wide range of complications, including the development of behavioural and emotional difficulties (Levine, 1994).

2.4 Interventions for ADHD

Acknowledging the aetiology of ADHD facilitates acceptance of the disorder and promotes willingness to try various interventions (Schwiebert & Sealander, 1995). The theoretical framework that is adopted will guide an understanding of the aetiology of the disorder as well as the intervention strategies to be implemented.

Nichy (2004) indicates that there is no quick treatment for ADHD. He suggests that the behaviour can be managed through the use of an educational programme that fits the child's specific needs and medication if the parents and doctor thinks that it will be beneficial. A.D.A.M. (2005) outlines the following guidelines for treating ADHD:

- "Set specific, appropriate target goals to guide therapy
- Medication and/or behaviour therapy should be started.

- When treatment has not met the target goals, evaluate the original diagnosis, the possible presence of other conditions, and how well the treatment plan has been implemented.
- Systematic follow-up is important to regularly reassess target goals, results and any side effects of medication".

DuPaul and White (2006) point out three intervention methods. These are:

- Medical Interventions which are central nervous system stimulants.
- Behavioural Interventions, and
- Academic Interventions.

Medical interventions usually involve the use of central nervous system stimulants which include "methylphenidate (MPH) in a variety of immediate, intermediate, and extended release formulas (ritalin, metadata, methylin, concerta), a formulation of MPH consisting of only the more active d-isomer (focalin), dextroamphetamine (fexedrine), and mixed isomers of amphetamine (adderall, adderall XR)" (Miller-Horn, Kaleyias, Valencia, Melvin, et al, 2008, pg. 6). Research into the efficacy of stimulant medication found that between 70% and 90% of children treated with medication responded positively while the remainder of the children displayed no response or the ADHD symptom worsened (Miller-Horn, Kaleyias, Valencia, Melvin, et al, 2008, O'Neill, 1994). Non-stimulant medications are also used in the treatment of ADHD and include atomoxetine (strattera), a norepinephrine reuptake inhibitor, the tricyclic antidepressants imipramine (tofranil)

and desipramine (norpramin), and bupropion (wellbutrin*) (*Newcorn, Kratochvil, Allen *&* Casat, et al, 2008*).*

The behavioural interventions were divided into two distinct categories. The first refers to changing antecedent events which focus on changing behaviour prior to a specific behaviour. Examples include posting rules, modifying assignments and peer tutoring. This is confirmed by Grandy and McLaughlin (1999) who refer to antecedent conditions as those relating specifically to the setting and environmental conditions. One of the areas that they focus on is that of seating. Grandy and McLaughlin (1999) suggest placing a child with ADHD near to the educator so that they can receive additional support from the educator. The second behavioural intervention refers to consequent events which employ both positive and negative consequences for a specific behaviour. Examples include star charts, time out and privileges. An alternative name for these types of interventions is cognitive-behavioural interventions. These interventions specifically focus on the child's thinking processes and aim to encourage children to problem-solve using an appropriate strategy while simultaneously weighing up the consequences of their actions.

Academic interventions refer to offering academic support to learners diagnosed with ADHD with. Examples of the academic support include peer tutoring and individualized direct instruction (DuPaul & White 2006). Grandy and McLaughlin (1999, pg. 65) also noted that "on-task behaviour, activity level and academic performance" improved in learners suffering from ADHD as a result of peer tutoring.

Evans, Schultz and Sandler (2008) included the importance of social interventions in their study. They argued that peer rejection and aggression towards peers is predicative of a range of serious adjustment problems in children with ADHD in their research study. However, despite acknowledging the importance of implementing social skills training, the training itself was not effective. This outcome was possibly due to the children's inability to generalize the skills learnt in treatment to other settings.

Despite the various intervention methods, studies show that educators prefer medication as an intervention strategy since they regard it to be more effective and timely (Curtis, et al., 2006, Kern, 2007). This despite their being aware of and having knowledge about the alternative strategies. Glass and Wegar (2000) also found that many educators believe that medication is warranted for the control of the behaviours that are characteristic of ADHD, even when the educator believes that ADHD is not a biological condition i.e. the concentration difficulty is caused by environmental factors. Glass and Wegar (2000, pg. 415) believe that teachers choose this option because "it is easier to medicate than to look for more time-consuming alternatives" and to eliminate their feelings of frustration, confusion and incompetence with regards to children exhibiting ADHD (Holz & Lessing, 2005).

Conrad (1980) in Glass and Wegar asserts that medical intervention as a social control seeks to limit, alter, normalize, isolate, or eradicate deviant behaviour with medication and in the name of health. Leo (2000) also found that Ritalin is quick, easy, and cheap. Elia, Ambrosini & Rapoport, (1999) notes that behaviour management in conjunction

methylphenidate (Ritalin) is significantly more effective than behaviour management alone, but generally no more effective than methylphenidate alone. This is confirmed by Sadock & Sadock (2007) who state that medication only represents one facet of a multimodal regime. However, behaviour management implemented in a highly structured setting may permit the use of a lower dose of Ritalin". In other words, there is an inverse relationship between a highly structured environment and the dose of Ritalin. Perhaps the national push to reduce class size will also result in a reduction of the number of children on Ritalin.

2.5 Incidence Rate of ADHD

A.D.A.M. (2005) estimated that 3 – 5 percent of children are affected with ADHD. These figures correlate with those presented by Glass and Wegar (2000). However, Salt, Parkes and Scammell (2005) estimate the prevalence of ADHD to be between 1.4 – 6 percent. In a study conducted by Glass and Wegar (2000) which included educators' perceptions of the incidence of ADHD, the results revealed that teachers believed the incidence rate of ADHD to be between 6 to 15 percent, with some believing that it was as high as twenty five percent. These findings were confirmed by a study conducted by Kern (2007) in which the perceived incidence rate averaged at 17 percent, with some as high as 30 percent. This implies that children are being 'identified' as having ADHD, when in fact there may be other factors impacting on their attention levels.

The literature states that ADHD is diagnosed more frequently in males than in females (APA, 2000; Hyman, 2001, Schoenbrodt, 2004). The ratio of males to females ranges between 2:1 and 9:1, depending on the predominant type. One explanation for this prevalence rate is that boys usually exhibit more hyperactivity than girls, making their behaviour more identifiable. Because girls impart less energy, their rather covert symptoms of inattention tend to conceal the disorder, with the result it may go unnoticed (Hyman, 2001).

While there is a scarcity of literature based solely on educators' perceptions of ADHD, a number of conclusions could be drawn based on the literature presented here. The first is that ADHD is best understood within the biopsychosocial perspective and that interventions should be aimed at addressing the biological, psychological as well as social aspects of the disorder. In addition, professionals need to collaborate in the implementation of the interventions, as well as monitoring the efficacy of the various intervention strategies .

2.6 Educators' Perceptions of ADHD

Glass and Wegar (2000) conducted a study in which they examined 225 educators' perceptions of the incidence rate, causes and interventions for their learners suffering from ADHD using surveys. Fourteen public schools and five private schools participated in their study. The majority (78.2%) of the educators believed that ADHD was as a result of a biological abnormality, while the remaining educators believed the causes to be

either due to environmental factors or an extreme expression of normal behaviour. In addition the incidence rate varied from below five percent to above twenty-six percent.

A pilot study examining the perceptions of five foundation phase educators with regards to ADHD was conducted by Kern (2007). Semi-structured interviews were conducted and recorded. The results of the study indicated that educators believed ADHD to be caused by five factors. These factors specifically were physiological, emotional, diet, parenting and other barriers to learning. It is interesting to note that despite identifying such a wide range of possible causes, the educators' preferred intervention method was that of medication due to its effectiveness in the classroom situation.

Goldstein (2002) conducted online interviews with 550 educators. The results indicated half of the educators could not determine if a child had to be referred for an ADHD evaluation. Furthermore, one in ten educators did not believe that ADHD was a real medical condition. Of those educators who considered ADHD to be a medical condition, eighteen percent thought that it was as a result of poor parenting, while twenty-six percent believed that that the children would outgrow the condition.

2.7 Conclusion

While ADHD is often seen as a negative condition, it should be held in mind that the same brain functioning that causes problems for learners may also give them intuition,

spontaneity, excitement, energy, creativity and artistic skills, which are qualities needed for success (O'Neill, 1994).

It is evident from the literature that ADHD is prominent in all communities and cultures. While the cause is influenced by biological, psychological as well as social systems, the prevalent interventions do not address these various systems. Instead, "if science does show a mechanistic or a biological basis for this variable personality trait, as a society we still face an important value judgement. If our schools are like pegboards designed for round holes, and 10 percent of the pegs are square, then we have two choices. Either we must change the peg board (the environment), which requires time and money to accommodate more of the pegs. Or, we can chisel away at the 10 percent of square pegs (children with problems sitting still) so that they fit into the round hole" (Leo, 2000, pp. 68).

CHAPTER THREE: METHODOLOGY

3.1 Context of the Study

The research was conducted at fifteen mainstream primary schools in the Gauteng region. Specifically the schools were located in Johannesburg East, West and North Districts. Of the fifteen, 8 were private and 7 were public schools. The results in Table 3.1 illustrates that of the total number of participants, 84% (*n*=106) indicated that their schools were located within an urban setting which is defined as a school that is located in the suburbs surrounding Johannesburg City Central. The same number of respondents, 8% (*n*=10), reported that their schools were either Township schools or Inner city schools Table 3.1.

Table 3.1: School Settings

School Setting	**Frequency** ***n***	**Percent** **%**
Inner City School (A school found in Johannesburg Central or Braamfontein)	10	8
Urban School (A school found in the suburbs surrounding Johannesburg City Central)	106	84
Township School	10	8

A discrepancy in the socio-economic status of the schools was expected due to the types of schools involved in the study, private and public schools. However, there was also a difference in the socio-economic standing of the private schools in that they ranged

between middle to high socio-economic standing. The public schools on the other hand ranged between low and middle socio-economic standing.

The results presented in Table 3.2 indicate the human resources available at the fifteen schools as well as a comparison between the human resources at the two different types of schools, specifically private and public schools. While the highest number of educators, *n=56,* indicated that they had access to Educational Psychologists, the public school educators (*n*=38), indicated more access to educational psychologists in comparison to their private school counterparts (*n*=18). An additional point to note is the number of educators who indicated that they had access to Clinical psychologists were *n*=13.

Table3.2: Resources

	Private School Number of Educators *n*	Public school Number of Educators *n*	Total Number of Educators *n*
Educational psychologist	18	38	56
Occupational therapy	17	32	49
Speech And hearing Therapist	17	34	51
Clinical Psychologist	11	2	13
Remedial Therapist	15	31	46

3.2 Research Design

The study employed a non-experimental, descriptive design in that it aimed to explore educators' perceptions of ADHD. As described by Booth (2007), non-experimental research is used in situations where the independent variable cannot be manipulated. In this study the independent variable refers to the type of school, which could not be manipulated.

3.2.1 Sampling Procedures

Twenty-seven primary schools were invited to participate in the study. The principals of fifteen of the schools gave consent for their educators to participate. The sample consisted of 130 foundation phase educators who indicated that they would participate in the study, from fifteen of the twenty-seven schools approached.

The sample was considered to be a purposive sample of convenience since the educators were believed to have specific characteristics that would enable them to provide information relevant to the aims of the study. Foundation phase educators were specifically selected since they come into contact with learners between the ages of six and nine. It is during this time that the symptoms of ADHD usually have their onset in children (DuPaul & White, 2006). The sample is considered a convenience sample in that they indicated an availability and willingness to participate in the said study and is

defined by Devlin (2006, pg. 246) as "a sample you obtain through the availability of the population".

3.2.2 Participants

The participants in the current study comprised of 129 females and one male whose ages ranged between 20 and over 50 years (Table 3.3). The majority of the participants were aged over 50 years, 26% (*n*=34), while the least number of participants, 8% (*n*=10), were within the lowest age range, 20 – 25 years. Of the 130 participants, 50 (38%) were employed at private schools, while 80 (62%) were employed at public schools. Twenty-five of the participants (19%) are completing postgraduate studies currently. The ages of the participants completing postgraduate studies range from 25 years to over fifty years. The age range with the most educators completing postgraduate studies falls within the 26 – 30 age range (*n*=6, 24%).

Table 3.3: Age Range of Participants

Age Range	Frequency *n*	Percentage %
20 – 25	10	8
26 – 30	17	13
31 – 35	16	12
36 – 40	19	15
41 – 45	16	12
46 – 50	18	14
Over 50	34	26

The educators' length of teaching experience ranged between one and over fifteen years (Table 3.4). It is interesting to note that the majority of the sample had in excess of fifteen years of teaching experience. Attendance at ADHD courses was an additional component that was examined. Fifty-four percent (*n*=59**)** of the participants indicated that they had never attended a course concerning ADHD while, 46%, (*n*=70) indicated that they had undergone in-service training about ADHD.

Table 3.4: Educators' Length of Teaching Experience

Number of years teaching experience	Frequency *n*	Percentage %
1 – 5 years	22	17
6 – 10 years	20	15
11 – 15 years	19	15
> 15 years	70	53

As shown in Table 3.5, of these foundation phase participants, the majority (32 %, *n*=41) of the respondents were teaching Grade 3, while the Grade 0 educators made up the least number of participants, 11% (*n*=14).

Table 3.5: Number of Teachers Per Grade

Grade Teaching	Frequency *n*	Percentage %
Grade 0	14	11
Grade 1	35	28
Grade 2	37	29
Grade 3	41	32

3.2.3 Testing and Intervention Procedure

After ethical approval was obtained for this study, written consent was obtained from the Gauteng Department of Education (Appendix 1). Consent was then sought from the principals of the fifteen schools, this was done by meeting with the individual school principals. (Refer to the appendix 3 for the written consent form.)

Due to time constraints, on the part of the researcher as well as the educators, the researcher was unable to address the educators personally. As a result the individual principals addressed the educators and requested that they participate in the study. Consequently, the questionnaires along with the information letter were left with the principals who distributed and collected them (Refer to appendix 4 for the participant information letter).

The questionnaires were then collected from the schools by the researcher.

3.2.4 Data Analysis

Due to the nature of the instrument used both qualitative and quantitative data was gathered. The quantitative data was analyzed using descriptive statistics employing frequency analysis based on the aims and research questions of the study. Specifically the data, having been coded and entered into a comprehensive spreadsheet, was analyzed using SAS – a statistical software programme. The t-test was used to ascertain the differences in responses between the public and private school educators.

The open-ended questions were analyzed using content analysis. Content analysis is the process of "identifying, quantifying, and analyzing of specific words, phrases, concepts, … in a text … with the aim of uncovering some underlying thematic of rhetorical pattern running through those texts" (Bazerman & Prior, 2004, pp. 14). Content analysis consists of "burrowing through written records in order to discover their characteristics" (Rosnow & Rosenthal, 1996, pp. 81). In order for it to be effective one must choose categories that are relevant to the research questions. Deductive category application works with aspects of analysis which have been formulated prior to data collection (Mayring, 2000). In this study the categories for analysis were based on the aims and research questions of the study, while the themes were based on the pattern of responses that emerged. The categories are therefore said to be deductive categories. (Mayring, 2000). The patterns of responses were then analyzed employing frequency analysis.

3.6 Instrumentation

A self-developed questionnaire (Appendix 5) was used to establish the perceptions of foundation phase educators in Gauteng with regards to ADHD. The questionnaire was developed based on the diagnostic criteria for ADHD as specified in the DSM-IV, as well as the results of a study conducted by Kern (2007).

The questionnaire consisted of both open and closed ended questions. The closed ended questions were scaled questions using a 5 point Likert scale ranging from Strongly Disagree to Strongly Agree.

The first research question which addressed educators' understanding of ADHD was established by Questions 15, 16 and 17 in the questionnaire. The second research question aimed to ascertain what educators perceived to be the causes of ADHD and was looked at in Question 20. The third research question aimed to determine the appropriate interventions for learners presenting with ADHD as perceived by the educators and was addressed by Questions 21, 22 and 23 in the questionnaire. The forth research question aimed to establish both the actual and perceived incidence rates of ADHD and was determined by Questions 18 and 19. Questions 1-14 were used to determine the demographics of the educators. The information gathered from these questions were also applied in exploring the similarities and differences between private and public schools educators' perceptions, which is the fifth research question.

Initially the questionnaire was piloted on foundation phase educators who did not form part of the sample of the study, to evaluate the clarity of the specific questionnaire items (Terre Blanche & Durrheim, 1999). The sample consisted of five, female educators. Two of the educator's were teaching Grade 2, two were teaching Grade 1, while one of the educators was teaching Grade 3. The results of the pilot study indicated that the questionnaire items were clearly understood, requiring no modification.

3.7 Ethical Clearance

Ethical clearance was applied for and obtained from the Discipline of Psychology and School of Human and Community Development.

Permission to conduct the study in public schools was obtained from the Gauteng Department of Education (Appendix 1). A letter of permission and signed consent was obtained from the principals of the various private and public schools to conduct the research at their schools (Appendix 2 and 3).

The participants were given an information letter (Appendix 4) stating the aims and objectives of the study. Completion of the questionnaires was taken as consent on behalf of the participants. It was made clear that the educators would not be discriminated against if they chose not to participate in the study.

Confidentiality and anonymity were respected since no identifying information was asked for in the questionnaire. In addition the results were processed only by the researcher, and the supervisor.

A copy of the written report will be made available to the individual principals of the various schools. In addition, a summary of the findings will be made available to the participants, which will be placed on the notice board of the respective staffrooms. In conjunction with the summary of findings, the educators will also be provided with a summary of information related to ADHD on completion of the research report. This will be presented on one page, which will then be distributed to all the participants.

CHAPTER FOUR: RESULTS

This chapter aims to present the results of the research study, where the objective was to answer the following research questions:

a. What do educators understand about ADHD?
b. What are the perceived incidence rates of learners with ADHD in the educators' classrooms?
c. What do educators perceive as the causes of ADHD?
d. What do educators perceive as the appropriate interventions for learners with ADHD?
e. What are the similarities and differences in educators' perceptions of ADHD at private and public schools?

However, before the results can be discussed it is important to note that although the questionnaire employed a five point Likert Scale ranging from Strongly Agree to Strongly Disagree, the results have been analyzed and interpreted using a three point scale; Agree, Neither Agree or Disagree and Disagree; where the Strongly Agree and Agree results have been combined, as well as the Strongly Disagree and Disagree results. This was done to facilitate the presentation and interpretation of the results.

4.1 Educators' understanding of ADHD

ADHD as defined in this study has four aspects to it. They comprise of a behavioural component, age of onset, and the presence of the behaviour in more than one setting for more than six months. As shown in Table 4.1 the educators who participated in this study, defined ADHD in terms of behaviour only, such as inability to sit still, hyperactivity and aggression. The educators omitted the age, occurrence and persistence of the symptoms.

Some of the educators, 15% (*n*=16) did however, allude to the physiology of the disorder, indicating that ADHD is caused by a neurological impairment or chemical imbalance in the brain. There was however a discrepancy in the comparison between the public and private school educators understanding where 22% (*n* =10) of the private school educators noted the role that physiology plays as compared to the 10% (*n* =6) of public school educators. An additional difference in responses was noted with reference to ADHD without hyperactivity (passivity) where 10% (*n* =6) of the public school educators noted that learners could be passive whereas none of the private school educators acknowledged this. In addition, public school educators, 19 (*n* =12) placed more emphasis on the ability to sit still than did their private school counterparts, 11% (*n* =5).

Table 4.1: Educators' Understanding of ADHD

Theme	Total		Private School educators		Public School educators	
	Percentage of responses%	Number of responses *n*	Percentage of responses%	Number of responses *n*	Percentage of responses%	Number of responses *n*
Inability to pay attention	18	19	16	7	19	12
Hyperactivity	25	27	27	12	24	15
Underachieving	5	5	4	2	5	3
Inability to sit still	16	17	11	5	19	12
Inability to concentrate	53	57	62	28	46	29
Difficulty completing work	9	10	9	4	10	6
Aggressive	3	3	2	1	3	2
Passivity (without hyperactivity)	6	6	0	0	10	6
Low self-esteem	3	3	2	1	3	2
Attention seeking	2	2	0	0	3	2
Needs attention from parents/teachers	3	3	0	0	5	3
Impulsivity	7	8	11	5	5	3
Neurological impairment, chemical imbalance	15	16	22	10	10	6
Learning disorder / Problem	10	11	2	1	16	10
Inability to focus	20	22	18	8	22	14
Disruptive	11	12	16	7	8	5
Distracted	17	18	20	9	14	9
Hereditary	3	3	2	1	3	2
Behavioural disorder./problem	5	5	9	4	2	1
Intelligent leaner	2	2	2	1	2	1
Disorganized	2	2	4	2	0	0

The results in Table 4.2 indicate that a majority of the educators agree with the diagnostic criteria for ADHD which specifies that a persistent pattern of inattention and/or hyperactivity/impulsivity be displayed in more than one setting, be present for more than six months, with its onset before the age of 7. An interesting point to note is the percentage of educators, 7 (*n* =9) who do not agree with the criteria related to the behavioural component of ADHD, i.e. inattention and/or hyperactivity. An additional point to note is the 55% (n=66) of educators who agree with the criteria as it relates to the age of onset of the behaviours. A seemingly high percentage, 26% (*n*=24) of educators did not have an opinion regarding this criterion which may represent a lack of knowledge in this area.

Table 4.2: Opinions Regarding Diagnostic Criteria for ADHD

Statement	Agree		Neither Agree nor Disagree		Disagree	
	Number of responses *n*	Percentage of responses %	Number of responses *n*	Percentage of responses %	Number of responses *n*	Percentage of responses %
A child must be inattentive and/or hyperactive/impulsive	100	81	14	11	9	7
The behaviour must have occurred before the age of seven years.	66	55	37	26	24	20
The behaviour must be present in more than one setting (e.g. school and home).	109	86	9	7	9	7
The behaviour must be present for more than six months.	12	76	17	14	12	10

Table 4.3 indicates that 87% (*n*=39) of private school educators and 78% (*n* =60) of pubic school educators felt that a child must be hyperactive/inattentive for a diagnosis of ADHD to be made. There is a 10% difference in these responses, which is surprising, but not significantly different (p= 0.3719). In addition the discrepancy related to the age of onset must be highlighted since the private school educators had a 67% (*n* =30) agreement rate as compared to the 48% (*n* =36) agreement of the public school educators. Here again however, there is no significant difference (p=0.2147)

Table 4.3: A Comparison Regarding the Diagnostic Criteria of ADHD

Statement		Private School Educators						Public School Educators					
	t-test	Agree		Neither Agree nor Disagree		Disagree		Agree		Neither Agree nor Disagree		Disagree	
	Pr > |t|	*n*	%	*n*	%	*N*	%	*n*	%	*n*	%	*n*	%
A child must be inattentive and/or hyperactive/impulsive	0.3719	39	87	3	7	3	7	60	78	11	14	6	8
The behaviour must have occurred before the age of seven years.	0.2147	30	67	6	13	9	20	36	48	24	32	15	20
The behaviour must be present in more than one setting (e.g. school and home).	0.8161	41	85	3	6	4	8	67	86	6	8	5	6
The behaviour must be present for more than six months.	0.5809	34	77	7	16	3	7	56	76	9	12	9	12

4.2 Actual and Perceived Incidence rates of ADHD

Both the actual and perceived incidence rates of ADHD are presented in Table 4.4. While the number of learners diagnosed are within the research norms of between 3% and 7%, it is interesting to note that the percentage diagnosed in private schools, 7%, is almost double that diagnosed in public schools, 4%.

Table 4.4: Percentage of Learners Diagnosed with ADHD

		Total	Private School Educators	Public School Educators
Incidence Rate	Diagnosed	5	7	4
	Undiagnosed/ Perceived	7	7	7

4.3 Perceived causes of ADHD

Figure 4.1 presents the educators' perceptions of the causes of ADHD. The items on Question 20 (see appendix 5) were condensed into five causal factors; physiology, emotional, diet, parenting and other barriers to learning. The results 78% (*n* =95) indicate that educators believe that dietary factors are the primary cause of ADHD. Physiological causes was rated the second highest cause, 65% (*n* =73).

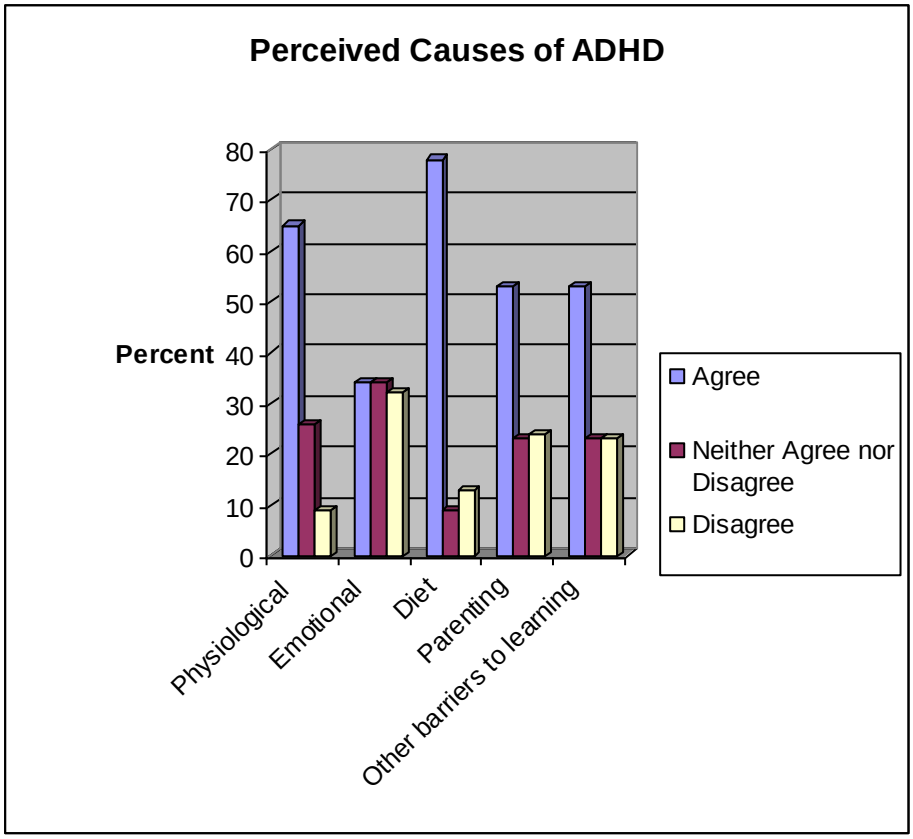


Figure 4.1: Perceived Causes of ADHD

Both the public and private school educators appear to have similar perceptions with regards to the causes of ADHD as is outlined in Table 4.5. Although both sets of educators perceived the role of emotions to be limited in the cause of ADHD, the public school educators did give this factor more weight, 38% (*n* =26) as compared to the private school educators, 29% (*n* =13).

Table 4.5: Comparative Table of Perceived Causes

	Private School Educators						Public School Educators					
	Agree		Neither Agree nor Disagree		Disagree		Agree		Neither Agree nor Disagree		Disagree	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Physiological	28	65	10	24	5	12	45	65	19	27	6	8
Emotional	13	29	13	31	17	40	26	38	25	36	18	26
Diet	38	79	4	8	6	13	56	76	7	9	9	13
Parenting	24	52	10	23	12	19	31	48	17	26	18	26
Other barriers to learning	26	57	7	15	13	28	46	63	16	22	11	14

4.4 Interventions

The educators' perceptions regarding the efficacy of various treatment modalities are presented in Table 4.6. While no major discrepancy in percentages is noted, it is interesting to note the number of participants who indicated that Ritalin is effective, *n* =68 (83%), in comparison to the other treatment modalities. It is also interesting to note the number of participants who noted that play therapy, *n* =34 (79%), and counselling, *n* =29 (83%), where effective modalities. Additionally, 12 (100%) of the respondents believed that modifying the diet would create a change in the presenting symptoms of ADHD. This is directly related to the educators' perceptions that poor diet causes ADHD

Table 4.6: Educators' Perceptions of the Efficacy of the Various Treatment Modalities

	Agree		Disagree	
	n	%	*n*	%
Ritalin	68	83	14	17
Concerta	29	81	7	19
Behaviour modification	29	74	10	26
Play Therapy	34	79	9	21
Counselling	29	83	6	17
Diet	12	100		

In Table 4.7 below, it is interesting to note the percentage of private and public school educators who do not believe that medication, Ritalin and Concerta are effective treatment modalities. Specifically, 20% (*n* =8) of private school educators, and 15% of public school educators do not believe that Ritalin is effective, while 21% (*n* =5) of private school educators, and 17% of public school educators do not believe that Concerta is effectual.

Table 4.7: Comparisons of Private and Public School Educators' Perceptions of the Efficacy of Various Treatment Modalities

	Private School Educators				Public School Educators			
	Agree		Disagree		Agree		Disagree	
	n	%	*n*	%	*n*	%	*n*	%
Ritalin	33	80	8	20	35	85	6	15
Concerta	19	79	5	21	10	83	2	17
Behaviour modification	18	75	6	25	11	73	4	27
Play Therapy	18	78	5	22	16	80	4	20
Counselling	17	85	3	15	12	80	3	20
Diet	5	100			7	100		

Figure 4.2 below indicates whom educators believe learners, presumably afflicted with ADHD, should be referred to. While the referrals to Neurologists, 96% (*n* =108) and Educational Psychologists, 96% (*n* =116) are comparable it is interesting to note the seemingly high percentage of educators who believe that ADHD can be diagnosed by a General Practitioner, 21% (*n* =18), Occupational Therapist, 65% (*n* =67) and Speech and Hearing Therapists, 56% (*n* =57).

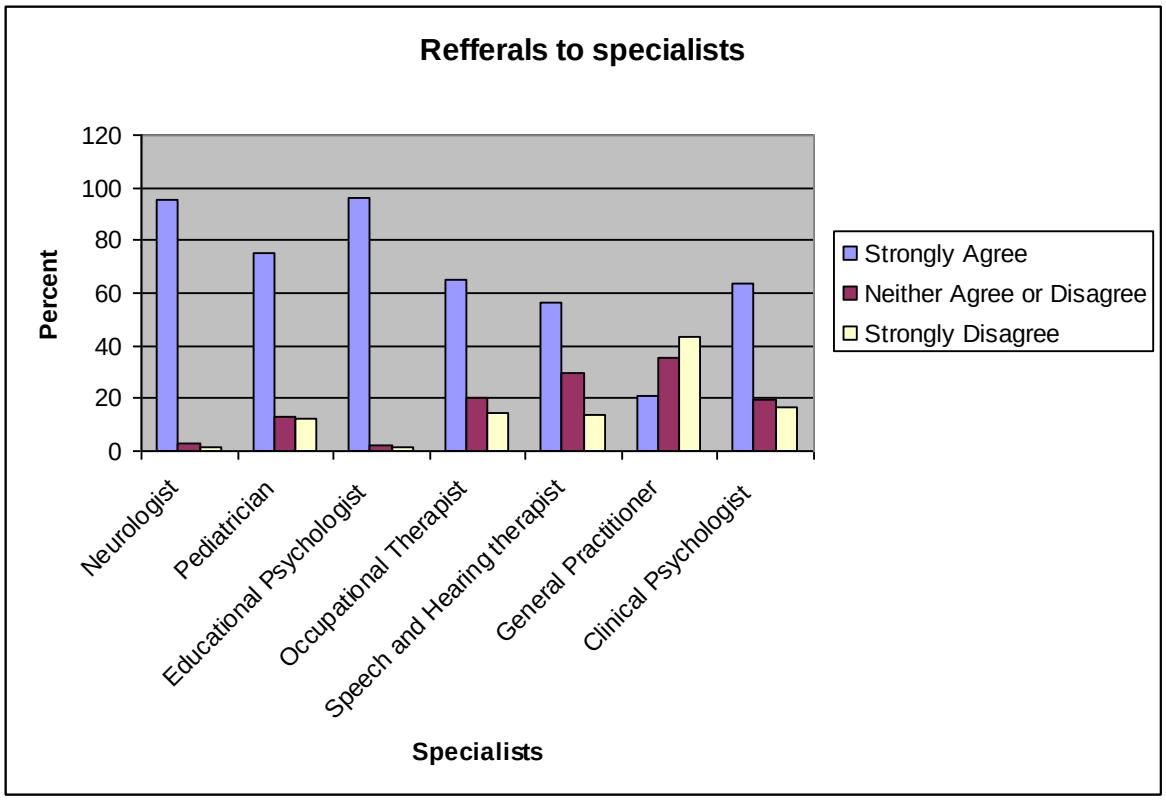


Figure 4.2: Educators' Opinion on Whom to Refer to

The Table 4.8 below represents the comparisons between private and public school educators with reference to who children who may be afflicted with ADHD should be referred to. While 79% (*n*=45) of the public school educators would refer to a paediatrician, a lesser percentage, 69% (*n* =24) of the private school educators would do this which is a 10% difference. In addition there is a 14% difference in reponse to referring learners to Speech and Hearing Therapists with the public school educators, 62% (*n* =38) being more likely to do so.

Table 4.8 : Comparative Table for Refferals

Statement	t-test	Private School Educators						Public School Educators					
		Agree		Neither agree or disagree		Disagree		Agree		Neither agree or disagree		Disagree	
	Pr > |t|	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Neurologist	0.8162	43	98			1	2	65	96	2	3	7	1
Pediatrician	0.5239	24	69	7	20	4	11	45	79	5	9	7	12
Educational Psychologist	0.2627	47	98	1	2			68	94	2	3	2	3
Occupational Therapist	0.7251	25	64	8	21	6	15	42	67	13	21	8	13
Speech and Hearing therapist	0.4383	19	49	15	38	5	13	38	62	14	23	9	15
General Practitioner	0.7611	6	17	14	40	15	43	12	24	15	31	22	45
Clinical Psychologist	0.8542	22	61	8	22	6	17	38	64	11	19	10	17

The intervention strategies that the teachers employ once they have identified that a child may be suffering from ADHD are presented in Table 4.9. These intervention groupings have been deduced from question 22 of the questionnaire (see appendix 5). It would appear that the educators employ both parent, 93% (*n* =112) and teacher interventions, 84% (*n* =102) as opposed to medical interventions, 59% (*n* =74).

Table 4.9: Educators' Preference for Different Types of Interventions

Statement	Strongly Agree		Neither Agree nor Disagree		Disagree	
	n	%	*n*	%	*n*	%
Teacher Interventions	102	84	12	10	7	6
Parent Interventions	112	93	5	4	4	3
Medical Interventions	74	59	24	21	30	27

Table 4.10, below indicates the intervention strategies that public and private school educators use when faced with a learner suffering from ADHD. There are no significant differences, between private and public school educators, regarding their use of the three interventions.

Table 4.10: Comparison of the Public and Private School Educators' Preference for Different Types of Interventions

Statement	Private School Educators						Public School Educators					
	Agree		Neither agree or disagree		Disagree		Agree		Neither agree or disagree		Disagree	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Teacher Interventions	71	85	4	9	4	8	62	83	8	11	7	8
Parent Interventions	42	91	2	4	4	4	69	93	3	4	2	3
Medical Interventions	41	87	8	24	26	61	70	92	21	30	26	36

Table 4.11 demonstrates that 97% (*n* =120) of the educators wished to receive advice from the specialist regarding how better to support the learners. Furthermore, while physical factors were not rated as the highest cause of ADHD behaviour, 79% (*n* =89) of the educators expected the specialists to rule out physical causes of ADHD behaviours.

In addition, while Ritalin had an efficacy rating of 80% (*n* =68), only 14% (*n* =16) of the educators expected the specialist to prescribe Ritalin.

Table 4.11: Educators' Expectations from Specialists

Statement	Agree		Neither Agree nor Disagree		Disagree	
	n	%	*n*	%	*n*	%
Prescribe Ritalin	16	14	50	44	47	42
Ask me to complete a Connors questionnaire	107	89	6	5	7	6
Rule out physical causes of behaviour	89	79	17	15	6	5
Offer me support/advice on how to deal with the child	120	97	4	3		

A comparison of the private and public school educators' expectations from specialists is presented in Table 4.12. The results indicate that the private and public school educators' expectations while not statistically significant, p=.01245, indicates that public school educators have a higher expectancy 95% (*n* =74) regarding the support provided by the specialist as compared to the private school educators, 45% (*n* =3). The educators outlined support as being given feedback on the outcomes of an assessment, assistance with how to support the learner in the classroom, as well as provide a detailed programme for the educator to follow.

Table 4.12: Comparison of Private and Public School Educators' Expectations from Specialists

Statement	t-test	Private School Educators						Public School Educators					
		Agree		Neither agree or disagree		Disagree		Agree		Neither agree or disagree		Disagree	
	Pr > |t|	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Prescribe Ritalin	0.1581	5	12	16	32	22	51	11	16	33	48	25	36
Ask me to complete a Connors questionnaire	0.3150	43	93	1	2	2	4	63	86	5	7	5	7
Rule out physical causes of behaviour	0.2635	33	77	6	14	4	9	56	82	10	15	2	3
Offer me support/advice on how to deal with the child	0.1245	3	45					74	95	4	5		

Analysis of the results revealed that the educators' understanding of ADHD is centered on the behavioural component of the disorder; inattention and hyperactivity. Furthermore, the results indicate that the educators perceive ADHD to be caused by five factors; physiology, emotional, diet, parenting and other barriers to learning, with diet presenting the highest percentage with regards to causes, this despite Ritalin being the preferred intervention modality.

No significant differences were noted between the public and private school educators' perceptions regarding the causes, interventions and incidence rates of ADHD.

CHAPTER 5: DISCUSSION

In this chapter the most important findings of this study will be discussed in relation to the empirical studies presented in Chapter Two. The limitations, applicability and relevance of this study are discussed and recommendations for future research are made. The discussion is based on the aims of the study.

5.1 Interpretation of Findings

The first aim of the study was to establish the educators' understanding of ADHD. The results indicate that the educators' understanding of ADHD revolves around the type of behaviour that the child displays. Specifically, the behaviours highlighted by the educators were an inability to sit still, remain focused, complete work and sustain concentration. While these features are not considered diagnostic they were highlighted by Sadock & Sadock (2007) and O'Neill (1999) as distinguishing features of ADHD. The results indicated that the emphasis placed on the ability to sit still was significantly more in public school educators than in private school educators. This may be linked to the class size where the mean class size of the private school educators were 30-34 learners per class in comparison to the private school educators where the mean class size was 21-25 learners.

While the neurology of ADHD was emphasized by numerous authors (Faraone, 2005; Giorcelli, 2006; Glass & Wegar, 2000: Mowbray, 2003), only 15% of the educators alluded to the fact that ADHD is a neurological condition. This 15% however does not indicate the differences between the private and public school educators. Twenty-two

percent of the private school educators referred to the neurology of the condition in comparison to the 10% of public school educators. The difference in percentage may be linked to the number of private school educators (55%, *n*=27) who attended ADHD courses in comparison to public school educators (40%, *n*=32). This seems to indicate that private school educators have a better understanding of ADHD, possibly due to attendance at ADHD courses, in comparison to the public school counterparts.

The results indicated that the educators' agree with the diagnostic criteria for ADHD overall. Specifically, 81% of the educators agreed that a child must be inattentive and or hyperactive/impulsive for a diagnosis of ADHD to be made. While this percentage is high, it is interesting to note the percentage of educators who remained neutral or did not agree with the criteria (18%, *n*=25). When the percentage is analyzed in terms of the private and public school educators independently, it becomes evident that more private school educators, 87%, agree with this criterion in comparison to the public school educators, 78%.

However, a different picture emerges with reference to the criterion that states that the behaviour must have occurred before the age of 7 years. Overall, only 55% of the educators agree with this criterion, where 67% of the private school educators and 48% of the public school educators' noted a positive response. This may be linked to the educators' understanding of the causes of ADHD, which is primarily diet related.

Here the results presented may be influenced by the 60% of public school educators who have not attended courses concerning ADHD, in comparison to the 45% private school educators. However, it does not account for the similar responses to the last two diagnostic criteria noting that the behaviour must be present in more than 1 setting and for more than six months.

The second aim of the study was to investigate the actual and perceived incidence rates of learners with ADHD in educators' classrooms. The results indicated that the overall actual incidence rate of ADHD was 5%. While this figure is within the research norms of between 3% and 7% (Glass & Wegar, 2000; Sadock & Sadock, 2007), the results showed that the diagnosed incidence rate for ADHD was within the lower limits for the public school educators, 4%, while it was within the higher limits for the private school educators, 7%. There may be a link between the private school class size, 21-25 learners, and the higher incidence rate. Parents may purposefully be seeking out private schools with smaller class sizes to ensure that their children receive more attention due to their special needs, which would account for the high incidence rate of ADHD at private schools.

The perceived incidence rate of 7% for both public and private school educators fell within research norms. This outcome is however in contrast to studies conducted by Glass and Wegar (2000) where the perceived incidence rate was as high as 15%. This seems to indicate that educators may be able to identify correctly learners with ADHD.

However, when the educators understanding regarding the causes of ADHD is analyzed, this statement is called into question.

The third aim of the study was to identify what educators perceive to be the causes of ADHD. The educators indicated a number of possible causes of ADHD. These responses can be classified into five themes; physiological, emotional, diet, inadequate parenting and other barriers to learning. It is evident from the range of responses that the educators adopt an ecosystemic model with regards to the causes of ADHD. They acknowledge that the interaction between the child and the various environments in which he/she may find him/herself in may play a significant role in the development of specific types of behaviours (Swart & Pettipher, 2005; van Rooyen, et al 2002). They also do not simply propose that the problem is inherent within the child, which is key to the medical model.

The results indicate that 65% of the educators indicated that ADHD may be as a result of physiological factors. Specifically, the educators indicated that it is a "neurologically based disorder associated with chemical imbalances in the brain affecting temperament and behaviour and performance at school" which is "usually inherited". Various researchers who indicate that ADHD has a neurological basis (Giorcelli, 2006; Glass & Wegar, 2000; Mowbary, 2003) and a resultant genetic link (Hallowell & Ratey, 1994; Tamhne, 2004) confirm these results. This result is in contrast to the educators' understanding of ADHD, where only 15% of the educators alluded to the neurological basis of ADHD.

The educators however, do not seem to perceive physiological factors to be the only cause. Instead, other eco-systemic factors are considered the cause of ADHD and not factors that may exacerbate or mimic a pre-existing physiological condition caused by neurological factors. It is interesting to note that some of the educators highlighted the fact that the behaviours are not deliberate and that the children cannot control themselves. For example, educators indicated that the "problem is beyond the learners control unless medication and a good diet is followed" and "ADHD is not the child's fault and it is not the parents fault". Calhoun, Greenwell-Iorillo and Chung (1997) emphasized this uncontrollable nature of ADHD. In addition it highlights an advantage of the medical model, as outlined by Koudstaal (2005), who indicated that a 'label' gives educators some insight into the observed behaviours.

Educators seem to perceive poor diet as the primary cause of ADHD, with 79% of private school educators and 76% of public school educators indicating a positive response. This is in contrast to Sadock & Sadock (2000) who state that there is no scientific evidence that indicates food additives, colourants, preservatives, and sugar may cause ADHD. They do however state that it may cause hyperactivity.

Fifty-three percent of the educators noted that other barriers to learning may cause ADHD. Research (McGee et. al., 2004; Press, 2000) indicates that barriers to learning may mimic behaviours that are linked to ADHD, such as a lack of concentration, behavioural problems and distraction. It would therefore appear as though the educators are mistaking one for the other.

The educators did not draw a high correlation between emotional distress and ADHD. Instead only 34% of the educators indicated that emotional distress may cause ADHD. Research found that while emotional distress may trigger inattention and distractibility it is not the root cause of ADHD (Abelman, 2001; Calhoun, Greenwell-Iorillo & Chung, 1997).

Parenting style was another factor that was considered to cause ADHD. In this study 53% of the educators indicated that 'inadequate' parenting might cause ADHD. This is higher than Goldstein (2002) who found that only 18% of the educators in the study said that ADHD was as a result of poor parenting. The notion of parenting influencing the development of ADHD is tied to the biopsychosocial approach, which indicates that parenting style may have an effect on the development of ADHD (Halasz & Vance, 2002).

The forth aim of the study was to investigate what educators perceive to be the appropriate intervention for learners with ADHD. The educators highlighted Ritalin as the most effective modality. They indicated that "children are able to achieve academically", it is effective "almost immediately", and learners are able to "focus better and complete tasks timeously." Another educator indicated that the children were "motivated to work, join groups, finish work and could write on lines". This preference for medication to treat ADHD is in contrast to the educators' belief that poor diet is the main cause of ADHD. This seems to corroborate the previous studies (Curtis et al., 2006; Glass & Wegar, 2000), which revealed that educators prefer medication as a way to

control behaviours associated with ADHD even when the educator believes that ADHD is caused by environmental factors. Seventeen percent of the educators however were not in agreement with medication and some noted, "medication is not a cure for ADHD, it improves the key symptoms of inattention, hyperactivity and impulsiveness" and that in some "children it seems to have very little effect".

It is interesting to note that 79% (*n*=34) of the educators highlighted play therapy, and 83% (*n*=29) noted counselling, as effective treatment modalities for ADHD. This despite only 34% of the educators noting that ADHD is caused by emotional distress. The educators noted that the counselling would assist the learners with regard to acquiring social skills, which was also mentioned by Evans, Schultz and Sandler (2008) as part of their intervention programme. However, their study found that the social skills training was not effective.

Ninety-six percent of the educators noted that a neurologist or an educational psychologist should assess children with ADHD. This high percentage of referrals to neurologists is interesting since only 65% of the educators believe that ADHD is in fact caused by neurological factors. This referral to a neurologist is similar between the two types of educators with 98% of private school educators and 96% of public school educators indicating a preference for a neurologist. Seventy-Nine percent (*n*=89) of the educators indicated that they expected the specialist to rule out physical causes of the behaviours associated with ADHD. This percentage could be linked to the number of

educators (21%, *n*=18) who would refer a learner to a General Practitioner as they would typically 'rule out physical causes of behaviours'.

The educators' intervention strategies did not focus on one strategy but instead multiple strategies. They employed educator interventions, such as moving the child around the classroom, breaking assignments up into parts and ensuring that they have the attention of the child before giving instructions. An additional aspect of the educator interventions was that of behaviour modification. Ninety-six percent (*n*=118) of the educators noted that they employed a system of rewards which would be linked to Grandy and McLaughlin's (1999) behavioural intervention with a focus on consequent events. Parental interventions included discussing the child's diet with the parents, while medical interventions included requesting an assessment, and a medical examination to rule physical cause of the behaviour. Hallowell and Ratey (1994) consider the latter to be a crucial step in ensuring that the child is not being treated for the 'wrong condition.'

Despite highlighting a preference for medication, 42% (*n*=47) of the educators did not expect a specialist to prescribe medication, while 14% (*n*=16) indicated that they did expect the specialist to prescribe Ritalin. In addition, the educators expected the specialist to ask them to complete a Connors questionnaire.

An additional point to note is the fact that some of the educators indicated a need to reassess the learner once a diagnosis has been made and medication has been prescribed.

This is in line with A.D.A.M. (2005) who called attention to the fact that systematic follow-up is essential to ascertain the results and effects of the medication.

5.2 Implications of the Results

The results of this study imply that educators do not make a distinction between inattention and ADHD. Therefore, their understanding of the cause of ADHD includes physiological, dietary, parental, emotional and other barriers to learning as factors that may cause the disorder. Consequently, courses on ADHD should include a focus on the causes of the disorder. Moreover, educators need to be adequately trained to correctly identify learners with ADHD and implement the necessary intervention strategies to assist their learners.

Since it appears as though there is a higher concentration of learners diagnosed with ADHD in private schools it is important that these educators specifically receive ongoing support in terms of how to deal with these learners in the classroom.

5.3 Limitations of the Study

The sample consisted of 130 participants, which means that the results cannot be generalized to the wider teaching population. Furthermore, only schools in the Johannesburg East, West and North Districts were targeted which would also impact on the external validity of the results.

The use of participants selected through convenience sampling is also considered a limitation since convenience samples cannot be representative of the population as a whole (Kolb & Maxwell, 2003).

In addition, the use of questionnaires means that answers to open–ended are often difficult to evaluate and tend to vary in clarity and depth (Beiske, 2002). The use of questionnaires therefore implies that the researcher was unable to clarify and expound on the responses to the open-ended questionnaires. This is therefore considered a limitation of this study.

An additional limitation of the study is the fact that the researcher did not have an opportunity to meet with the educators. The request to participate in the study was made by the principals of the various participating schools. Educators may therefore have felt that they had no choice but to participate in the study, for fear of reprise from the principals. In addition, the responses given may have been affected by participant bias as the educators may have held the belief that the principals would look at their responses. Their responses may therefore have been skewed in an effort to present themselves in a good light.

5.4 Suggestions for Future Research

In light of the findings of this study, it is recommended that the study be conducted on a larger sample. Moreover, a comparison between the knowledge and practice of educators

who have attended ADHD courses in relation to those who have not may indicate the efficacy of ADHD courses, thereby informing future practice of said courses.

Future research could explore the kind of training educators receive in ADHD, the accuracy of the information given and how the training in ADHD leads to improved classroom practice.

In addition, it may be important to analyze the impact of the cultural make up of the classes and their educators in relation to the perceived prevalence of ADHD since Davidson and Ford (2001) established that differences in culture could lead to a diagnosis of ADHD. One of the outcomes of the Davidson and Ford study determined that behaviours such as assertiveness and expressiveness are accepted and even encouraged in the African American culture, whereas White culture valued the individuals' ability to exercise impulse control. Consequently, African American children appear to be more open, busy, active and boisterous in the eyes of their White teachers, in comparison to their white counterparts. This finding may have a bearing on the manner in which children from other cultures are perceived in the South African classrooms, given our diverse cultural composition.

5.5 Conclusion

The fundamental aim of this research was to investigate foundation phase educators' perceptions of ADHD. Given the findings in the current study, educators' understanding

of ADHD appear to be limited to the behaviours that are displayed by learners and do not consider other factors.

Research indicates that ADHD has a physiological cause, which has a neurological basis. However, the educators do not perceive it to be the only cause and see emotional upset, poor diet, inadequate parenting and other barriers to learning as causes of ADHD as these factors cause inattention and thereby mimic the behaviours associated with ADHD. These factors however, may exacerbate the underlying physiological cause or may even mimic behaviours associated with ADHD.

Based on the educators understanding of the causes of ADHD, medication as the main intervention strategy, which is considered to be fast acting and the most effective, is unexpected. This result is however in line with the finding of Curtis et al. (2006) and Glass and Wegar (2000) who found that the educators in their studies preferred stimulant medication over alternative intervention methods.

A comparison of the results indicates no significant difference in the private and public school educators' perceptions regarding the cause, interventions or incidence rate of ADHD. This implies that the private and public school educators' knowledge regarding the various facets of ADHD as addressed by this study is analogous.

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Appendices

APPENDIX 1: LETTER OF PERMISSION FROM THE DEPARTMENT OF EDUCATION

UMnyango WezeMfundo
Department of Education

Lefapha la Thuto
Departement van Onderwys

Enquiries: Nomvula Ubisi (011)3550488

Date:	07 May 2008
Name of Researcher:	Kern Anwynne Celeste
Address of Researcher:	
	Constantia Kloof
	1716
Telephone Number:	
Fax Number:	N/A
Research Topic:	Foundation phase educators' perceptions of attention deficit hyperactivity disorder at private and public schools
Number and type of schools:	18 Primary Schools
District/s/HO	Johannesburg East, West and North

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

Permission has been granted to proceed with the above study subject to the conditions listed below being met, and may be withdrawn should any of these conditions be flouted:

1. ***The District/Head Office Senior Manager/s concerned must be presented with a copy of this letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.***
2. ***The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.***
3. ***A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.***

Office of the Chief Director: Information and Knowledge Management
Room 501, 111 Commissioner Street, Johannesburg, 2000 P.O.Box 7710, Johannesburg, 2000
Tel: (011) 355-0809 Fax: (011) 355-0734

4. *A letter / document that outlines the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.*
5. *The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.*
6. *Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.*
7. *Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year.*
8. *Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.*
9. *It is the researcher's responsibility to obtain written parental consent of all learners that are expected to participate in the study.*
10. *The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.*
11. *The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.*
12. *On completion of the study the researcher must supply the Director: Knowledge Management & Research with one Hard Cover bound and one Ring bound copy of the final, approved research report. The researcher would also provide the said manager with an electronic copy of the research abstract/summary and/or annotation.*
13. *The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.*
14. *Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.*

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

CHIEF DIRECTOR: INFORMATION & KNOWLEDGE MANAGEMENT

The contents of this letter has been read and understood by the researcher.	
Signature of Researcher:	
Date:	

APPENDIX 2: PRINCIPAL INFORMATION SHEET

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

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Foundation Phase Educators' Perceptions of Attention Deficit Hyperactivity Disorder (ADHD) at Private and Public Schools

To whom it may concern

My name is Anwynne Kern and I am a Masters in Education (Educational Psychology) student studying at the University of the Witwatersrand (Wits). I am conducting research as part of the requirement for the completion of the degree.

Since Attention Deficit Hyperactivity Disorder (ADHD) appears to be on the increase in our schools this research project aims to examine Foundation Phase educators' perceptions of ADHD with regards to the incidence rate, causes and possible interventions for learners exhibiting ADHD type behaviours. There is a scarcity of literature in this field and the outcomes of this study will contribute to a better understanding of educators' perceptions of ADHD.

For participation in the study, the foundation phase educators are required to complete the attached questionnaire. Completion of the questionnaire will take no longer than 15 – 20 minutes. The educators will then be asked to return the completed questionnaires to a sealed box in the staff room.

Participation in the study is entirely voluntary and no-one will be disadvantaged or advantaged for choosing to participate or not. Due to the nature of the study there are no inherent risks or dangers to you, your learners or your school. Participants may choose to withdraw from the study at any stage or not to answer specific questions. Due to the nature of the study there are no inherent risks or dangers to you, your learners or your school. Anonymity will be ensured as no identifying information is asked for on the questionnaire. The results will be processed only by myself, the researcher and my supervisor, so confidentiality is ensured. If direct quotes are used from the open-ended questions in the final report, no identifying information will accompany the quote.

General feedback from the results of the study will be presented in a summary which will be sent to your school once the research is completed. A copy of the final report will be sent to each principal. Results may also be reported in a journal article.

I am ethically obligated to, and hereby do, formally request your permission to conduct this research project at your school. If you may, please complete the attached form giving permission to use you school.

Kind Regards

_____

Anwynne Kern

APPENDIX 3: PRINCIPAL CONSENT FORM

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Psychology
School of Human & Community Development

Private Bag 3, Wits 2050, South Africa. Telephone: +27 11-717-4500/2/3/4. Fax: +27-11-717-4559

I _____ consent to this study on educators perceptions of Attention Deficit Hyperactivity Disorder, conducted by Anwynne Kern.

Signed: _____

Date: _____

APPENDIX 4: PARTICIPANT INFORMATION SHEET

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

UMTHOMBO WOPHUHLISO LOLUNTU
School of Human & Community Development

Psychology
School of Human & Community Development

Private Bag 3, Wits 2050, South Africa. Telephone: +27 11-717-4500/2/3/4. Fax: +27-11-717-4559

Dear participant

My name is Anwynne Kern and I am a Masters in Education (Educational Psychology) student studying at the University of the Witwatersrand (Wits). Part of the requirement for the completion of the degree is the submission of a research report. Since Attention Deficit Hyperactivity Disorder (ADHD) appears to be on the increase in our schools this research project aims to examine Foundation Phase educators' perceptions of ADHD with regards to the incidence rate, causes and possible interventions for learners exhibiting ADHD type behaviours. You are invited to participate in this study.

Should you agree to participate in the study, I will require approximately **15 – 20 minutes** of your time to complete the attached questionnaire. Participation in the study is entirely voluntary and you will not be disadvantaged or advantaged for choosing to participate or not. You have the right to withdraw from the study at any stage or not to answer specific questions. Due to the nature of the study there are no inherent risks or dangers to you, your learners or your school. Anonymity will be ensured as no identifying information is asked for on the questionnaire. The results will be processed by only myself, the researcher, and my supervisor, so confidentiality is ensured. If direct quotes are used from the open-ended questions in the final report, no identifying information will accompany the quote.

Should you choose to participate in the study please complete the questionnaire and return it to the sealed box which will be placed in your staff room. Please detach and keep this letter.

General feedback from the results of the study will be presented in a summary which will be sent to your school once the research is completed. A copy of the final report will be sent to each principal. Results may also be reported in a journal article.

Your participation would be much appreciated.

Kind Regards

_____
Anwynne Kern

APPENDIX 5: **QUESTIONNAIRE**

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

UMTHOMBO WOPHUHLISO LOLUNTU
School of Human & Community Development

Psychology
School of Human & Community Development

Private Bag 3, Wits 2050, South Africa. Telephone: +27 11-717-4500/2/3/4. Fax: +27-11-717-4559

FOUNDATION PHASE EDUCATORS' PERCEPTIONS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AT PRIVATE AND PUBLIC SCHOOLS

Questionnaire

Please answer the following questions by placing a tick in the appropriate box/column or by writing in the space provided.

Section A: Demographic Data

1. Gender:

Male	
Female	

2. Age Group:

20 – 25	
26 - 30	
31 – 35	
36 – 40	
41 – 45	
46 – 50	
Over 50	

3. Where did you qualify?
   Country:

   _____

   Institution:

   _____

4. What degree/diploma did you study for?

_____

5. When did you graduate?

_____

6. Number of years teaching experience:

1 – 5 years	
6 – 10 years	
11 – 15 years	
15 - > years	

7. Have you completed any postgraduate courses?

Yes	
No	

(**If yes**) Please elaborate.

_____

_____

8. Please specify the type of school at which you are currently teaching:

Inner City School (A school that is found in Johannesburg City Central or Braamfontein)	
Urban School (A school that is found in the suburbs surrounding Johannesburg City Central)	
Township School	
Other: _____	

9. Which grade are you currently teaching?

Grade 0	
Grade 1	
Grade 2	
Grade 3	

10. How many learners are in your class?

Less than 15	
16 – 20	
21 – 25	
26 – 30	
31 – 35	
36 – 40	
41 – 45	
46 – 50	
More than 50	

11. Please specify the number of learners who fall into the following race groups in your class:

Black	
White	
Indian	
Coloured	
Other	

12. The following resources are available at my school:

Educational psychologist	
Occupational therapist	
Speech and Hearing therapist	
Clinical Psychologist	
Remedial therapist	

13. Have you attended any courses with regards to ADHD?

Yes	
No	

(**If yes**) Please elaborate.

_____
_____
_____
_____

Section B:

14. Do you have learners who have been medically diagnosed as having ADHD in your class?

Yes	
No	

(**If Yes)** How many? _____

Specify the number of girls and boys:

Girls	
Boys	

What is their treatment plan?

Ritalin	
Concerta	
Behaviour modification	
Play Therapy	
Counselling	
Other	

Please specify. _____

Please specify which/all of these approaches to treatment are effective and why.

Treatment plan	**Effective**		**Reason**
	Yes	No	
Ritalin			_____ _____
Concerta			_____ _____
Behaviour Modification			_____ _____
Play Therapy			_____ _____
Counselling			_____ _____
Other			_____

15. Do you have learners who you suspect of having ADHD in your class?

Yes	
No	

(If yes) How many? _____

Specify the number of girls and boys:

Girls	
Boys	

16. What is your understanding of the term Attention Deficit Hyperactivity Disorder?

_____
_____
_____
_____

17. Children who have ADHD …

Statement	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
Cannot sit still					
Daydream					
Fight with their classmates					
Do not complete work					
Cannot stay focused					
Do not listen					
Cannot start work					
Are easily distracted					
Are impulsive					
Are disruptive					
Talk constantly					
Are attention seeking					
Are fidgety					
Cannot concentrate					
Are disobedient					
Are emotionally sensitive					
Cannot follow instructions					
Cannot delay gratification					
Are disorganized					
Are forgetful					
Are noisy					
Shout out in class					
Other:_____					

18. For a diagnosis of ADHD to be made …

Statement	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A child must be inattentive and/or hyperactive/impulsive					
The behaviour must have occurred before the age of seven years.					
The behaviour must be present in more than one setting (e.g. school and home).					
The behaviour must be present for more than six months.					

19. ADHD is caused by:

Statement	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Poor diet					
Brain dysfunction					
Depression					
Hereditary					
Lack of discipline in the home					
Auditory processing difficulties					
Visual processing difficulties					
Insecurity					
Lack of boundaries					
Too much television					
Reading difficulties					
Food additives, colourants and preservatives.					
Too much sugar					
Television games (including playstation, and x-box)					
Lack of physical activity					
Other: _____					

20. In your opinion, a child suspected of suffering from ADHD should be assessed by a :

Statement	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
Neurologist					
Pediatrician					
Educational Psychologist					
Occupational Therapist					
Speech and Hearing therapist					
General Practitioner					
Clinical Psychologist					
Other: _____					

21. When I think a child may be suffering from ADHD I:

Statement	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
Ask the parents to have an assessment done					
Move the child around the class					
Ask the parents to have a physical examination done					
Ask the parents to give the child Ritalin					
Put firm boundaries in place					
Discuss the child's diet with the parents					
Put the child at a desk of their own					
Try to limit distractions					
Put a behaviour modification plan in place (system of rewards)					
Other: _____					

22. When referring to a specialist I expect the specialist to:

Statement	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
Prescribe Ritalin					
Ask me to complete a Connors questionnaire					
Rule out physical causes of behaviour					
Offer me support/advice on how to deal with the child					

Please elaborate if there is anything else you would expect the specialist to do.

_____
_____
_____
_____

23. Please feel free to add anything else with regards to ADHD in the space provided.

_____
_____
_____
_____
_____
_____

Thank you for your time and cooperation.