GUIDELINES FOR THE INCLUSION OF ADHD LEARNERS IN THE CLASSROOM

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by

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We hereby confirm that the Statistical Consultation Service of the North-West University has analysed the data and assisted with the interpretation of the results.

Kind regards

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SUMMARY

Although Attention-Deficit/Hyperactivity Disorder (ADHD) is a common disorder amongst school going children, it is often misdiagnosed, misunderstood and mismanaged. This state of affairs does not bode well for the development of the ADHD learner and often leads to long-term impairments in terms of the learner's social and emotional development, academic performance and future vocational success. Therefore, it is essential that teachers fully understand the disorder and know how to optimally accommodate ADHD learners in their classrooms.

The aims of the research were as follows:

- to determine whether a significant difference exists between teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other; and

- to determine how variables such as gender, age, teaching experience and qualifications affect (1) teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement for accommodating ADHD learners in *"regular"* classrooms and (2) the frequency of teachers' implementation thereof.

A dual research approach was followed to achieve the aims of the research.

First, a literature study was done on ADHD with reference to its aetiology, prevalence, symptoms, co-morbid features and treatment options. The implications of accommodating ADHD learners in *"regular"* classrooms were discussed against the background of the inclusive educational approach.

Second, an empirical investigation was undertaken to determine how important teachers rate various inclusive didactic approaches and strategies and how frequently they implement them. The effect that variables such as gender, age, qualifications and teaching experience could have on teachers' ratings of the importance and frequency of implementation of these inclusive didactic approaches and strategies were also investigated.

A structured questionnaire was distributed amongst 115 intermediate phase teachers who are teaching in ex-Model C primary schools in the Klerksdorp and Potchefstroom school districts.

The data was statistically analyzed and the following conclusions were drawn:

- Although teachers are aware of the importance of certain didactic approaches, behaviour management strategies and parental involvement for the optimal inclusion of ADHD learners in *"regular"* classrooms, in practice they do not implement these aspects so frequently.

- Female teachers rate the implementation of certain didactic approaches, strategies related to teacher behaviour and parental involvement more important for accommodating ADHD learners in their classrooms than their male counterparts, and implement them more frequently than male teachers.

- In general, variables such as gender, age, teaching experience and qualifications do not significantly affect (1) teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement for accommodating ADHD learners in regular classrooms, or (2) the frequency of teachers' implementation thereof.

Resulting from the findings of the research, practical guidelines were recommended to enhance the teaching and inclusion of ADHD learners in *"regular"* classrooms.

Key words: ADHD learners, inclusion, guidelines

OPSOMMING

Alhoewel Aandagtekort-/Hiperaktiwiteitversteuring (ATHV) algemeen onder skoolgaande kinders voorkom, word dit dikwels verkeerd verstaan, gediagnoseer en bestuur. Hierdie toedrag van sake hou negatiewe implikasies in vir die ontwikkeling van die ATHV-leerder en gee dikwels aanleiding tot langtermyn-belemmeringe ten opsigte van die leerder se sosiale en emosionele ontwikkeling, akademiese prestasie en toekomstige beroepsukses. Daarom is dit noodsaaklik dat onderwysers die versteuring goed moet verstaan en moet weet hoe om ATHV-leerders optimaal in hulle klaskamers te akkommodeer.

Die doel van die navorsing was:

- om te bepaal of daar 'n betekenisvolle verskil bestaan tussen onderwysers se beoordelings van die belangrikheid van sekere didaktiese benaderings, gedragsbestuurstrategieë en ouerlike betrokkenheid vir die akkommodering van ATHV-leerders in *"gewone"* klaskamers aan die een kant, en die frekwensie van die implementering daarvan aan die ander kant; en

- om te bepaal hoe veranderlikes soos geslag, ouderdom, onderwyservaring en kwalifikasies onderwysers se beoordeling van (1) die belangrikheid van sekere didaktiese benaderings, gedragsbestuurstrategieë en ouerlike betrokkenheid vir die akkommodering van ATHV-leerders in *"gewone"* klaskamers, asook (2) die frekwensie van onderwysers se implementering daarvan kan beïnvloed.

'n Tweeledige benadering is gevolg om die doel van die navorsing te bereik.

Eerstens is 'n literatuurstudie oor ATHV onderneem met betrekking tot die etiologie, voorkoms, simptome, geassosieerde probleme en behandelingsopsies van die versteuring. Die implikasies vir die akkommodering van ATHV-leerders in *"gewone"* klaskamers is ook bespreek teen die agtergrond van die inklusiewe onderwys-benadering.

Tweedens is 'n empiriese ondersoek geloods ten einde te bepaal hoe belangrik onderwysers sekere inklusiewe didaktiese benaderings en strategieë ag en hoe dikwels hulle dit implementeer. Die effek wat veranderlikes soos geslag, ouderdom, kwalifikasies en onderwysondervinding op onderwysers se beoordeling van die belangrikheid van hierdie

inklusiewe didaktiese benaderings en die frekwensie van implementering daarvan kan uitoefen, is ook ondersoek.

'n Gestruktureerde vraelys is versprei onder 115 intermediêre fase-onderwysers wat in voormalige model C-laerskole van die Klerksdorpse en die Potchefstroomse skooldistrik skoolhou.
Die data is statisties ontleed, en op grond van die resultate is die volgende gevolgtrekkings gemaak:

- Alhoewel onderwysers bewus is van die belangrikheid van sekere didaktiese benaderings, gedragsbestuurstrategieë en ouerlike betrokkenheid vir die optimale insluiting van ATHV-leerders in *"gewone"* klaskamers, implementeer hulle hierdie aspekte nie so gereeld in die praktyk nie.

- Vroulike onderwysers beoordeel die implementering van sekere didaktiese benaderings, strategieë wat met onderwysergedrag verband hou en ouerbetrokkenheid belangriker vir die akkommodering van ATHV-leerders in klaskamers as hulle manlike eweknieë en implementeer hierdie aspekte ook meer gereeld as manlike onderwysers.

- Oor die algemeen beïnvloed veranderlikes soos geslag, ouderdom, onderwyservaring en kwalifikasies nie onderwysers se beoordeling van die belangrikheid van inklusiewe didaktiese benaderings, gedragsbestuurstrategieë en ouerlike betrokkenheid vir die akkommodering van ATHV-leerders in *"gewone"* klaskamers nie, en ook nie die frekwensie van die implementering daarvan nie.

Voortspruitend uit die bevindinge van die ondersoek is praktiese riglyne aanbeveel om die onderrig en insluiting van ATHV –leerders in *"gewone"* skole te bevorder.

Sleutelwoorde: ATHV-leerders, inklusie, riglyne

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CHAPTER 1

INTRODUCTION, PROBLEM STATEMENT, AIMS, METHOD AND PLAN OF RESEARCH

1.1 INTRODUCTION

> *"Danny, a handsome 9-year-old boy, was referred to us because of his difficulties at school and at home. Danny had a great deal of energy and loved playing most sports, especially baseball. Academically his work was adequate, although his teacher reported that his performance was diminishing and she believed he would do better if he paid more attention in class. Danny rarely spent more than a few minutes on a task without some interruption; he would get up out of his seat, rifle through his desk, or constantly ask questions. His peers were frustrated with him because he was equally impulsive during their interactions; he never finished a game, and in sports he tried to play all the positions simultaneously.*
>
> *At home, Danny was considered a handful. His room was in a constant mess because he became engaged in a game or activity only to drop it and initiate something else. Danny's parents reported that they often scolded him for not carrying out some task, although the reason seemed to be that he forgot what he was doing rather than that he deliberately tried to defy them. They also said that out of their own frustration, they sometimes grabbed him by the shoulders and yelled: "Slow down!" because his hyperactivity drove them crazy".* (Barlow & Durand, 2002: 456)

This extract shows the serious problems that children with Attention-Deficit/Hyperactivity Disorder (ADHD) face. These problems not only affect Danny but also his peers, teachers and parents. Danny is overactive and does not pay attention in class. This will negatively influence the quality of work that he produces and will cause the teacher to become frustrated with him. His self-esteem and self-worth is affected due to the fact that his peers get frustrated with him and will not let him play. His parents are trying to cope with Danny, and although he is not classified as a naughty boy and does not seem to mean to be in trouble constantly, he manages to get himself into trouble regularly. He does not complete tasks and he seems to forget very

quickly. The frustration his parents feel will cause Danny to feel insecure and will further damage his self-image.

The following case study shows the dilemma that parents are faced with when their child has ADHD and no one seems to want to help:
Kane (2004) states that his child moved continuously in his wife's womb and even pushed himself up and rolled on to his back at the age of two weeks. Kane never took any notice of this lively little boy until he went to pre-school and was punished by his teacher for biting another child. The teacher told them that their child was *"not normal. He's out of control"*. It was later noticed that he had a speech delay and that was as a result of a chronic symptomatic ear infection. He also had problems with fine-motor coordination and needed occupational as well as speech therapy. He later moved to a new preschool. His teacher was not quite prepared for this special child. He loved to be the centre of attraction. At school he became *"eraser boy"*, he was sent out of the class to clean the erasers so the teacher could teach in peace. Kane arranged that his son could stay in the class and draw pictures but unfortunately he could not sit still and would disrupt the class. By the time he was in the fourth grade, he could only count on his fingers and was on Ritalin, this did not keep him out of trouble. Kane was afraid that his son would be expelled due to his behaviour. He approached the principal and asked if his son could be part of the special education programme that was being developed by the principal. Problems with his behaviour that were now noticed were dealt with wisdom and care and the teachers in the school treated Kane's son differently (Kane, 2004).

The case study shows that even from birth, there was something different about the child but it was not until he started going to school that the problems intensified. Pre-school was a difficult time for the child and Primary School was even worse. He became the *"eraser boy"*; this meant that is was easier for the teacher to send him out of the class than to work with him. The teacher was unable to handle the child because he was disrupting the class routine. Academically, the child was getting further and further behind. This is obvious from the statement that he could only count on his fingers in the fourth grade. Even putting the child on Ritalin had no effect on him, he was scholastically too far behind to catch up with his peers. Only once the problems were dealt with carefully could the teachers manage to work with the child and would he have a chance to develop to his full potential. Teachers need to have an understanding of the problem so that the child can be treated differently and with more care.

To respect all learners equally means that you have to teach each learner individually, and in order to teach them individually the teacher needs to know how they think, not everyone fits inside the tiny box that has been created in schools. ADHD learners need guidance, help and

understanding from parents, schools and teachers to enable them to reach their full potential (National Institute of Mental Health, 2003).

Although ADHD is a very common disorder amongst children, it is often mismanaged; the children are misdiagnosed as *"emotionally disturbed"*. These children often create havoc at home and at school. The only way that we can accept these children unconditionally is by understanding the nature of the disorder (Taljaard, sa). It causes major difficulties and impairments in multiple settings and it can also have a long-term effect on *"academic performance, vocational success and social-emotional development"* (Consensus Statement, 1998).

ADHD is caused by neurochemical and physiological factors that influence neurotransmitter activity in certain parts of the brain. There also is a great deal of evidence that ADHD runs in the family — it is not caused by poor parenting, family problems, poor teachers or too much television, etc (Copps, 2002; ADHASA, sa).

It is identified by two main categories, but the person does not have to display all the symptoms to have ADHD. According to the American Psychiatric Association (1994:83), (DSM IV), these are:

- Inattention: A couple of these symptoms are: they often fail to pay attention in tasks and make careless mistakes, they do not listen and do not follow through on instructions, often lose things, etc.
- Hyperactivity-impulsivity: Some of the symptoms for hyperactivity are: they fidget, leave their seats, cannot play quietly, etc. Impulsivity symptoms include: they blurt out the answers before the question is complete, interrupt people and have difficulty in waiting for a turn.

Both the categories mentioned will have far-reaching implications for the ADHD learner. Scholastically, they will fall behind because they do not finish tasks, make careless mistakes and often lose things. If they cannot concentrate for long enough to listen to the teacher, they may miss the important explanation of new work and will then not be able to do that part of the work. Socially, their peers do not easily accept the ADHD child, as they cannot wait for their turn and tend to butt into games. This will mean that the peers will reject them. Consequently, they will feel isolated. Emotionally, the ADHD child will suffer severe self-image problems as they feel rejected by the teacher, seeing that they are constantly in trouble and rejected by their peers, for no-one wants to play with them, and are rejected by parents for constantly being in trouble.

These symptoms must be long-term and must appear before the age of seven and continue for at least six months in all situations (ADHASA, sa; Baumel, 2002).

ADHD children are occasionally identified earlier than ADD (Attention Deficit Disorder without Hyperactivity) children. ADD children tend to act normal. They just have more energy and they tend to fidget more than other children do. ADD children tend to daydream. Both types (ADHD and ADD) children tend to try very hard to work for a short period of time but then they slow down. This often leads to the teacher saying that they are lazy and can work if they want to. Once teachers understand that the ADHD child does not misbehave on purpose, they can work more sensitively and carefully with them. The teacher needs to be flexible and understanding (Comfort, 1994; Taylor, 2002a; Copeland & Love, 1995:32; Solanto, 2002).

ADHD can disrupt lives; these children have few friends, and even parents are ostracized by neighbours and relatives who say they cannot control their children. A mother of an ADHD boy in New Jersey says, *"Whenever I'd hear a child cry, I'd turn to see if it was because of Jeremy"*. School is a very difficult place for them; they are constantly moaned at or sent out of the class, they lose any sense of self-worth and fall behind on their work. They may even have to repeat grades and about a third fail to finish high school (Wallis, 1994). According to Wallis (1994), the psychological injuries are more serious; by age five to seven more than half are hostile and defiant, by age 10 to 12 they develop conduct disorder (lying, stealing, etc). As adults, nearly 30% will have substance abuse problems (Wallis, 1994).

According to Kane (2004), optimists have said that many famous people such as Thomas Edison had ADHD and that Leonardo Da Vinci was dyslexic. They say that despite their handicaps they rose to greatness. Kane (2004) states that these people rose to *"greatness because of their handicaps"*. According to Taljaard (sa), there are many positive aspects to this condition; the children tend to be talented, creative and intuitive, and many of the greatest achievers were/are ADHD such as Jonty Rhodes, Winston Churchill and even Steven Spielberg. Just because a child has ADHD, it does not mean that they cannot learn and are unable to function and be successful in society. They may just need a little help. According to Kane (2004), ADHD children have choices to make regarding their future; they can allow ADHD to destroy them or they can, with the help of their parents, develop a sense of self-worth that will help them through all the obstacles that they will have to face. Parents are not the only ones that can assist the learner in building a sense of self-worth. Teachers are very important in the child's life, as the child spends a large part of their day at school. Without help these children will fall behind and become disillusioned, their self-esteem will plummet and they will become very negative and will frequently leave school (Taljaard, sa). The only way to start treating ADHD is with hope, which is probably the most difficult, considering how low their self-esteem

already is. The learner needs to be reminded of what they can do and parents and teachers must encourage them to build on that, and not constantly focus on the problems (Hallowell & Ratey, 2002).

When the ADHD child causes problems in the family at a young age, it must be looked at seriously, as the parents may lose confidence and punish the child excessively which will lead to the child resenting the parents, causing long-term relationship problems. The child needs to feel accepted and loved; this is the same in the classroom (Green & Chee, 1997:5). Teachers have as much power and sometimes even more than parents in determining the long-term success and happiness of children. When people decide to become teachers, they are not only responsible for the academic performance of the children, but also for their emotional and social development and long-term psychological well-being (Copeland, 2002b; Copeland & Love, 1995:8).

> According to Green & Chee (1997:8): *"ADHD needs to be taken seriously. It is no longer good enough for parents, psychologists, teachers and paediatricians to pretend it is a trivial non-condition. Whatever means we use, our aim should be to help these children enter adulthood with the best education, self-esteem and life skills that are possible. It is also vital to keep family relationships intact. If we miss out here, all the rest of our efforts are pretty pointless".*

According to Copeland and Love (1995:86), most teachers feel more like army sergeants than the nurturing adults they want to be because learners with ADHD need constant repetitions of the consequences of their behaviour before they learn. Rules have to be repeated to them constantly and they have to be reminded to stay on tasks. The eventual outcomes of these repetitions are happy learners. Most learners just want to please, and ADHD learners often want to do this more than others do. They only develop internal motivation after many positive experiences and it is the teacher's job to motivate the learner to achieve this.

Alongside the major changes in South Africa during the past ten years, the education system has also changed. Inclusive education has become a major drive of the education sector in South Africa. Inclusive education is not a new concept; it has been practised around the world for a number of years. With the beginning of the new South Africa in 1994, dramatic changes came about; the most dramatic change was the new Constitution of South Africa which states that every person has the right to basic education (Janse van Rensburg, 2003). Values regarding basic human rights in education have culminated in the *Education White Paper 6: Special Needs Education, Building an Inclusive Education and Training System* (Department of Education, 2001). This policy document offers a structure to change the traditionally segregated

system of education to a system of inclusion that gives all learners equal opportunities. Inclusion means that every child should be accommodated in *"ordinary"* schools regardless of the learning difficulties or physical disabilities that they may have (Janse van Rensburg, 2003).

Inclusion is a concept that commits each school to educate each child to develop to their best possible potential in a regular school setting. The child should not be removed; the support services should be brought to the child and the child will not have to keep up with other learners, they will benefit from just being in the class with *"normal learners"*. The only time the child should be removed from the class setting is when the appropriate services cannot be provided in the class (Anon, 2001b).

> A school principal said; *"At our school we enrol 650 students ... When I'm asked how many children with special needs we serve, I answer 650. Some may have spent another night without shelter; others may have listened to their parents fighting, while still others may have been shuffled from babysitters, to grandparents, to home while their parents work the second shift"* (Taljaard, sa).

All children have the ability to learn, some may need a little extra support. It is clear from the quote that educators need to understand that all children have needs and if their needs are taken seriously, they will be able to function in the school setting. How can teachers expect a child to concentrate if that child had no food at home to eat?

Wilmot, Auerbach, Desai, Giliomee, Jordan, Krog, Kulati, Lehoko, Leibowitz and Tlakula, (2000) state that *"an education system of value allows the talent of the nation's youth in all its diversity to thrive and flourish"*. Today's children are the future leaders of this country and that includes learners with ADHD. All learners should be able to learn and enjoy being at school.

Schools are essential in building the health and wealth of a country; they play a major role in equipping young people with knowledge and skills that will enable them to become active participants in the community. One of the best approaches through which this ideal can be achieved, is by improving the quality of the learning environment, providing opportunities for academic achievement, offering opportunities for enhancing self-esteem and developing the knowledge, attributes, skills and behaviour needed for healthy lifestyles (Denman, 1999; St Leger, 2001).

Teachers are faced with children with various learning disabilities and emotional needs. They often feel at a loss for what to do and are overwhelmed (Anon, sa). Teachers need to realize that there is no lazy, unmotivated child; everybody has the desire to succeed. They may have

difficulties that are interfering with their performance (Copeland, 2002a). Teachers will have to adapt and accept all learners in their classes. The radical move to inclusion and the increasing attendance of learners with special needs at schools have called for a new level of teacher preparation. Teachers need to understand each learner's specific impairment and the educational implications that arise from it. It may require accommodations and adaptations to assist the learner in the learning process (Dugger Wadsworth & Knight, 1999).

> Copeland (2002a) describes the changes teachers need to make as follows:"*We do not have the power to control another person. Our only real power is our ability to influence. Such influence is a matter of reciprocal respect and regard. Contrary to accepted expectation, teachers must extend respect first to their students, slowly building foundations of trust, which allow students in turn to relinquish narcissistic self-determination for action influenced by the adults' care, knowledge, reason, and concern for the community at large".*

1.2 RESEARCH PROBLEMS

From the previous paragraph, it is clear that learners' with ADHD face many challenges at school and at home. Teachers and parents have a huge responsibility to ensure that the learner is understood and feels loved and accepted. Inclusion has given these learners the right to be in so-called normal classrooms, and teachers now have a duty to respect that right and to help the learners to develop their potential to the full.

This research aims at addressing the following research questions:

- Do significant differences exist between the teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms and the frequency of the teachers' implementation thereof?
- How do variables such as age, gender, teaching experience and qualifications affect (1) teachers' rating of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms, and (2) the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement?

1.3 AIMS OF RESEARCH

In the previous paragraphs, the various questions that warrant this research were mentioned. Accordingly, the following aims are formulated for this research:

- To determine whether a significant difference exists between teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other.
- To determine how variables such as age, gender, teaching experience and qualifications affect (1) teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms and (2) the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement.

1.4 METHOD OF RESEARCH

A dual research approach will be followed to answer the questions and achieve the aims of the research.

1.4.1 Literature research study

A literature research study will be done in which an overview will be given of ADHD, the aetiology of the disorder and the prevalence of the disorder. The symptoms and co-morbid disorders as well as the treatment options will be discussed. The implications of including ADHD learners will also be discussed against the background of the inclusive approach of accommodating learners with special educational needs (LSEN) in the classroom.

1.4.2 Empirical investigation

An empirical investigation will be done to determine how important teachers rate various inclusive didactic approaches and strategies and how frequently they implement them. Variables that could play a role as far as the teachers' perceptions of the importance and frequency of these strategies are concerned will also be investigated.

1.5 PLAN OF RESEARCH

- Chapter one gives a broad overview introducing ADHD and the problems learners, parents, teachers and peers encounter as well as an overview regarding the research problems and aims.
- Chapter two deals with a theoretical exposition of ADHD, the history of the development of the label ADHD and the diagnosis of the disorder. The aetiology of the disorder and the symptoms will be discussed as well as the different treatment approaches and the co-morbid disorders that may accompany ADHD. It will also include the problems ADHD learners experience in the classroom.
- Chapter three deals with the inclusion education policy; how and where it started and the road it has travelled internationally and more specifically in South Africa. The implications of the inclusion policy will also be discussed, which will include the impact of inclusion on the school — the classroom and the infrastructure of the school grounds and the various adaptations that may be needed to ensure that inclusion is implemented correctly. The implications of including an ADHD learner in the class will also be discussed.
- Chapter four will deal with the method of research with reference to the research problems and aims, different hypotheses, study population and participants and the data collection instrument.
- Chapter five will deal with the results and the implications of the research. Specific recommendations will be made in terms of guidelines for the inclusion of ADHD learners in the classroom.

1.6 SUMMARY

In this chapter, ADHD was introduced by highlighting some of the problems that learners, parents, teachers and peers may experience while in contact with an ADHD learner. Inclusive education was also introduced. The research problems were identified as well as the aims, method and plan of research. The following chapter will deal with ADHD in detail, including the aetiology, treatment and symptoms of ADHD.

CHAPTER 2

ATTENTION DEFICIT HYPERACTIVITY DISORDER: A THEORETICAL EXPOSITION OF THE DISORDER

2.1 INTRODUCTION

Teaching can be one of the most rewarding professions. However, teaching is not easy, even under ideal conditions it can be exhausting. As a teacher, you have influence on and possess tremendous power over the lives of children. They admire and respect you and have faith in what you tell them is true. The teacher shapes and moulds the learners' lives, you are afforded the opportunity to help and create an adult who will be confident, capable and a contributing member of society. The teacher's ability to influence a child's self-esteem is paramount.

When a child has Attention Deficit Hyperactivity Disorder (ADHD), it is often difficult to look at their positive traits when they do not listen, disrupt the class, misplace papers and constantly seem to be against you. It is very difficult to remain calm and react positively. Ironically, these children need your understanding, support and encouragement more than the others in your class do do. They are desperately trying to fit into a conformed situation that is very confusing and difficult for them (Copeland & Love, 1995:1).

These children have difficulty remembering and following written and verbal instructions, writing neatly, spelling accurately, staying on tasks and controlling their impulses. Most children hate school; they spend seven hours a day being reprimanded for poor performance and bad behaviour (Solanto, 2002). This could break the spirit and will of any child.

Parents can become frustrated and demoralised, and weary. They constantly receive negative feedback from teachers about their child's behaviour. The more teachers, parents and the community understand ADHD, the more intelligently and actively they can help these children (Taljaard, sa; Athealth, 2004).

ADHD is one of the most extensively investigated types of childhood and school related disorders. An enormous number of studies are reported each year on the causes, characteristics and treatment of both children and adults. In spite of such extensive searching for answers, much about ADHD still remains a mystery (Kaplan, Crawford, Dewey & Fisher, 2000).

The aim of this chapter is to explore aspects related to ADHD and provide an information basis that can contribute to a better understanding of the disorder.

2.2 THE JOURNEY TOWARDS THE NAME ATTENTION DEFICIT HYPERACTIVITY DISORDER

> *"Dusty Nash, an angelic-looking blond child of seven, awoke at 5 am one recent morning in his Chicago home and proceeded to throw a fit. He wailed. He kicked. Every muscle in his 50-lb body flew in furious motion. Finally, after about 30 minutes, Dusty pulled himself together sufficiently to head downstairs for breakfast. While his mother bustled about the kitchen, the hyperkinetic child pulled a box of cereal from the cupboard and sat on a chair. But sitting still was not in the cards this morning. After grabbing some cereal with his hands, he began kicking the box, scattering little round corn puffs across the room. Next, he turned his attention to the TV set, or rather, the table supporting it. The table was covered with a checkerboard Contact paper, and Dusty began peeling it off. Then he became intrigued with the spilled cereal and started stomping it to bits. At this point, his mother interceded. In a firm but calm voice she told her son to get the stand-up dustpan and broom and clean up the mess. Dusty got out the dustpan but forgot the rest of the order. Within seconds he was dismantling the plastic dustpan, piece by piece. His next project: grabbing three rolls of toilet paper from the bathroom and unravelling them around the house. It was only 7:30 and his mother Kyle Nash, who teaches a medical-school course on death and dying, was already feeling half dead from exhaustion"* (Wallis, 1994).

What would cause children to act in this way? The first reaction would be that the parent has no control over their child and that the child's behaviour can be ascribed to inadequate parenting. These behavioural problems are not new, as they were first described in 1845 by Dr. Heinrich Hoffman, a physician who wrote books on children. He wrote a book of poems about children and their behavioural characteristics. The *"Story of Fidgety Philip"* was an accurate description of a little boy who had ADHD, but it was not until 1902 that Sir George F Still published an account of 20 children, mostly boys, who displayed difficult behaviours that started before the age of eight. He described them as passionate, defiant, spiteful and lacking inhibitory volition. Due to the fact that bad parenting was not to blame, he suspected subtle brain injury (Green & Chee, 1997:9; Wallis, 1994; Copeland & Love, 1995:7; National Institute of Mental Health, 2003).

This was the beginning of a very long journey to the identification and diagnosis of the disorder that today is known as ADHD. In the early 1900's, the disorder was called impulsive, disinhibited and hyperactive syndrome. During the encephalitis (inflammation of the brain) epidemic in 1918-19, the disorder once again came into the spotlight. This epidemic left many people neurologically impaired and some went on to develop Parkinson's disease while others displayed signs of disinhibition and dysfunction that had some similarities to the problems identified by Still in 1902. Some children where left with impaired attention, memory and control over their impulses (Green & Chee, 1997:10; Wallis, 1994; Copeland & Love, 1995:7; Kaplan & Sadock, 1998:1193). A number of paediatricians and neurologists in the early post-World War II years noticed that children with brain damage displayed symptoms of hyperactivity. This caused the disorder to be called Minimal Brain Damage. However, when grossly brain-damaged children where studied they did not display an excess of hyperactivity (Barlow & Durand, 2002:459; Wallis, 1994).

Between the 1950's and 1960's researchers began to realize that a heterogeneous group of learners presented with poor coordination, learning disabilities and poor emotional ability but no specific neurological damage. The name of the disorder then changed from Minimal Brain Damage to Minimal Brain Dysfunction (Green & Chee, 1997:11; Kaplan & Sadock, 1998:1193; Copeland & Love, 1995:7; Taljaard, sa; Wallis, 1994; Barlow & Durand, 2002:459; Kidsource, 2000; Benn, Venter, Aucamp & Benn, sa). Medical professionals were starting to look at specific behaviours associated with the disorder and in the early 1960's the Hyperactive Child Syndrome was first described. The condition was believed to be the result of the individual make-up of the child and not necessarily caused by brain damage.

During the 1960's and 1970's the terms Minimal Brain Dysfunction and Hyperactivity were both used. Green and Chee (1997:13) pointed out the following: *"In the early 1970's a Canadian, Virginia Douglas, promoted the view that attention deficit was a more important symptom of hyperactivity".* By the end of the 1970's, her research in the field of Attention Deficit disorders was so impressive that the American Psychiatric Association adopted the term *"Attention Deficit Disorder" in 1980 in their Diagnostic and Statistical Manual (DSMIII)"* (Garber, Garber & Spizman, 1990; Green & Chee, 1997:13). Taylor (2002c) states that *"since the early 1980's there has been considerable interest in the division between ADHD and Attention Deficit Disorder without Hyperactivity (ADD or ADD-nonH, or AD/HD predominantly inattentive type)"* (Mental Health, sa).

In 1987, the American Psychiatric Association (APA) then referred to ADHD and Undifferentiated Attention Deficit Disorder and in 1994, the APA released its 1994 DSM-IV

classification (APA, 1994), which described ADHD without active, impulsive behaviours: ADHD with active, impulsive behaviours, and ADHD with a combination of both (Green & Chee, 1997:13; Copeland & Love, 1995:5).

Today, according to Green and Chee (1997:1) and Anon, (2005), professionals refer to ADHD as a slight but demonstrable difference in normal brain function that causes a clever child to under-achieve academically and to behave poorly, despite receiving the highest standard of parenting. It is also referred to as a neurobehavioral disorder, which manifests as a spectrum of impairing symptoms characterized by inattention, impulsivity/hyperactivity, or both to such an extent that daily functioning is compromised in multiple settings (Lesesne, Visser & White, 2003).

The core feature of this disorder is a persistent pattern of hyperactivity-impulsivity and/or inattention that is developmentally inappropriate. Some researchers suggest that ADHD is a deficit in behavioural inhibition in four executive neuropsychological areas, namely self-regulation of affect-motivation arousal, internalization of speech, working memory and behavioural analysis. It is believed that these individuals seek external stimulation through increased activity and sensory experiences (Parker, Majeski & Collin, 2004).

According to Green and Chee (1997:39), ADHD presents as a four-part problem:

- Part 1: ADHD: hyperactive-impulsive behaviours (poor self-control of behaviour)
- Part 2: ADHD: attention deficit learning problems (problems of executive control)
- Part 3: Co-morbid conditions such as Oppositional Defiant Disorder, etc.
- Part 4: The child's living environment (supportive parenting versus hostile, critical parenting, supportive schooling versus non-accepting education, an extended stable family versus isolation and rejection.)

2.3 THE AETIOLOGY OF THE DISORDER

The most commonly accepted causes in constitutional or innate biological factors relate to temperament and heredity. The research done shows those children with ADHD will have a close relative with a similar problem. Identical twins share almost the same risk; if one twin suffers from ADHD, there is an almost 90 percent chance that the other will also have this problem. Even amongst non-identical twins, the risk factor is quite high. If the one twin has ADHD, the other one stands a 30 to 40 percent chance of also having ADHD (Green & Chee, 1997:17, Copeland & Love, 1995:17; Barlow & Durand, 2002:458; Wallis, 1994; Petech, 2003;

Knivesberg, Reichelt & Nodland, 1999; Taylor, 2002a; Kaplan & Sadock, 1998:1193; National Institute of Mental Health, 2003; Benn *et al.*, sa).

Another cause relates to organic factors, which include all physiological insults and injury to the central nervous system and/or brain (Copeland & Love, 1995:17; Erasmus, 2002). The brain consists of billions of neurons or nerve cells. When a stimulus such as a noise impinges on the brain at a level strong enough to reach excitatory potential, the neuron fires and a nerve impulse is conveyed from the nucleus of the nerve body through the length of the axon to varying numbers of dendrites of other cells. To pass to another cell, the nerve signal must cross a tiny gap called a synapse. At the synapse, the electrical signal releases a chemical called a neurotransmitter. Once the neurotransmitter has been released and is absorbed by an appropriate receptor, the message continues its electrical transmission to the next synapse. Without the neurotransmitters, the relay of impulses in the brain would be impossible. Each neurotransmitter has a specific function and each affects nerve cells in particular parts of the brain. ADHD has been considered to be a neurotransmitter disorder, and some medication used to treat ADHD increase the availability of neurotransmitters on the presynaptic dendrites (Ritalin and Dexedrine) while others prevent the re-uptake, leaving more available at the synaptic cleft (Norpramin and Tofranil) (Copeland & Love, 1995:18; Taylor, 2002a; Kaplan & Sadock, 1998:1194; Barlow & Durand, 2002:458; Mental Health, sa; Green & Chee, 1997:21).

During the late 1980's two exciting new technological developments arrived on the medical scene, namely the Single Photon Emission Computed Tomography (SPECT) and the Positron Emission Tomography (PET scans). These devices assess the level of activity in the various parts of the brain. The SPECT measures blood flow to different parts of the brain and emits much less radiation than a PET scan. Due to the amount of radiation and the cost of the scans, they are not routinely used for children, but research scans have come up with some fascinating findings. When stimulant medication is taken, the ADHD difference observed in the brain scan can be largely reversed, the frontal lobes and their close connections are under-functioning and the areas of the brain that collect auditory and visual input seem overloaded in ADHD (Green & Chee, 1997:18).

The National Institute of Mental Health (2003) stated that they have focused their search on the frontal lobes of the cerebrum, the part that allows us to solve problems, plan ahead, understand the behaviours of others, and restrain impulses. These parts have been studied and it was found that the ADHD children showed three to four percent smaller brain volumes in these regions.

Pre-natal and post-natal complications, which resulted in oxygen deprivation, could also result in ADHD. Birth injuries, such as episodes of oxygen deprivation in the foetus as may occur during some complications of pregnancy may also be to blame for ADHD (Wallis, 1994; Mental Health, sa; Taylor, 2002a; Benn, *et al.*, sa).

Diet, nutrition, allergies, food intolerances, toxins and food additives have also been blamed as causes of ADHD. The toxins in food such as allergens and food additives have long been considered as possible causes of ADHD, although very little research evidence supports these claims. Feingold agreed with this theory when he developed his diet that eliminates or minimizes the artificial colorants, flavourings and preservatives in food. Other researchers disagree about the effects of preservatives and colorants, and state that diet does not cause ADHD. They regard the disorder as a biological, brain-based, highly hereditary condition and maintain that only a small number of children with ADHD may display worse behaviour when exposed to certain artificial or natural food chemicals (Barlow & Durand, 2002:459; National Institute of Mental Health, 2003; Copeland & Love, 1995:17; Green & Chee, 1997:230; Anon, 2005; Collins, 2004).

Environmental toxins, including lead, formaldehyde and chemical pesticides are also mentioned as possible causes of ADHD. Lead was previously used in paint, and lead based paint is only found in older buildings, therefore the exposures to toxic levels are not as prevalent as they once were. Even maternal smoking and maternal alcoholic beverage use has been named as a cause of ADHD (Copeland & Love,1995:17; Taylor, 2002a; Mental Health, sa; National Institute of Mental Health, 2003).

Barlow and Durand (2002:459) stated that *"one of the more consistent findings among children with ADHD involves its association with maternal smoking".* Mothers who smoke during pregnancy may be up to three times more likely to have a child with ADHD than those who do not smoke during pregnancy.

Developmental factors have also been in the spotlight as possible causes of ADHD. According to Barlow and Durand (2002:1194), there is some evidence that September is the peak month for births of ADHD children. The cause may be the prenatal exposure to winter infections during the first trimester of pregnancy. Neurophysiologic factors have also been investigated. The human brain normally undergoes major growth spurts at several development stages, namely ages 3 to 10 months, 2–4 years, 6–8 years, 10–12 years and 14–16 years. As stated by Barlow and Durand (2002:1194), some children experience a maturational delay in the developmental sequence and manifest symptoms of ADHD that appear to normalize by about age five.

According to Botting, Powls, Cooke and Marlow, (1997) babies born underweight as a result of premature birth stand the risk of developing ADHD.

Even psychosocial factors may account for ADHD. Children in institutions are frequently overactive and have poor attention spans. These behaviours may occur as a result of prolonged emotional deprivation and may disappear once the child has been placed in a safe environment. Even a disruption of the family or molestation may aggravate ADHD symptoms (Barlow & Durand, 2002:1194; Erasmus, 2002; Collins, 2004; Woodward, Dowdney & Taylor, 1998).

> Green and Chee (1997:2) state that as *"ADHD is caused by a subtle difference in the normal brain; the seeds of ADHD are present at birth. The extent of the difficulty depends on the severity of the child's problem and how well their behaviour and education are managed. We can't change this inborn predisposition but we can most certainly modify the home and school environment to help our children behave and achieve to their maximum potential".*

2.4 THE PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER

The prevalence of ADHD amongst children is not exactly known. Various sources estimate that between 2 and 20 percent of children display the symptoms of ADHD within a six-month period before the age of 7 (Copeland & Love, 1995:6; Green & Chee, 1997:2; Kaplan & Sadock, 1998:1193; Barlow & Durand, 2002:458; Petech, 2003; Zentall, Harper & Stormont-Spurgin, 1993; Lesesne *et al.*, 2003; Consensus Statement, 1998; Copps, 2002; National Institute of Mental Health, 2003). Boys seem to outnumber girls and are referred for help six times more than girls are. It is suggested that the true ratio is three boys to one girl, but many girls remain undiagnosed because they are less disruptive than boys are. Girls may not display bad behaviour but they could be failing at school due to attention deficit problems (Copeland & Love, 1995:4; Taljaard, sa; Kaplan & Sadock, 1998:1193; Barlow & Durand, 2002:458; Green & Chee, 1997:4).

Some researchers break the prevalence down even further and state that 4% of the population suffer from the Hyperactive-impulsive type of the disorder, of which 80% are males. Two percent of the population suffer from the inattentive type, of which 60% are males. It is assumed that the incidence of ADHD is the same in most countries, also with regard to the different race groups (Green & Chee, 1997:4).

The reason why the exact prevalence is not known is that many children remain undiagnosed. These children underachieve at school and create immense tension at home and in the school situation (Green & Chee, 1997:2). Sometimes ADHD children are difficult to identify as learners who need special attention because they look and act so normal. They are not unusual or odd behaviourally, other than the fact that they are in high gear, doing more of what every other child does. It is their normality that becomes their own worst enemy in that they look just like all the other children but are unable to control their attention capacity. They try to work very hard for a short while but then they are caught in a situation where the teacher or parent normally says: "He can do it when he tries, he's just lazy" (Copeland & Love, 1995:32).

For the ADHD child, trying can be very tiring. The energy that is used by concentration is so exhausting that the ADHD child cannot maintain that level very long (Comfort, 1994).

Some parents state that they knew something was different from the moment the child was born or even when he/she was still in the womb. These children were into everything non-stop from the moment they first walked. Parents first suspect their ADHD child is out of step between the ages of two-and-a-half and three years, but it will largely depend on the structure and demands of preschool. Normally the child will remain unnoticed until the first or second year of school. ADHD in preschoolers must be taken seriously, because if the parents lose their confidence they become excessively punitive and the use of force may lead to resentment, which causes problems with the parent-child relationship later on (Green & Chee, 1997:4).

Most ADHD children have the social and emotional maturity of a child two-thirds their age and they lack emotional understanding, independence and common sense. They are also often sought out by school bullies because they over react to teasing. The ADHD child would then be blamed for the fight that is sure to follow. ADHD children act before they think and do not consider the implications of sequence of events (Green & Chee, 1997:6).

Ten years ago, it was believed that the symptoms of ADHD faded with maturity but now it is one of the fastest-growing diagnostic categories for adults. It is estimated that one-third to two-thirds of ADHD children continue to display symptoms as adults. Many adults respond to the diagnosis with relief that at last, their problem has a name and it is not their own fault (Wallis, 1994; Green & Chee, 1997:191; Petech, 2003; University of Maryland Study, 2004). ADHD adults are creative, interesting, productive and enthusiastic because of their energy and their ability to move through a situation without getting stuck on details. The adult with ADHD has not changed much. All that has changed are the circumstances around these adults. They are not required to sit still and listen in a classroom all day long. Adults are also allowed to pursue their joys and

lifestyles that they enjoy and want to do, instead of coping with the demands of a structured school day (Comfort, 1994; Anon, 2005).

2.5 SYMPTOMS OF ADHD

2.5.1 The American Psychiatric Association (1994:83) lists the following as the diagnostic criteria for Attention-Deficit/Hyperactivity Disorder.

A: The child will suffer from either (1) or (2):

(1): Six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention:

a. Often fails to give close attention to details or makes careless mistakes in schoolwork, work or other activities.
b. Often has difficulty sustaining attention in tasks or play activities.
c. Often does not seem to listen when spoken to directly.
d. Often does not follow through on instructions and fails to finish schoolwork, chores or duties in the workplace (not due to oppositional behaviour or failure to understand instructions).
e. Often has difficulty organizing tasks and activities.
f. Often avoids, dislikes or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework).
g. Often loses things necessary for tasks or activities (e.g. toys, school assignments, pencils, books or tools).
h. Is often easily distracted by extraneous stimuli.
i. Is often forgetful in daily activities.

(2): Six (or more) of the following symptoms of hyperactivity-impulsivity persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental activity.

Hyperactivity:

a. Often fidgets with hands or feet or squirms in seat.
b. Often leaves seat in classroom or in other situations in which remaining seated are expected.
c. Often runs about or climbs excessively in situations in which it is inappropriate.
d. Often has difficulty playing or engaging in leisure activities quietly.

e. Is often *"on the go"* or often acts as if *"driven by a motor"*.

f. Often talks excessively.

Impulsiveness:

a. Often blurts out answers before questions have been completed.

b. Often has difficulty waiting turn.

c. Often interrupts or intrudes on others (e.g. butts into conversations or games)

B: Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C: Some impairment from the symptoms is present in two or more settings

D: There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E: The symptoms do not occur exclusively during the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder and are not better accounted for by another mental disorder (e.g. mood disorder, anxiety disorder or a personality disorder) (Kaplan & Sadock, 1998:1193).

2.5.2 Diagnostic criteria according to Taljaard (sa).

Taljaard (sa) states that the ADHD child must display one of the above DSM-IV symptoms and several of the following:

2.5.2.1 Mental difficulties

Children that suffer from ADHD have little ability to block out noises in order to concentrate — a noise outside the window, a dropped pencil, a lawnmower are all just as important as what the teacher is saying. They seem to have a wide-angle lens; they see everything at once. The problem is in regulating the attention and zooming in on the important thing (Copps, 2002; Wallis, 1994; Taylor, 2002a; Mental Health, sa; Green & Chee, 1997:26; Baumel, 2002). They lack organizing skills and suffer from mental confusion. They are unable to see that objects stand out from the background and have trouble arranging and organizing schoolwork. They tend to lose things regularly and have difficulty computing logically and their perception is selective (Copps, 2002; Copeland, 2002b; Zentall *et al.*, 1993:112; Green & Chee, 1997:33; Kidsource, 2000; Athealth, 2004; Baumel, 2002).

They have faulty abstract thinking, finding it difficult to answer questions, such as *"What if"* and in applying previous experiences to current situations. ADHD children have difficulty switching from one activity to another without being forewarned and tend to adjust poorly to changes in their surroundings (Green & Chee, 1997:104). They cannot always find the words to explain their feelings and thoughts clearly, stuttering and stammering through it. They have a problem with monitoring and control so they tend to think out aloud and say the opposite to what they mean and tend to blurt out things that were supposed to be a secret or a surprise, just because they are so excited (Copps, 2000; Wallis, 1994; ADHD Kids, 2001; Green & Chee, 1997:31; Kidsource, 2000).

They tend to be unpredictable, inconsistent and aimless; they act without considering the consequences. Their self-control is poor and it is hard for them to resist temptations for acting improperly. They may also be very insensitive to pain; they may be injured severely and will then not report the injury until much later. They make careless errors and engage in acts that disregard safety and health with no concern for obvious dangers. They tend to be very accident-prone (Green & Chee, 1997:32; Kaplan & Sadock, 1998:1196; Wallis, 1994).

2.5.2.2 Physical difficulties

ADHD children tend to be underweight; they are constantly busy with purposeless activities and jump, fidget, squirm, rock, wiggle, run and talk excessively (Green & Chee, 1997:29; Wallis, 1994; Taylor, 2002a; Mental Health, sa; Baumel, 2002).

They may suffer from asthma, eczema, hay fever, sinusitis and tonsillitis. They may also be hypersensitive to preservatives, colorants, flavourants and aromatic substances such as gasoline, smoke, perfume and paint. ADHD children may suffer from numerous ear infections and this may affect their hearing that could affect their concentration. A study done in the United Kingdom by the Hyperactive Children's Support Group showed that 50%-60% of ADHD children already experienced ear infections and were more likely to develop more serious hearing problems (Anon, 2005).

Eighty percent of the children are frequently thirsty. They have an essential fatty acid deficiency. The body needs essential fatty acids to manufacture certain hormone like substances called Prostaglandins and Leukotrienes, which affect functions and tissues in the body (Anon, 2005).

They may have poor co-ordination – fine or gross, they may be clumsy when they walk or have difficulty playing sport. They could have problems with buttons, tying shoelaces, writing and drawing (Green & Chee, 1997:6).

2.5.2.3 Emotional difficulties

ADHD children lack the awareness of their social impact on others. They tend to harm others when they do not mean to. They are very quick to blame others for difficulties rather than accepting responsibility (Wallis, 1994; Mental Health, sa). They tend to be very excitable, they suffer from mood swings, their demands must be met immediately, they are aggressive and they have a low frustration threshold. They cry easily, it is *"now or never"*, it is *"right or wrong"* — there is no middle ground and there is no compromise (Copps, 2002; Taylor, 2002b; Green & Chee, 1997:30; Solanto, 2002).

They have compulsive habits and suffer from anxieties, fears and phobias. ADHD children are very sensitive and may suffer from depression. They tend to be emotionally immature; emotionally, they could be two to three years less mature than other children could.

The self-esteem of these children must be protected by all who have contact with them. They use masks to cover the feelings that they are unable to control: The masks of *"know it all"*, *"victim"*, *"bored"*, *"I don't care"*, *"You don't know what you're doing"* and *"It's your fault"* (Wallis, 1994; Green & Chee, 1997:35; Copeland & Love, 1995:35).

They borrow things without permission, they enter rooms without knocking, they intrude on private conversations, they do not know their limits, they will ring the doorbell incessantly and they speak too loudly and stand too close. They have difficulty reading social clues (Copps, 2002; Wallis, 1994; Mental Health, sa; Green & Chee, 1997:31; Baumel, 2002).

2.6 CO-MORBID DISORDERS ASSOCIATED WITH ADHD

Co-morbidity is the simultaneous occurrence of two or more unrelated conditions or disorders. Until recently, co-morbidity has received little attention in research, even though it is not a recently discovered phenomenon, as it was described by Berkson as early as 1946.

> Knivesberg *et al.* (1999) state that *"the presence of ADHD greatly increases the coexistence of associated or co-morbid conditions. These include specific learning disabilities, Oppositional Defiant Disorder, Conduct Disorder, depression, Tics, Tourette's syndrome, co-ordination problems, Obsessive Compulsive Disorder, and Bipolar-Manic Depressive Disorder"*.

According to Green and Chee (1997:45), *"the ADHD does not cause the oppositional behaviour, dyslexia or the tics, but are just more likely to coexist".*

These disorders occur in at least half the children diagnosed with ADHD, so it is important to recognize these common associations, as different treatments are needed for each disorder (Green & Chee, 1997:46).

When untreated and unidentified, ADHD children are at a much greater risk for, academic underachievement, school failure and dropout, drug and alcohol abuse, teenage pregnancy, emotional problems, social problems, legal problems, motorcar accidents and economic underachievement as adults (Green & Chee, 1997:202; Copeland & Love, 1995:4; Taylor, 2002a). Researchers have found that a significantly larger number of teenagers diagnosed with ADHD present with more episodes of drunkenness than their counterparts in the non-ADHD group. Twenty percent of adolescents with ADHD have tried some other illegal drug besides marijuana compared to seven percent of the non-ADHD group (Molina & Pelham, 2003).

2.6.1 Oppositional Defiant Disorder (ODD)

As many as one-third to one-half of all children with ADHD, mostly boys, suffer from Oppositional Defiant Disorder (National Institute for Mental Health, 2003). Some children who have ADHD may act impulsively and without thinking, but they will feel genuine remorse afterwards. Children with Oppositional Defiant Disorder, on the other hand, will feel totally justified in what they did. The ODD spectrum ranges from mildly oppositional to a constant state of hostile defiance.

> Taylor (2002a:4) states: *"The indicators must occur for at least 6 months, they are: negativism, hostility, defiant behaviour, arguing with adults, refusal to comply with rules and requests, deliberate attempts to annoy others, blaming others rather than accepting responsibility for own actions, frequent display of resentment and anger, being "thin-skinned", easily offended or annoyed and displaying spiteful or openly vindictive actions".*

They say *"No"* on principle, they seek out the most difficult path and they refuse and argue (Benn *et al.*, sa).

To the parents they seem to be two different people; they are little devils at home but to the outsiders they may be charming. It is the most common overlapping psychiatric diagnosis given to children who are hyperactive (Taylor, 2002a). Fortunately, later in life, they seem to calm

down and most regret the way they were when they were younger. The child's (biological) temperamental make-up seems to be the origin of ODD but the incidence and severity of the problem is most often affected by parenting. Green and Chee (1997:48) state that *"parents who force, confront and are greatly hostile in their relationships increase the risk and extent of the ODD".*

2.6.2 Conduct Disorder (CD)

Conduct Disorder involves lying, cheating, threatening and violating the rights of others (Green & Chee, 1997:48). The other indicators are bullying, initiating fist fights, using a weapon while confronting or assaulting others, being physically cruel to people or animals, stealing while confronting the victim, *"conning"* people, sexually abusing someone, fire–setting, destroying property, *"breaking and entering"*, stealing and shoplifting, violating curfew, running away and being truant (Benn *et al.*, sa; Taylor, 2002a:4). Taylor (2002a:4) maintains that *"Conduct Disorder is commonly equated in a broad sense with juvenile delinquency".*

Conduct disorder occurs in about twenty to forty percent of ADHD children. These children feel absolutely no remorse and they are described as being malicious, and even sadistic. The symptoms are first evident between the ages of seven and ten years. If the child displays no symptoms at the age of 12, it is unlikely to occur. The symptoms should occur over a period of twelve months. The child's future can be won or lost in the early years and the factors that increase the risk of losing the battle are marital discord, hostile-critical parenting and poor early treatment of ADHD (Green & Chee, 1997:48; National Institute of Mental Health, 2003).

2.6.3 Depression

Depression may sound like a common problem that any child or adult in today's world may experience, but the ADHD child slips into a chronic state. They are moody, preoccupied and sad and wish to withdraw. They may put on a brave face or may become more irritable and annoying. To diagnose them is not easy, but a parent may notice a change of personality, a withdrawal from usual activities, a difficulty to communicate, a deep state of sadness or a decline in work. The depression should be treated before the ADHD is addressed and various antidepressants are prescribed. The anti-ADHD lobby groups, however, claim that the child becomes more depressed with the tablets. It is stated that an excessive or wrong dose may cause children to become teary-eyed and withdrawn but it normally passes after four hours (Green & Chee, 1997:49; Taylor, 2002a; National Institute of Mental Health, 2003; Erasmus, 2002; Benn *et al.*, sa).

2.6.4 Tic disorders and Tourette's Syndrome

Tics are involuntary twitches around the eyes or face, but they can sometimes also include a clearing of the throat, movement of the neck or shrugging of the shoulders. Tourette's Syndrome is an extreme type of tic disorder and it involves throat noises, major involuntary movements in other parts of the body and occasionally the uttering of inappropriate words. Tics usually start to occur between the ages of seven to ten years. This is normally during the same period that medication is given to ADHD children. This results in the assumption that the medication causes tics. Tics may cause problems with behaviour, learning or emotional well-being, but ADHD can cause a huge disadvantage in all of these areas as well. If a child with tics is said to under-function, it is usually caused by the coexisting ADHD (Green & Chee, 1997:50; Taylor, 2002a; National Institute of Mental Health, 2003; Erasmus, 2002; Benn *et al.*, sa).

2.6.5 Motor problems

ADHD children commonly have difficulties with coordination, motor planning, written work and late neurological maturity. When co-morbid clumsiness coexists with ADHD, some therapists see only the motor problems, calling this *"the clumsy child syndrome"* (Green & Chee, 1997:51).

2.6.6 Obsessive Compulsive Disorder (OCD)

According to Green and Chee (1997:51), there is a negligible association between ADHD and the obsessive, almost ritualistic, behaviours of OCD. This incidence is higher when the child with ADHD also has a tic disorder. These children seem to have an over-focus or unusual fixation and things must happen in a certain order. They are upset by how much the obsession interferes in their lives but they cannot stop it. The best approach to treat this disorder is psychological and possibly the use of one of the new SSRI antidepressants (Green & Chee, 1997:51; Erasmus, 2002).

2.6.7 Bipolar (Manic-depressive) Disorder

Research that has recently been done indicates a definite association between ADHD and Bipolar Disorder but this finding is not yet universally accepted. Sufferers of Bipolar Disorders with ADHD face less favourable psychological outcomes. It increases the risk of foolish actions, social isolation and addictive behaviours. ADHD children may lose their temper and act without thinking, but children with Bipolar Depression present with major rage attacks which are extreme and continue for a couple of hours, to be followed by short periods of quiet remorse.

The best way to diagnose and treat Bipolar Disorder is through psychological/psychiatric intervention (Green & Chee, 1997:51).

2.7 THE TREATMENT OF ADHD

2.7.1 Pharmacological treatment

2.7.1.1 Psycho stimulants

> *"When drug therapy works," says Utah's Wender, "it is one of the most dramatic effects in psychiatry". Roseman tells how one first-grader came into his office after trying Ritalin and announced, "I know how it works". "You do?" asked the doctor. "Yes," the child replied. "It cleaned out my ears. Now I can hear the teacher".* (Wallis, 1994:7)

> Copeland and Love, (1995:75) state that the *"medicine does not change the child's basic personality or values, it simply enables them to accomplish what they want to do, it does not force a child to be good, it just enables him to exercise self-control, attention to tasks and the thoughtfulness necessary to function normally in academic and social situations".*

In 1937, a Rhode Island paediatrician reported that giving stimulants called amphetamines to children with ADHD symptoms had the unexpected effect of calming them down. By the mid-1970's, Ritalin had become the most prescribed drug for what was eventually termed ADHD in 1987 (Wallis, 1994; Green and Chee, 1997:10). It is also combined with other treatments, including psychotherapy, special education and cognitive training. Although the benefits of amphetamines were clearly documented in the late 1930s, the stimulant was not widely used until the late 1950's and 1960's (Green & Chee, 1997:12; Mental Health, sa)

The breakthrough came in 1957 with the introduction of a new stimulant, methylphenidate (Ritalin) and in the next decade, many controlled studies showed that Ritalin was safe and effective (Green & Chee, 1997:12). The use of Ritalin increased rapidly but in an early 1970's article, which is still often quoted, the rate of prescribing was misrepresented by ten times its correct level. This frightened parents and caused them to stop using it. In the late 1980's, the Church of Scientology sent press releases to the media warning that Ritalin is dangerous and addictive and that it was used as a chemical straightjacket to subdue normally exuberant children because of intolerant educators, parents and psychiatrists. According to the press

release, Ritalin could cause violence, murder and suicide, Tourette's syndrome, brain damage, emotional disturbance, etc. Many parents, educationists, psychologists, psychiatrists, paediatricians and policy-makers believed the article instead of believing the research that had been done on the use and the effects of stimulant medication (Green & Chee, 1997:12).
According to Green and Chee (1997:7), the stimulants Ritalin and dexamphetamine have been used for 40 years. At the last count, there have been over 155 controlled trials that indicate their benefits and safety of use. Between 80 per cent and 90 per cent of children with significant ADHD will be helped in the short term by one of the stimulants (Mental Health, sa; Durand & Barlow, 2002:459; Anon., 2005). Just because the medication may be a relative of amphetamine, it does not cause addiction to substances, but it brings the unfocused child into full-focus (Green & Chee, 1997:7).

Methylphenidate is the most studied and most often used of the stimulants (Consensus Statement, 1998; Copeland & Love, 1995:76). It was only in the early 1990's that Australia decided to once again prescribe the medication to ADHD children (Green & Chee, 1997:13).

The most commonly used medication for ADHD is the Central Nervous System (CNS) stimulants, primarily dextroamphetamine (Dexedrine), methylphenidate and Cylert. Other classes of medication that have been used include tricyclic antidepressants, antipsychotics, Clonidine, serotonin-specific reuptake inhibitors (SSRIs), and Bupropion (Kaplan & Sadock, 1998:1197; Wallis, 1994; Copeland & Love, 1995:78; Durand & Barlow, 2002:459; Copps, 2002).

Cylert (Pemoline) is a relatively new medication and little is known about its potential long-term effects and benefits. It is available in 18.5, 37.5 and 75 mg tablets. It is usually tried after Ritalin and Dexedrine have been used and have not been effective (Copeland & Love, 1995:76). Barlow and Durand (2001:459) state that *"Cylert has a greater likelihood of negative side effects, so it is currently discouraged from use on a routine basis".*

The exact mechanism of the stimulant's action remains unknown (Wallis, 1994; Consensus Statement, 1998). It is strange to think that by giving a child stimulants they will actually calm down. Even if a person who does not suffer from ADHD takes the drug, it will calm them down too. It appears to reinforce the brain's ability to focus attention during problem-solving tasks (Barlow & Durand, 2002:459).

Copeland and Love (1995:75) state that current evidence indicates that stimulant medication alters neurochemical imbalances and blood flow to particular regions, resulting in improved functioning in the frontal and central brain structures important in alertness and attention. As

medication improves brain functioning, there is a corresponding improvement in the student's ability to attend and in their impulse control, behaviour, cooperativeness, reasonableness and sensitivity to social cues and expectations. A positive change in alertness is noted in the under-active, daydreaming ADHD child or adolescent, while increased attention and decreased activity and restlessness are noted in the overactive ADHD student (Wallis, 1994; Consensus Statement, 1998; Durand & Barlow, 2002:459).

2.7.1.2 Other medications

Although natural remedies are often promoted as safer than stimulants and equally effective they have not been subjected to the same scientific trials that other medication has undergone. Just because the product comes from a plant does not make it safe, e.g. opium, magic mushroom and tobacco are all natural substances, but that does not make them safe (Green & Chee, 1997:7).

Between 10 and 30 percent of ADHD children who do not respond to stimulant medication or experience negative side effects are given other types of medication. Bupropion can be used, but it is not as effective as stimulants, although it can be used in conjunction with other stimulant treatments (Mental Health, sa).

Tricyclic antidepressants can be used but they are less effective than stimulants and reports of sudden death of a few children in the early 1990's on the tricyclic compound Desipramine led to great caution (Mental Health, sa). Tricyclic antidepressants may be a misnomer for the group of medications used to treat depression, bedwetting, migraine headaches and attention deficit disorders. Tricyclic antidepressants affect the neurotransmitters; they appear to prevent the breakdown of selected brain chemicals, leaving more available to stimulate those parts of the brain, which control attention, inhibition, vigilance and alertness (Copeland & Love, 1995:78). The most commonly used tricyclic antidepressants are Tofranil (Imipramine Hydrochloride) and Norpramine (Desipramine Hydrochloride). Norpramine is a derivative of Tofranil and produces fewer side effects (Copeland & Love, 1995:78).

Children that suffer from tics and other co-morbid disorders are treated with antidepressants including imipramine (Tofranil), desipramine and nortiptyline (Pamelor) with much success (Consensus Statement, 1998).

The use of central alpha-adrenergic blocking drugs, such as Clonidine and Guanfacine, has caused much controversy. There is evidence that Clondidine is effective for ADHD when it occurs with a tic disorder, but several cases of sudden death have been reported in children

taking methylphenidate and Clonidine together and a number of reports of nonfatal cardiac side-effects in children have been reported (Mental Health, sa).

Neuroleptics are also effective, yet they have the risk of inducing movement disorders such as tardive dyskinesia. Lithium, Fenfluramine or benzodiazapines have not been found to be effective treatments for ADHD, neither have Fluoxetine or SSRIs (Mental Health, sa).

Methylphenidate has proven to be effective in up to three quarters of all children with ADHD and to have relatively few side effects. It is a short-acting medication that is generally used during school hours. If Methylphenidate is not successful, the second medication to try is Dextroamphetamine — its effect lasts longer (Wallis, 1994; Consensus Statement, 1998). Dexedrine has been used since 1937, while Ritalin was approved for use by 1961 (Copeland & Love, 1995:75).

Clonidine is a drug used to treat high blood pressure but it is also prescribed to the over focused child. Stimulants like Ritalin tend to aggravate their symptoms (Durand & Barlow, 2002:459; Copps, 2002). Clonidine is also used to treat tics and Tourette's Syndrome, although research in this area is inconclusive (Copeland & Love, 1995:78).

Tegretol, an anticonvulsant, is used for children with seizure disorders, which manifest primarily in outbursts of aggressive behaviour. Major tranquilizers (neuroleptics), such as the phenothiazines (Mellaril, Thorazine) and haloperidol (Haldol), are used to treat severe psychiatric disorders (Copeland & Love, 1995:78).

Adderall, a longer-acting version of psycho stimulants, reduces the need for multiple doses during the day with positive effects (Durand & Barlow, 2002:459).

A new drug, Strattera, was approved by the FDA (Food and Drug Administration) in November 2002 and is the first medication clinically proven to be effective in adults (Petech, 2003; National Institute of Mental Health, 2003)

2.7.1.3 Medication and dosage

Kaplan and Sadock (1998:1197) state that the FDA approves the use of dextroamphetamine in children 3 years and older and methylphenidate in those 6 years and older. The stimulants start as a low dose and are adjusted weekly. A recent study indicated that the practice of dosing methylphenidate based on body weight fails to predict the optimal dose of medication (Mental Health, sa). A goal according to Mental Health (sa) is to develop medication strategies to guide

the best dosage, dose changes, management of side effects and integration with other treatments.

Ritalin, as stated by Copeland and Love (1995:76), is available in a short-acting tablet form, which lasts approximately three to five hours, depending on the individual metabolism (Copeland & Love, 1995:76; Mental Health, sa). It is also available in a long-acting time-release 20 mg tablet that lasts approximately seven to ten hours (National Institute for Mental Health, 2003; Copeland & Love, 1995:76). It is the approximate equivalent of a 10 mg tablet taken twice daily. It may not have the same benefit as two tablets given at breakfast and lunch and should be monitored very carefully (Copeland & Love, 1995:76).

Dexedrine is not used as commonly as Ritalin, but some children and adults respond better to it. It is available in 5 mg short-acting tablets, but long-acting tablets are also available. The long-acting tablets are in time-release form and the effect last approximately seven to twelve hours (Copeland & Love, 1995:76).

2.7.1.4 Side-effects of medication

According to Copeland and Love (1995:76), almost every type of medicine does have side effects. Whenever there is a medical problem, each person must make a choice between living with the medical disorder or the potential side effects of treatment. Most of the side effects are mild, recede over time and respond to dose changes (Wallis, 1994). Following, are the side effects of medication:

- Appetite Suppression: This is the most frequent side effect for both Ritalin and Dexedrine. Many parents feel that it can be managed. The child needs to have breakfast before taking the medication, and in the afternoon, the child should be encouraged to eat before taking the next tablet (National Institute for Mental Health, 2003; Copeland & Love, 1995:77; Taljaard, sa; Wallis, 1994; Consensus Statement, 1998; Mental Health, sa).
- Sleep disturbance: The medication may cause or increase difficulty falling asleep. If this does happen, the medication needs to be adjusted. Some children fall asleep quicker and easier on medication (National Institute for Mental Health, 2003; Copeland & Love, 1995:77; Mental Health, sa; Taljaard, sa; Consensus Statement, 1998; Barlow & Durand, 2002:460).
- Increase in Pulse Rate or Blood Pressure: Although there have been a few cases where the pulse or blood pressure increase has necessitated changing the medication, normally only a mild increase in heart rate occurs (Copeland & Love, 1995:77).

- Headaches and Stomachaches: Usually the child will complain of headaches or stomachaches when they first start the medication. These negative effects are minimal and subside after a few days. If the negative effects continue, a change in medication is necessary (Copeland & Love, 1995:77; Wallis, 1994; Consensus Statement, 1998; Taljaard, sa).
- Lethargy, Depression, Becoming *"Glassy-eyed"* or a *"Zombie"*. These are not side effects, but are an indication that the dosage of the medication is too high, that the child is on the wrong medication or that the diagnosis is incorrect (Copeland & Love, 1995:77).
- Development of Tics: If this occurs, the medication should be reduced or discontinued. Some state that the tics will disappear with continued treatment (National Institute of Mental Health, 2003; Copeland & Love, 1995:77; Wallis, 1994; Consensus Statement, 1998; Taljaard, sa; Mental Health, sa).
- Growth stunting: Methylphenidate (Ritalin) has also been found to stunt the growth of the child but when the drug is not used, for example during the holidays, the child's growth catches up (Wallis, 1994; Consensus Statement, 1998; Copeland & Love, 1995:77; Kaplan & Sadock, 1998:1198).
- Liver failure: There have also been reports by people using Pemoline that it may have caused liver failure (Kaplan & Sadock, 1998:1198; Wallis, 1994; Consensus Statement, 1998; Mental Health, sa).
- Central nervous system damage, cardiovascular damage and hypertension: High doses of amphetamines may cause these side effects (Consensus Statement, 1998).
- Movement disorders or hallucinogenic responses: In certain vulnerable individuals, movement disorders or hallucinogenic responses may occur (Consensus Statement, 1998).
- Cardiac Arrhythmias: This may be caused by using tricyclic antidepressants (Consensus Statement, 1998).
- Seizures: This may be caused by using Bupropion (Consensus Statement, 1998).

Green and Chee (1997:7) state that *"the benefits of stimulant medication are often misrepresented in the media and by misinformed professionals. When stimulant medication is used correctly, it is both safe and remarkably free from side effects. It is without doubt the single most effective form of therapy available for ADHD".*

2.7.2 Psychological treatment

Behavioural techniques for parents and teachers are very important. This type of treatment is useful for (1) children who do not respond to medication at all and for whom the therapeutic benefits of the medication have worn off and (2) for the child who only responded (partially) to medication or (3) for the children who cannot take medication at all. There are also families who do not want their children to take medication. Children who are on medication may still continue to display the symptoms of ADHD, or symptoms of other disorders, such as Oppositional Defiant Disorder, which means that the child needs management skills (Mental Health, sa). According to Mental Health (sa), children with ADHD can present a challenge that puts significant stress on the family. Skills training for parents can help reduce this stress on parents and siblings.

2.7.2.1 Behavioural approaches

Medication alone is not enough to satisfy the comprehensive therapeutic needs of children with ADHD. Individual psychotherapy, behaviour modification, parental counselling and the treatment of any coexisting learning disorder may be necessary (Kaplan & Sadock, 1998:1198). According to the Consensus Statement (1998), the treatment includes a number of behavioural strategies such as contingency management (e.g. point/token reward systems, timeout) that typically is conducted in the classroom, parent training (where the parent is taught child management skills), clinical behaviour therapy (parents, teachers or both are taught to use contingency management procedures), and cognitive-behavioural treatments (e.g. self-monitoring, verbal self-instruction, problem-solving strategies and self-reinforcement). It can also include positive incentive programmes for developing desired behaviours, attitudes and responsibilities, negative reinforcement programmes for inappropriate behaviours as well as organisational skills, responsible decision-making and efficient planning (Copeland & Love, 1995:80; National Institute for Mental Health, 2003). Group therapy can be used to refine social skills as well as increasing the self-esteem and a sense of success (Kaplan & Sadock, 1998:1198). Mental Health (sa) states that systematic programmes of intensive contingency management conducted in specialized classrooms or summer camps with the setting controlled by highly trained individuals are the most effective.

A number of studies have been conducted comparing parent training and school-based behavioural modification with the use of stimulants. Most of the studies used outpatient behavioural therapy programmes where the parents meet in groups, and are taught behavioural techniques such as time out, point systems and contingent attention. The teachers were also taught similar classroom strategies, as well as the use of a daily report card for the parents to

evaluate the child's in-school behaviour. The psychosocial treatments were not found to be as effective as the psycho stimulants (Mental Health, sa; Copeland & Love, 1995:80; National Institute for Mental Health, 2003).

Questions remain concerning the effectiveness of these treatments in other settings. To be fully effective, treatments for ADHD need to be conducted across settings (school, home, community) and by different people (e.g. parents, teachers, therapists) – a consistency and comprehensiveness that could be difficult to achieve (Mental Health, sa).

Effective behaviour management approaches, according to Copeland and Love (1995:80), aim to assist teachers in selectively reinforcing students' impulse control, self-discipline, organizational skills and conformity to parental, school and societal expectations through the use of both positive reinforcement for approved behaviour and negative consequences for inappropriate behaviour.

2.7.2.2 Cognitive-behavioural therapy

Training in problem-solving and social skills have not shown to provide clinically significant changes in behaviour and academic performance of children with ADHD, but it may be useful in treating symptoms of accompanying disorders such as Oppositional Defiant Disorder, depression or anxiety disorders (Mental Health, sa).

2.7.2.3 Psycho-education

Although there are no studies evaluating the effectiveness of psycho-education as a treatment for ADHD, providing information to parents, children, and teachers about ADHD and treatment options is considered critical in the development of a comprehensive treatment plan (Mental Health, sa).
Organizations such as Children and Adults with Attention Deficit Disorder and the National Attention Deficit Disorder Association can be very helpful sources of information and support to families (Mental Health, sa).

2.7.2.4 Multi-modal treatments

Medication used together with multiple psychological and psycho-educational interventions in multiple settings should be more effective than medication alone. According to a recent Multi-modal Treatment Study of ADHD (called the MTA study), the combined treatment approach resulted in significant improvement in six outcome areas – social skills, parent child relations,

internalizing symptoms, reading achievement, oppositional and/or aggressive symptoms and parent and/or consumer satisfaction – whereas the singular use of medication or behavioural treatment alone only affected one or two of the above areas (Mental Health, sa).

2.7.2.5 Other treatments

Diet modification and a restriction in consumption of foodstuffs containing phosphates can also help. The eating programme involves avoiding aspirin, artificial colorants, flavourants and certain preservatives, MSG and for a while the list of fruits and vegetables containing high levels of salicylates.

- If the child is allergic and/or thirsty, supplement the diet with essential fatty acids and co-factor nutrients.
- Restrict the amount of refined carbohydrates (white flour, white rice and white sugar). They must be replaced with protein and complex carbohydrates (brown rice, wholegrain, fruit and vegetables) (Taljaard, sa).

Green and Chee (1997:11) state that Dr Ben Feingold, a former Professor of Allergy in San Francisco, first suggested a relationship between diet and hyperactivity in 1973. He said that the reported rates of hyperactivity were increasing in proportion to the number of additives that legally polluted food. Due to the large response from the press, the American government was obliged to set up committees and conduct detailed research projects to investigate the claims. Feingold believed that at least fifty percent of the hyperactive children could be helped by his diet. After the tests were done, it appeared that no more than five per cent of these children were adversely affected by food (Green & Chee, 1997:12). More than 20 studies have reported that dietary manipulation (e.g. the Feingold diet) is not efficacious, and controlled studies failed to indicate that sugar causes the symptoms of children with ADHD to increase (Mental Health, sa).

Feingold's diet is criticized by parents and teachers who have tried the approach, and did not experience the results they expected. Furthermore they criticized the medical profession who prescribed medication, and for economical reasons, producers of products containing synthetic colorants, flavourants and preservations (ADHASA, 2002).

Although the diet has not been successful for most people with ADHD, there is a group of people who have experienced improvements. Their activity levels have normalized, sleeping patterns have improved and incidents of bedwetting and encopresis have reduced. Improved social interactions, improvement with respect to inappropriate sensory modulation and reduced

clumsiness have also been reported. Some people also benefited in terms of maturity levels, reduced frustration and aggressiveness, and have developed better organizational skills (ADHASA, 2002).

Therapeutic Eurhythmy has also been used as an alternative form of therapy for children with ADHD. According to Majorek, Tuchelmann and Heusser (2004), the First Congress on Movement Therapy in Germany in 1998 also contributed to an increased acceptance of the value of movement therapy in the treatment of ADHD. Some of the latest treatments of ADHD propagate sport as a substitute to prescribing Ritalin. Therapeutic eurhythmy is a form of movement therapy that involves cognitive, emotional, and volitional elements, and which may also have an impact on psychoneurologic interactions. It is a movement therapy in the context of anthroposophical medicine. As a holistic therapy, Therapeutic Eurhythmy affects both physical and spiritual aspects of illness (Majorek *et al.*, 2004).

The most popular non-medicinal therapies are occupational therapy, play therapy, sensory integration, physiotherapy, psycho-therapy, remedial therapy and kinesiology, and these have often been used in combination with the pharmacotherapy (Majorek *et al.*, 2004; Taljaard, sa; Petech, 2003).

Other therapies include dietary replacement, exclusion, or supplements to diets, various vitamins, minerals or herbal regiments, biofeedback and perceptual stimulation. None of these theories have been subjected to extreme research, and very little is known about the effectiveness of these treatments (Consensus Statement, 1998).

2.7.2.6 Treatment controversies

Recently concerns have been raised that boys in particular are being over-diagnosed with ADHD and are receiving psycho stimulants when prescription of these are not indicated. There has been a major increase in the number of stimulant prescriptions since 1989, and methylphenidate is being manufactured at 2.5 times the rate of a decade ago (Mental Health, sa). According to Mental Health (sa), family practitioners are more likely than either paediatricians or psychiatrists to prescribe stimulants and less likely to refer to diagnostic services, mental health counselling or to provide follow-up care. The American Academy of Paediatrics published a policy statement in 1996 on the use of medication for children with Attention Disorders, concluding that the use of medication should not be considered the complete treatment programme for children with ADHD and should be prescribed only after careful evaluation.

2.8 THE ADHD LEARNER IN THE CLASSROOM

ADHD's academic impairment is multi-faceted and stems typically from a combination of skill deficits and insufficient perceptual search strategies as well as an impulsive problem-solving style that is associated with disorganised inaccurate work. The key words here being "skill deficit" and "perceptual search strategies" and "problem-solving". The good news is that a plethora of techniques and technologies exists that can be taught to ADHD learners to equip them with such skills. ADHD is all about attention. If a teacher could implement specific tried and tested strategies in aiding a ADHD learner in actually performing in class, and these strategies revolve around harnessing their attention and focusing it, with the learner being the main protagonist in its implementation (thereby teaching them life skills), these strategies could with much alacrity be taught and implemented in the daily fair of the main populace, benefiting all. ADHD learners occasionally experience scholastic difficulties, including poor grades and test scores, homework problems and grade retention (Abikoff, 1991).

It is important to realize that education does not happen inside a vacuum. Effectively treating ADHD requires not only classroom management but also parental involvement, therapeutic involvement and sometimes medication. Each leg plays its part in aiding the ADHD learner in reaching their potential. The classroom can for instance introduce new skills-learning methods to the ADHD learner but it is at home where such methods are strengthened and enhanced. Therefore, communication between the different role-players, learner included, should be constant and structured. All should know the goal and level of efficiency of all learners. All should participate, each playing out their required role.

The learning disabilities occur at all levels of ability, and do not respect intellectual levels. In the early grades, ADHD and learning difficulties often go un-noticed because the child is able to utilize compensatory skills. The child is able to memorize the work and only when faced with unfamiliar work, will it be picked up that the child cannot read. Although it is difficult to pick up the learning disabilities, there are still some clues that may lead to early identification; they may not be able to colour within the lines, they may be daydreamers, they may have problems processing and remembering directions or instructions (Copeland, 2002a). In the preschool years, these disabilities include difficulty in understanding certain sounds and words and difficulty in expressing themselves in words. Later on in school, they could have problems with reading, spelling, writing and mathematics (National Institute for Mental Health, 2003).

Although very little statistical information about ADHD in South African schools is available, the consensus about incidence seems to revolve around 10% of the school going population

(ADHASA, 2002). This percentage translates roughly to 4,5 million people. With that in mind, it becomes clear, given the nature of the disorder, and how disruptive it can become in the day-to-day activities within the classroom, that special attention must be given to the teacher's approach to children with ADHD, and their inclusion within the classroom.

ADHD learners do not behave in socially acceptable ways when relating to classmates. Sometimes the non-compliance is due to lack of training in self-control and problem-solving, but some experts say that even with training, some children will not develop these social skills unless they are neurologically mature enough to acquire the language skills needed to develop cognitive alternatives. Emotional, physical, neurological and social immaturity is typical of the ADHD child. They are late bloomers and may reach various levels of maturity six months to several years later than their classmates may. It is for this reason that they frequently associate with learners younger than they are (Green & Chee, 1997:5; Copeland & Love, 1995:33, Messina & Messina, sa). They also have a very low boredom threshold (Copps, 2002; Kaplan & Sadock, 1998:1194; Wallis, 1994; Medhelp, 2001). School bullies often seek ADHD children out as they overreact to taunting, and then they are blamed for the fight that follows. They do not start the day looking for trouble, but they seem to find it everywhere they turn. They are aware of what is right and wrong, but they do not realize it until it is too late. The child will be really upset at what they have done but they will do it again, unthinkingly. If an average child is pushed in the line, they will first check if the teacher is watching and then kick back, but the ADHD child will respond immediately, and is caught. The ADHD child then is labelled as aggressive (Green & Chee, 1997:5).

ADHD children are often socially out of tune; they so badly want to be popular but they do not know how to make it happen, they misread the accepted social cues, saying or doing something quite inappropriate. They so badly want to be part of the main game, but rather than let things develop naturally they barge in, poke, tease and annoy. They have difficulty following rules of games and they are rejected and avoided by peers, they will often hit, bite, kick, tease and boss other children around. They are slow to learn from experience, and along the way, they cause great pain to their parents, teachers and themselves. ADHD children function best in a small group or they only have one or two best friends due to their lack of confidence (Green & Chee, 1997:6; Copeland & Love, 1995:6).

ADHD children have a poor self-esteem, they are exceptionally sensitive, they see so much failure, get into so much trouble, put so much effort in their schoolwork, yet achieve so little. They so badly want to be popular but they are treated like annoying outcasts (Green & Chee, 1997:5).

ADHD learners range from under-active and lethargic to overactive and hyperactive. Unfortunately, the under-active child is often not recognised and is therefore less likely to receive help. They appear to be depressed, confused and not paying attention. They are often viewed as being disinterested, or having a bad attitude. They daydream, fail to complete tasks, have poor leadership ability and have immense difficulty in learning and performing (Copeland & Love, 1995:5; Green & Chee, 1997:43). They have difficulty getting started and keeping going, the mind is bursting with ideas. The problem is, getting them into action. They procrastinate, fiddle and make any excuse to avoid starting their work, output is uneven and there are great bursts of enthusiasm followed by periods of little action (Green & Chee, 1997:42).

The hyperactive type is constantly in motion, their hands and feet seem to have a life of their own and the learners have trouble remaining in their seats. The more restrictive the environment and the more concentration that is required, the more likely it is that the off-task behaviour will occur (Messina & Messina, sa; Copeland, 1991). Their brain seems to be restless and circling and they become bored unless work is new and varied (Green & Chee, 1997:42). The longer they have to sit still at school, the worse their behaviour becomes. When they reach the playground, they are as animals released from captivity. Any noise or movement distracts the learner and they settle down in class with great difficulty (Messina & Messina, sa; Copeland, 1991; Barlow & Durand, 2002:457). The ADHD learners rush through their work because they are hyperactive and have poor self-monitoring behaviours. Not only is their school work disorganized, they are frequently messy themselves with their clothes back to front, shoelaces half-tied, messages sent by the school never get home and the school bag might be left at school or at home. During exams, they spend half their time on one question and do not get to complete the rest of the exam (Green & Chee, 1997:5).

ADHD children are frequently irritable, moody and have quick tempers. Their ongoing underachievement, criticism and failure result in a very low self-esteem. Teachers say that the child is distractible, disruptive and needs one-to-one supervision to achieve. They interrupt and talk over others, they are extremely impatient and they intrude, demand, interrogate and do not know when to back off (Copps, 2002; Kaplan & Sadock, 1998:1194; Wallis, 1994; Medhelp, 2001). They are under-reactive to pain, insensitive to danger and are very easily over-stimulated. They are disorganized and forgetful; they frequently lose books or homework. Some ADHD learners need to be noticed at all times. This can be very frustrating for teachers to deal with. Under conditions of increased competition, attention-getting behaviour accelerates even more. They need to be the centre of attention and are frequently the class clowns (Copeland & Love, 1995:33; Messina & Messina, sa; Barlow & Durand, 2002:457).

They also have poor impulse control, which leaves the child both physically and verbally accident-prone. They trip, fall and act stupid (Messina & Messina, sa; Copeland & Love, 1995:21). They have poor coordination skills, (fine-motor – colouring, manipulating, handwriting, tying shoelaces, or gross-motor – running, climbing, catching a ball, riding a bike, etc) (Taljaard, sa). They have difficulty in planning what they do and with the quality of their flow of movement. They run, walk and climb efficiently but it does not look comfortable or right. They cannot do two things at once.

The constant moodiness and problems at school create much tension and anxiety for parents and siblings. Activities and social gatherings are unpleasant, and parents argue over discipline, since nothing works. Constant arguments over responsibilities and chores are the order of the day (Copeland & Love, 1995:36).

ADHD is thought to be a learning disability, but professionals view them as two separate, though related, difficulties. In its report to the USA Congress in 1987, the Interagency Committee on learning disabilities recommended that a new definition of learning disabilities should be adopted.

> They say that a *"learning disability is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities, or of social skills".*

These disorders are intrinsic to the individual and are presumed to be due to a central nervous system dysfunction. A learning disability is not a direct result of other conditions, e.g. handicapping conditions (e.g. sensory impairment, mental retardation, social and emotional disturbances), socio-environmental influences (e.g. cultural differences, insufficient instruction) or ADHD. It may simply occur as a co-morbid disorder (Copeland & Love, 1995:21).

Copeland (2002a) states that it is conservative to estimate that 10% to 15% of all children have learning disabilities, attention deficit disorders or a combination of the two. The National Institute for Mental Health (2003) states that as many as 20 to 30 percent of ADHD children have specific learning disabilities. Copeland and Love (1995:21) state that twenty to forty percent do have a coexisting learning disability but nearly eighty percent of them do indeed have great difficulty with handwriting and do work that is messy. Mayes, Calhoun and Crowell (2000) point out that the prevalence of learning disabilities range from 15% to 50% for reading, 24% to 60% for mathematics and 24% to 60% for spelling. So overall, 25% to 50% of children with ADHD have a learning disability (Green & Chee, 1997:46; Mayes *et al.*, 2000).

Eighty percent (80%) of ADHD learners have great difficulty with handwriting and do work that is rushed and little attention or care is given to the quality and legibility of their work. They use a mixed cursive-print form; the stroking of the letters is completed as quickly as possible, and tends to be misformed. The "t" may not be crossed and the "i" may be left undotted. The language rules are ignored even when the learner can verbalize the correct usage rule. On the other hand, the undifferentiated ADHD learner, who is lethargic and under-active, has a neat handwriting but is very slow and they will frequently over-stroke existing letters or erase and rewrite words. Their pencil grip is cramped, and causes excessive muscular tension in the hand and lower arm. They take about four to five times longer than the average child does to write a piece. Sometimes the learner takes a considerable amount of effort and produces a high standard of work but it means that it has taken a lot of mental strain and effort and the learner will not be able to keep it up. This results in the teacher saying that the learners are lazy and they can work well if they want to. Teachers get obsessed with the neatness of the work and fail to see the quality (Copeland, 1991; Green & Chee, 1995:46).

They have language or mathematical problems, and may suffer from spelling disorders (Copeland & Love, 1995:21; Taylor, 2002c; Green & Chee, 1997:46; Copeland, 1991; Mayes *et al.*, 2000; Copeland, 2002b). Some of the spelling problems may be as a result of coexisting language disorders and reading disorders, but much of it is due to lack of attention and focus on memorizing the spelling patterns rather than on true underlying learning disabilities. They work rapidly and impulsively and do not edit their work. They can remember spelling words only for brief periods. Learners without a true language disability can recognize that the words are spelt wrongly if pointed out to them and they can correct them if sufficient time and energy is devoted to the editing process (Copeland, 1991).

The ADHD learner often does little or no independent work, and must be continually reminded by the teacher to begin, or return to task. They have very poor attention spans, they miss important parts of directions and may try very hard to listen but do not hear the correct message. The learners often choose the wrong stimuli to respond to. They may be able to describe the detail of what happened outside the window but they did not hear what the teacher said. They often become sidetracked by other irrelevant stimuli; it may be internal (feeling of hunger) or external (the lawnmower). Due to the learners' physiological inability to concentrate, they may find it difficult to complete long tasks. It takes so long to settle down and work that it is frustrating for these learners and the teacher. The learners' impaired ability to concentrate and to store information into long-term memory inhibits their acquisition of many academic skills and it influences their work (Messina & Messina, sa; Copeland, 1991). They tend to lose homework assignments or completed homework. They cannot stay focused on a single task; they shift

from one to the other (Messina & Messina, sa). Teachers are confused; the learners do so much when they are stood over and so little when left alone. Their behaviour differs from day to day. They appear to concentrate well in one-to-one testing but fall apart when in class. Some ADHD learners tend to drift off into space as their teacher starts to talk — they become the quiet underachievers. Attention is divided into a number of overlapping parts such as selectivity (information that comes in will be misinterpreted and they will spend all their time colouring in instead of answering the questions), inadequate self-monitoring (these learners need to attend and review their work to see if they can fix any errors before the teacher marks the book. ADHD learners tend to make silly errors and when reading aloud to the class, they blurt out a word without checking to see if it matches the meaning of the sentence, and they are unable to maintain effort. ADHD learners find it impossible to keep working at an uninteresting task. They become bored, but a video game could hold their attention for hours. They seem to suffer from over-focus or under-focus; they can be influenced by situations. If they are interested in something, they will stick to it (Green & Chee, 1997:42; Taylor, 2002a).

Quite a number of ADHD learners have great difficulty in computational accuracy and organization. They struggle tremendously with the areas of the mechanics of mathematics (dyscalculia). They do not manage to learn the computational tables. Many young ADHD learners insist on using concrete apparatus (e.g. fingers) to calculate addition and subtraction problems, and when the numbers get too big, they battle. They can repeat numbers in parrot fashion by rote (Copeland, 1991). Many maths problems are miscopied, sloppily written and often to the extent that they actually visually overlap the page. Learners ignore errors when asked to check their work (Copeland, 1991). They have difficulty sorting out relative size and understanding the process needed to add, subtract, etc. It is a part of the child's make-up and no amount of tutoring will turn the learner into a mathematician. To do well in maths, the learner needs to be organised and have a good active working memory, without loosing track of what we are adding, borrowing, etc. ADHD learners are slow to learn tables, to memorise the correct sequence of digits, to understand the meaning of maths signs and to master fractions (Copeland & Love, 1995:22; Taylor, 2000b).

ADHD learners do not listen before they respond, they impatiently break into other conversations, and their speech frequently swaps from one topic to another. They are caught up in unimportant detail due to their problems of selectivity and they miss the important part of the picture. They tell stories that are punctuated by long pauses, which often are just a cover-up for the child not having the right word. They have problems with sequencing, for example *"before"*, *"after"*, *"yesterday"*, etc. They are unable to have a proper two-way conversation; they cannot regulate the content to the needs of the listener. They also experience problems answering vague, open-ended questions (Green & Chee, 1997:203; Taljaard, sa). The link between early

oral language skills and reading has been demonstrated since 1985, as well as the interaction of language, memory and attention on later reading ability. The implications of ADHD in language and reading disorders have received widespread attention as it has become evident that they affect the preschoolers' selective and sustained attention to the language they hear. Many auditory/language based learning disorders are as a result of the inappropriate attention to language input and decreased ability to lock language into long-term memory. More than 50% of language-based learning disorders have their origins in poor attention abilities in the early years. It is therefore vitally important that we identify children with ADHD and intervene. Medication may not be an option, because of the child's age, but dietary and allergic intervention, training in listening skills, increased attention to language development, behaviour management programmes and speech and language therapy can prevent the disabling effect of ADHD on their academic skills (Copeland & Love, 1995:23; Kaplan & Sadock, 1998:1197).

ADHD learners have problems with auditory processing, which involves the difficulties in the brain's perception, segmentation and understanding of speech sound, such that skills involving auditory processing are often impaired. Learners have great difficulty in taking notes from the teacher, since this requires a high level of auditory processing and written language skills (Copeland, 1991). Spelling skills are usually impaired in ADHD learners, except in those who are strong visual learners. They are not able to show the necessary focus and concentration to lock the forms of work into long-term storage. They will study the spelling words at night and then forget them in the morning (Copeland, 1991).

A variety of studies indicate that between 9% and 45% of the school age ADHD learners have a coexisting reading disorder. They reverse letters, inverse letter order in words, confuse and transpose relatively common words, produce dysgraphic misspellings and make visual substitutions in oral reading. Many learners do not actually have reading disorders, but due to their inattentiveness, the comprehension of the material is significantly impaired. They scan rapidly, missing key passages in the interest of completion. Others read so slowly that they forget the start of the paragraph or the sentence (Green & Chee, 1997:46; Knivesberg *et al.*, 1999; Mayes *et al.*, 2000, Taylor, 2002a; Copeland, 2002b).

They have difficulties with phonemic awareness and segmentation; some of them have trouble with shape recognition, which is the skill needed for effective sight-reading. The children whose difficulties lie in phonemic awareness will do well in the beginning stages of learning to read because they can rely on shape recognition. The problems begin when they have to sound out what they see. Readers who have difficulties with shape recognition are said to have visual perceptual dyslexia. They are very slow to develop a sight-word vocabulary and they have to sound out each word, which makes them read slowly. The words might be decoded correctly

but the poor active memory causes the meaning to get lost by the end of the sentence. When they take so much time decoding, unravelling and trying to understand the meaning, the effort is not maintained and they lose interest (Kaplan & Sadock, 1998:457). Oral instructions cause major problems, as they fail to follow them. The inattention and distractibility obviously plays a huge role, since when the instructions are given, the learner is attending to something else. They may also experience auditory processing and discrimination difficulties. Constant and severe occurrences of ear infection may be linked to speech and language disabilities in early childhood (Copeland, 1991; Knivesberg *et al.*, 1999).

An ADHD learner may show immense problems with preservation and a concrete and literal mode of thinking. There may be indications of visual-perceptual or cognition problems. They have problems with copying age appropriate figures, rapid alternating movement, right-left discrimination, ambidexterity, reflex asymmetries and a variety of subtle non-focal neurological signs. They have problems taking notes, structuring and organizing study time (Kaplan & Sadock, 1998:457; Copeland, 1991). The ADHD learners appear to have a good conceptual understanding of subject matter although their daily work does not reflect this. They perform poorly on tests that require sustained and organised concentration. They suffer from auditory/visual, perceptual/processing, and auditory/visual memory deficits (Taljaard, sa; Copeland, 1991; Knivesberg *et al.*, 1999; Copeland & Love, 1995:21; Copeland, 2002a; Taylor, 2002a).

Memory problems cause severe problems, as most academic tasks require high levels of both auditory and visual memory. Learners, who experience problems with short-term memory, struggle to remember instructions, forget large chunks of what is being taught, and find it difficult when information is given in a sequence. They have a poor memory for lists and confuse steps required to solve problems. The inattentive learners that have problems in auditory memory frequently fail to process oral direction and instructions and therefore receive negative feedback in the classroom, as they do not perform in accordance with the teacher's directions. An active working memory refers to the learner's ability to hold a number of bits of information in their minds so that they can process it, but if they cannot keep groups of figures in their heads, they cannot do mental arithmetic. They need to remember what they have read at the beginning of the paragraph or else the sentences will not make sense. They are able to store information in their memory for short periods, so if they study at night, it is all forgotten by the time they write the test (Green & Chee, 1997:5; Copeland, 1991).

While intelligence is not affected by attention disorders the development of the intellect may be uneven, which will cause the child to not reach their full potential. The low achievement test scores in areas that require sustained effort and attention regularly result in the child being

diagnosed as having a learning disability, while they actually have a long-standing, undiagnosed attention disorder (Copeland & Love, 1995:22).

Humans are supposed to think before they respond, whereas animals are not. The difference between the two is executive control, which is a function of areas around the frontal lobes of the brain. People with ADHD have a weakness in this area, which results in problems of prioritising, planning, using time wisely, anticipating consequences, learning from the past and staying socially in tune. People without ADHD learn these things automatically without conscious thought. Children with ADHD need to be trained in these aspects so that they can live their life to their full potential as functioning members of society (Copeland & Love, 1995:22).

Learners who have ADHD often have major problems in the school setting. Their inattention, impulsiveness, hyperactivity and disorganization can often lead to unfinished assignments, careless errors and behaviour that can be disruptive to the class atmosphere. By making use of simple and straightforward accommodations to the classroom environment, the teacher can adapt to the strengths and weaknesses of the learner with ADHD (Parker, 2002).

> According to Parker (2002:1),*"small changes in how a teacher approaches the learner with ADHD or in what the teacher expects can turn a losing year into a winning one for the child".*

Teachers teaching ADHD learners do not have to think that the learners need more than other learners do; they may just need more monitoring and structuring of their work (Comfort, 1994). There is nothing wrong with their minds; it is just that their hyperactivity and inattention makes learning difficult. It may cause learners to repeat a grade or to drop out of school, but if the teacher uses the right combination of appropriate educational practices and counselling, this can be avoided (Medhelp, 2001).

Due to the fact that children spend most of their time at school, it is the primary source of self-esteem and fulfilment. Children who are not successful cannot become competent adults. Therefore, the school needs to work on the learner's strengths and try wherever possible to build the self-esteem of the child. Important considerations for the learner are correct grade placement, consideration of learning style preferences and classroom management strategies (Copeland & Love, 1995:91).

2.9 SUMMARY

In this chapter, a theoretical exposition of ADHD was undertaken. The history of the development of the label ADHD was described and the focus fell on the diagnosis of the disorder and some of its co-morbid features. Attention was also given to the different approaches that can be applied in the treatment of the disorder. The learning problems associated with ADHD were also discussed.

In the next chapter, the concept of inclusion will be explored, how inclusive education started and the manner in which it developed internationally and more specifically in South Africa. The various implications of inclusion will also be discussed. These will include the impact of inclusion on the school and the classroom situation as well as the various adaptations, which are necessary to ensure that inclusion is implemented successfully.

CHAPTER 3

INCLUSIVE EDUCATION AND ITS IMPLICATIONS FOR SCHOOLS AND TEACHERS OF LEARNERS WITH ADHD

3.1 INTRODUCTION

In the previous chapter, the journey towards the name Attention Deficit Hyperactivity Disorder (ADHD) was discussed as well as the prevalence, aetiology and the symptoms of the disorder. The emotional, psychological and physical difficulties associated with the disorder were also discussed as well as the various co-morbid problems that can occur with ADHD. Treatment approaches (medication and psychological) were also discussed as well as the potential side effects and dosages of the variety of medication available. Attention was also given to the learning problems associated with ADHD.

In this chapter, the concept of *"inclusion"* will be explored, as well as the origins and development of the inclusive movement, both internationally and in South Africa. The implications of inclusive education for the school will also be discussed and finally the implications of including learners with ADHD for teachers will also be addressed.

3.2 INCLUSIVE EDUCATION: CLARIFICATION OF CONCEPTS

The concepts mainstreaming, integration and inclusion often are confused and are used randomly to describe educational approaches that aim to include learners with special needs in *"regular"* schools and classrooms. There are marked differences between these concepts and for the sake of clarity, these concepts will be described in the paragraphs below.

3.2.1 Mainstreaming

In the past (predominantly during the 1970's and 1980's) learners with special needs were integrated into mainstream classrooms on a case-by-case basis (Engelbrecht, Green, Naicker & Engelbrecht, 1999:7). This practice was classified as mainstreaming (Donald, Lazarus & Lowana, 2002:23). Learners who experienced scholastic problems were assessed by professionals (mainly psychologists) and based on the results of the assessment, learners were classified as learners with special needs and referred to mainstream classrooms. Normally these mainstream classrooms operated as separate *"special"* classes attached to regular

schools. Learners in these classes would receive separate academic instruction, but would join the other learners in the non-academic programme of the school (Department of Education, 2001). In these special classes, the learners had to be able to perform academic tasks relatively independently and be able to behave in socially appropriate ways. If they could achieve this, they could earn their way into a regular classroom (Zinkil & Gilbert, 2000). Once in the regular classroom, they had to be able to manage the academic workload of the regular class (Anon., 2001a).

3.2.2 Integration

Although integration is based on nearly the same premises as mainstreaming, it involves more extensive participation of learners with special needs in activities that are age-appropriate, alongside their non-disabled peers. Although the learners with special needs are placed in regular classrooms, there is still a large amount of instruction time in separate settings (Engelbrecht *et al.*, 1999:8).

3.2.3 Inclusion

> According to Salend (1999:114), *"inclusion is the movement that seeks to create schools based on meeting the needs of all learners as well as respecting and learning from each other's differences".*

Ferguson (1996) mentions that inclusionary schools try to establish communities of learners by teaching all learners together in their local school. The learners' diverse needs are accommodated in a single education system. These children should not be separated from the peers nor should they be expected to keep up with their peers (Donald *et al.*, 2002:23). Differences should be accepted and respected and the learners will need to build on similarities. Just because they are not all on the same level academically does not mean that they cannot do sports together (Donald *et al.*, 2002:23; Department of Education, 2001; Zinkil & Gilbert, 2000).

Inclusion is based on the philosophical assumption that all learners should be educated to their maximum potential. The services and assistance needed by a learner should be brought to the learner so that the learner would not have to leave the classroom environment. Only when these appropriate services and assistance cannot be provided in the regular classroom, may the learner be removed (Anon., 2001b; Fisher, Sax, Rodifer & Pumpian, 1999; Heflin & Bullock, 1999; Donald *et al.*, 2002:23). Inclusion is not a method; it is about supporting learners in their learning, and according to Fisher *et al.* (1999), it is based on the belief that all children can learn

and achieve. Inclusion is not a fixed state or idea; it is dynamic and a never-ending process. It is built on the belief that all learners should receive the same opportunities whether or not they are disabled (Fisher *et al.*, 1999; Heflin & Bullock, 1999; Engelbrecht *et al.*, 1999:8).

The focus of inclusion is not on changing or closing down special schools. It is about general educational reform, and it is about access, equity and quality for all learners (Meijer, Pijl & Hegarty, 1997; Mittler, 1995; Giangreco, Cloninger & Iverson, 1998).

An inclusive learning environment should foster academic, psychological and social development of all the learners, free of harassment and discrimination. Schools should accommodate all learners, regardless of their physical, intellectual, social, emotional or linguistic circumstances (Anon., 1998). Inclusion is about support for all learners, educators and the system so that the learning needs of all learners can be met entirely. The focus of inclusion is on overcoming barriers in the system that are preventing it from meeting the needs of learners. As Dr. Mel Levine, one of the best-known education experts in America stated 'Most schools still cling to a one-size-fits-all education philosophy, as a result, these children struggle because their learning patterns don't fit the schools they are in. A further focus of inclusive education is on adapting the curriculum and making sure that each school has a strong support system (Department of Education, sa; Oprah's books, 2003).

3.3 HOW DOES INCLUSIVE EDUCATION DIFFER FROM PAST EDUCATIONAL APPROACHES?

Past educational approaches tried to change the child to adapt to the school setting, whilst inclusion changes the school environment around the child so that the learner can be accommodated in the classroom and learning environment (Department of Education, 2001). This approach implies that the whole school environment needs to be adjusted (physical and human infrastructure) to allow disabled learners equal access to the educational resources available (North-West Department of Education, sa). Learners with disabilities and special needs were once thought to be abnormal and need to be cured or protected, but now the way of thinking has shifted, and recognizes the fact that disabled people also have human rights and deserve a right to equal education (Engelbrecht *et al.*, 1999:13; Department of Education, sa). Previously, an individual's race, gender and class could influence the quality of education that was provided, but now diversity is used as a tool for teaching and learning (Department of Education, 2001; North-West Department of Education, sa).

Each person learns in his/her own way and own time. That is why we are individuals, each with our own personalities and talents. The responsibility of the educational system is to allow the individual learner to fulfil his/her own potential (North-West Department of Education, sa). The type of learner support that was available in the past was individualised and direct, whereas inclusionary education provides support in all educational settings to make sure that all learners benefit from it. Support is drawn from the NGOs, other public sectors and the community who are all working towards the common goal of allowing the individual learner to fulfil his/her own potential (North-West Department of Education, sa). In the past, the way of thinking was that the difficulties learners faced were due to their disabilities, and there was nothing that could be done about it, whereas now it is understood that learners face various barriers to learning, but it is not the learners' fault alone; the classroom, curriculum, environment and even the community should share some of the blame. These barriers must be recognised and removed if at all possible. In the past the learner was classified as lazy or not able to cope with the demands of society, nowadays the teaching and learning approaches need to be changed and adapted to ensure that the learner will be able to function as a citizen (North-West Department of Education, sa).

3.4 THE HISTORICAL DEVELOPMENT OF INCLUSIVE EDUCATION

The concept of inclusion is not new. Advocates for human rights and equal opportunities have been fighting its cause since the beginning of the 20th century (Janse van Rensburg, 2003).

Christian communities started asylums and tried to protect individuals with disabilities because society excluded and mistreated disabled individuals (Engelbrecht *et al.*, 1999:13; Janse van Rensburg, 2003). It was not until the end of the 19th century that educational leaders became involved in the education of disabled learners. Due to the advances in medicine and clinical psychology, additional categories were created to classify handicapped individuals. Unfortunately, these categories only added to the exclusion of disabled individuals. The different categories of handicaps eventually led to the establishment of special schools for each individual category of disability. According to Engelbrecht *et al.* (1999:13), the goal of special education was to exclude disabled individuals from mainstream education and society due to the belief that learners with disabilities were *"inadequate human beings who were not fit to be included..."* (Engelbrecht *et al.*, 1999:13).

Disabled learners were assessed and labelled by medical experts and leaders in education and were moved from the regular schools to be *"fixed"* so that the child would later on be capable of fitting in again (Engelbrecht & Green, 2001). The problem with this approach is that children

were removed from their families and moved to special schools. Both the disabled child and their families were socially and psychologically affected by the segregation. The segregated nature of special education also had a ripple effect on society, because disabled learners were viewed as different and inferior to their *"normal"* counterparts.

According to Janse van Rensburg (2003:14), a more *"holistic, ecological perspective of individuals with disabilities"* replaced the medical approach towards the middle of the 20th century. In his presidential address to the Council for Exceptional Children (1956), Francis Lord spoke about concepts now known as inclusion. According to Guetzloe (1999), he stated that education systems need to be restructured to provide normalising learning experiences for every disabled child to the maximum extent possible.

> Engelbrecht *et al.* (1999:28) explains normalisation as the *"physical and social integration of a developmentally disabled individual in the mainstream of the community"*.

With the normalisation movement in motion, a number of international declarations were made, e.g. the Charter of the United Nations (1945) and the Universal Declaration of Human Rights (1948). The United Declaration of the Rights of the Child (1959) propagated that learners should have more rights in education (Engelbrecht *et al.*, 1999:28).

The Normalisation movements started to advocate that society influence the disabled person. The disabled individual could be either positively or negatively be affected by society's attitude towards disabilities. If society's attitude is that disabled individuals must fit into society, then disabled individuals will be marginalized. If schools do not take measures to accommodate disabled learners, they will be unable to cope with the demands of the school environment and will have to remain in the special education system (Janse van Rensburg, 2003; Du Toit, 1996).

3.4.1 Developments in the international arena

The developed countries such as the United Kingdom, Scandinavia and the United States of America developed mass education systems founded by local and charitable initiatives but these were later taken over by the state. According to Engelbrecht *et al.* (1999:28), these state funded education systems were increasingly confronted with the needs of disabled learners. Towards the middle of the 20th century, most developed countries developed separate educational systems for learners with disabilities (Engelbrecht *et al.*, 1999:28). During the 1960's a couple of Scandinavian countries started to implement integration, which is the placement of disabled learners in regular schools. This caused a more positive societal

perception of disabled people who were no longer seen as so disabled that they had to be removed from society. During the 1970's, the United States of America and the United Kingdom and later Italy and Spain followed the integration movement (Engelbrecht *et al.*, 1999:25; Salend, 1999).

Since the 1960's, the United Nations (UN) has tried to promote a stronger awareness of the needs and rights of learners with disabilities. The UN has achieved positive results with regard to the rights of disabled children, due to its large influence on the educational laws and practises in the international community and it continues to provide the stimulus for countries to develop their own ethics and legislation with regard to disabilities (Engelbrecht *et al.*, 1999:9).

In 1975, the USA Congress passed the Education for all Handicapped Children Act that was later renamed Individuals with Disabilities Education Act (IDEA) in 1990. This piece of legislation opened the way for learners with disabilities to receive educational services in the least restrictive environment (LRE) (Anon., 2001a; Zinkil & Gilbert, 2000). The implication of this was that disabled children must, to the maximum extent, be educated alongside non-disabled children and that separate schooling should only occur when the severity of the handicap (even with the use of aids and services) interferes with the education of the disabled child (Zinkil & Gilbert, 2000; Heflin & Bullock, 1999).

The Association for Personas with Severe Handicaps (TASH) began advocating for learners with severe impairments and campaigned that these learners should be educated with their non-disabled peers (Zinkil & Gilbert, 2000). Full inclusion then emerged as the term of choice and heralded the end of pullout services, which were viewed by many as discriminatory (Heflin & Bullock, 1999).

Senator Robert Stafford of Vermont, the original sponsor of the IDEA, stated that when the LRE principles were first implemented there were some cases where a regular classroom was not be in the best interest of all children and that separate educational settings may be needed for some learners (Yell & Drasgow, 1999). According to Donald *et al.* (2002:295) children have the right to be seen and treated as normally as possible. They have the right to have their needs met in a regular, local school and to live at home. Therefore it could be assumed that the right facilities, resources and specialized help would be available and that the curriculum must be flexible enough to adapt to the specific needs of the learners, but this is not always possible and therefore it might be necessary for a learner's needs to be met in a wholly or partly separate setting (Donald *et al.*, 2002:295).

In 1994, the World Conference on Special Needs Education was held, organized by the Government of Spain in co-operation with UNESCO. The framework for the Action on Special Needs Education was adopted and it was signed worldwide by 92 relatively poor countries. It was at this conference that the Salamanca Statement originated (United Nations Educational, Scientific and Cultural Organisation, UNESCO, 1994).

> The Salamanca Statement on Principles, Policy and Practice in Special Needs Education (UNESCO, 1994) states that inclusive education is *"the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all, moreover they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness for the entire education system".* The Salamanca Statement states that inclusion is a right — a right that appears to be universal (Engelbrecht *et al.*, 1999:9; Salend, 1999).

3.4.2 Developments in South Africa

Although international trends towards inclusion have influenced South Africa, the one factor that had inhibited South Africa's movement from exclusion to inclusion was the political policy of racial segregation (Janse van Rensburg, 2003).

According to Donald *et al.* (2002:281), most developed countries estimate that the number of learners with disabilities are approximately 10% of the school age population. South Africa, a developing country, seems to have a much higher rate. There are two main reasons for this. The first reason may be due to South Africa's widespread poverty and social disadvantage, as the numbers of disabled learners are likely to be higher in these circumstances because these conditions cause greater risks for the development of physical, sensory, neurological and cognitive problems. The second reason is the interactive effect between numbers of learners with mild disabilities caused by internal factors; these learners may already be suffering from external social or contextual disadvantages as well (Donald *et al.*, 2002:281).

South Africa had to change many things after 1994 and the equality of education was the most important and urgent challenge of all (Donald *et al.*, 2002:18; Department of Education, 2001).

- Before 1994

The Apartheid Government came to power in 1948 and introduced the segregation of races into four groups: whites, blacks, Indians and coloureds (Swart & Reddy, 1999). With the segregation of races, the government also established 17 different educational departments all under the governmental control. There were large differences between the different education departments concerning access to specialised schools, the classification criteria for the admission to special education and the amount of money that the special schools would get from the government (Janse van Rensburg, 2003). The special education sector shows the effects of apartheid very clearly. Schools for white disabled learners were very well resourced, while schools for black disabled learners were under-resourced (Department of Education, 2001).

Religious groups mainly encouraged the South African movement towards special education, and these organisations encouraged the increased participation of the state, which caused the addition of Special Schools to the educational system for each new diagnosed disorder. Unfortunately, it was mainly available to white learners (Janse van Rensburg, 2003). Limited numbers of special schools were available and they were limited to admitting learners according to very strict admission criteria. This resulted in only 20% of learners with disabilities being accommodated in special schools. The World Health Organisation (WHO) states that between 2, 2% and 2, 6% of learners in any school system can be identified as impaired or disabled. Statistics supplied by the Department of Education (2001) show that approximately 64 200 South African learners with disabilities are accommodated in about 380 special schools, which means that 280 000 learners are unaccounted for (Department of Education, 2001).

- 1994

In 1994, the first democratically elected Government came to power and radical changes affected the political, economic and social areas of South Africa (Lomofsky & Lazarus, 2001). The separate educational departments were united in one National Department of Education and new policies and legislations were introduced (Janse van Rensburg, 2003).

- 1995

The Education White Paper 1 was published by the Ministry of Education and one of its main concerns was about learners with special needs who were not being catered for effectively in

the mainstream situation, and learners with special needs who were in special schools (North-West Department of Education, sa).

- 1996

The Ministry of Education appointed the National Commission on Special Needs in Education and Training (NCSNET) and The National Committee on Educational Support Services (NCESS) in October 1996 to investigate and make recommendations on all aspects of the support services available and special needs in education and training in South Africa (Department of Education, 1997).

A new Constitution and the Bill of Rights were also introduced. The Bill of Rights protects all individuals from discrimination, specifically within the field of education and according to the Constitution (Republic of South Africa, 1996:29), *"all learners have a right to basic education including adult basic education and further education"*. The Constitution (Republic of South Africa, 1996) founded our democratic State and common citizenship based on the values of human dignity, the advancement of human rights and the achievement of equality and freedom (cf. Section 1(a)). These values call on all citizens to build a humane and caring society for all in South Africa. Educators have the responsibility to implement these values and to ensure that all learners (whether or not disabled) pursue learning to the maximum. The constitution provides a special challenge by requiring that effect must be given to the right of basic education for all. In section 29 (1), it commits everybody to this fundamental right, viz. *"that everyone has the right to a basic education"* (108 of '96 A29 (1), (9)). This right is developed further in Section 9 (2), which commits the state to the achievement of equality, and section 9 (3), (4), (5) which commits the state to non-discrimination. Section 28 (2) further highlights the importance of the situation by proclaiming that the best interests of the child are of paramount importance in every matter concerning the child. These clauses protect all learners, whether or not disabled. The government's obligation to provide basic education to all learners and its commitment to the principles of the constitution are guided by the recognition that the educational system must be based on equality, on redressing past imbalances and on a progressive rising of the quality of education (Department of Education, 2001).

Government proposals related to education include the South African Schools Act (Department of Education, 1997).

> The South African Schools Act (Department of Education, 1997) states that all schools should admit all learners and fulfil their specific educational needs

without discriminating against the learner in any way. It also declares that the parents are one of the main *"stakeholders"* in education and *"stipulates that the rights and wishes of parents must override the admissions policy which gives parents of children with special needs the right to a choice of placement"* (Lomofsky & Lazarus, 2001:309).

The South African Federal Council on Disability (SAFCD) (1995) states that *"learners with special needs have a right to equal access to education at all levels in a single inclusive educational system that is responsive to the diverse needs of all learners, accommodating both different styles and rates of learning ..."* and *"ensuring quality education to all through appropriate curricula, organizational arrangements, technical strategies, resources used and partnership with their community"*.

Educators should gain the necessary knowledge because they respect learners and value them. Teachers should therefore have access to specialist knowledge concerning whatever disabilities they are in contact with. The success or failure of inclusion lies in the hands of the educator and not the policy-makers, because they are not in touch with the learners' everyday needs.

- 1998

The NCSNET and the NCESS presented a joint report on their findings to the Minister of Education in November 1997, and the final report was published in February 1998 by the Department of Education for public comment and advice (Department of Education, 1997).

The report indicated that specialized education and support have been given to a small percentage of learners within special schools and classes and that this support was provided on a racial basis. Most of the learners have been *"mainstreamed"* by default and the curriculum has generally failed to respond to the needs of these learners, which has caused a large percentage of dropouts, push-outs and failures. Even though attention has been given to certain schooling phases, the other levels of education have been ignored (Department of Education, 2001).

The report of these two bodies also suggested that the education and training system should promote education for all and allow all learners to be actively involved in the education process so that they could develop and extend their potential. By fostering the development of inclusion, the learners would be able to participate as equal members of society. It also suggested that the

key strategies required to achieve this vision included changing all aspects of the educational system and the development of an integrated system of education by combining support services and special needs throughout the whole system. Centres of learning should be developed to ensure a barrier-free physical environment and a supportive and inclusive psychosocial learning environment, with a curriculum that is flexible and will guarantee access to all learners (Department of Education, 2001).

By accepting that all learners can learn and that all learners need support, educational structures, systems and methodologies need to be developed which will meet the needs of all learners. The only way to change attitudes, behaviours, teaching methods, curricula and environment to meet these needs is by acknowledging and respecting differences in learners. These differences may be age, gender, ethnicity, language, disability, HIV, class or infectious diseases (Department of Education, 1997). Inclusion needs to be broader than formal schooling, and should acknowledge that learning also occurs in the home and community and within formal and informal settings and structures (Dyson, 2001).

- 1999

The Education Ministry published a consultative paper – Consultative Paper No. 1 on Special Education: Building an Inclusive Education and Training System (North-West Department of Education, sa). According to the North-West Department of Education (sa), the *"Consultative Paper advocates inclusion based on the principle that learning disabilities arise from the education system rather than the learner".*

- 2001

The Ministry of Education published the *Education White Paper No. 6, Special Needs Education – Building an Inclusive Education and Training System.*
This White paper outlines a couple of key strategies for establishing an inclusive education system. The first strategy is the improvement of special schools and their phased conversion to resource centres that would be able to provide professional support to other schools. The second strategy is the restructuring of the process of identifying, assessing and accepting learners in special schools and its replacement by recognising the key role that is played by educators and parents (Department of Education, 2001).

3.4.3 The principles on which the inclusive education system is built

The inclusive educational system is built on the acceptance of the principles and values that are inherent in the South African Constitution (1996) and the respective White Papers (1999 and 2001) published by the Ministry of Education. It is based on the principle of human rights and social justice, not only for some but all learners in South Africa. It involves participation and social integration with equal access to the education system, not based on race, religion or wealth (North-West Department of Education, sa).

The only way to achieve the ideals of inclusion is through the parents, educators and the community working together to create an environment where learners will be free to learn at their own pace and to allow them to develop to become true members of society.

Inclusive education is also based on the principle of access to the curriculum and a redress of the curriculum and cost effectiveness. All schools should have access to the specialized equipment and resources that were available only to the elite special schools in the past (North-West Department of Education, sa).

3.5 IMPLICATIONS OF INCLUSIVE EDUCATION FOR THE SCHOOL/CLASSROOM SITUATION IN GENERAL

James Kauffman of the University of Virginia is of opinion that inclusion is a policy that is driven by the expectation that money can be saved. He feels that forcing all learners into one mould would be just as discriminatory as forcing all learners to attend special schools (Anon., 2001a). The President of the American Federation of Teachers, Albert Shanker, stated that inclusion activists do not care if the learners do not learn basic skills such as reading or writing, as long as they learn to socialize with others. Some parents are satisfied with socialization as the sole educational goal and feel that inclusion will help reduce the stigma associated with special education (Heflin & Bullock, 1999).

Shanker states that inclusion goes against the philosophy set out in Goals 2000, and he is of opinion that excellent learning cannot be achieved in a system that provides exactly the same education to all learners (Heflin & Bullock, 1999). While it is obvious that people have different opinions about the concept of inclusion, it is necessary to look at the implications of inclusion for the school and the classroom situation.

Schools need to consider their culture, identity, strategies, structures and procedures, technical support that is available, the human resource utilisation and development, mission and broad aims (Engelbrecht *et al.*, 1999:59). Their leadership and management styles will influence the atmosphere of the school and their way of accepting inclusion (Engelbrecht *et al.*, 1999:60). The general education system must be able to support learners with disabilities. If these services are not adequate, they will have a negative impact on the teachers and learners (Engelbrecht *et al.*, 1999:70).

South Africa's change from apartheid may have changed policies and legislation, but there are still a number of schools who do not even have basic resources (toilets, water, electricity, sufficient classrooms, etc.), and this causes enough problems for those schools without having to be an inclusive school with all the changes and equipment that are needed (Engelbrecht *et al.*, 1999:57).

3.5.1 The infrastructure

The physical infrastructure of the school is of utmost importance to accommodate learners with special needs. This refers to the building accessibility, the design of the classroom (seating arrangements, etc.), lighting, electrical outlets, water access (for operating and rinsing of equipment), the temperature of the classroom and transportation of learners to and from the school. The transportation vehicle should be equipped with air conditioning and power sources to operate specialized equipment (Dugger Wadsworth & Knight, 1999; Engelbrecht *et al.*, 1999:49). A physical therapist should be consulted in the assessment of the physical infrastructure of the school to determine the necessity of ramps, handrails, the width of the doors, etc. Additional electrical outlets may be necessary to ensure that learners are able to participate in all activities. If cooperative teaching and learning is to occur, schools need to provide a physical environment that is accessible and accommodating (Dugger Wadsworth & Knight, 1999; Engelbrecht *et al.*, 1999:50).

3.5.2 Health and medical considerations

The health and medical considerations of an inclusive classroom are huge. It includes aspects such as warning signals, universal precautions, legal issues, routing treatments, nutrition, emergency care plans and medication. The family of the learner and the medical personnel should be the main sources of information concerning the medical treatment of learners. When working with learners with special physical and health needs, the school community needs to take universal precautions and all regulations must be adhered to in order to protect not only the learner (communicable diseases) but also the treatment provider, for example the use of rubber

gloves when assisting the child with an injury (Dugger Wadsworth & Knight, 1999). The emergency care plans for the learner should be comprehensive and should include a plan for physiological problems such as trachea blockage and it should have a procedure for informing the appropriate local authorities. There might be a need for back-up equipment for the learner due to equipment failure (Dugger Wadsworth & Knight, 1999).

Treatments that may have to be performed during the school day will need to be discussed as well as who would administer treatments and where these treatments will take place. These treatments may interfere with regular teaching time and thus the learner's schedule may have to be adapted. The school personnel authorised to administer treatments to the learner will have to undergo frequent training updates. Special diets might be necessary for the learner with cystic fibrosis or diabetes. Special food will be required for the learner who is allergic to certain ingredients or there may be special feeding instructions for the learner who is fed through a gastronomy tube (Dugger Wadsworth & Knight, 1999).

3.5.3 Assistive equipment

Assistive equipment refers to any device that assists the learner's independence (e.g. positioning, mobility, communication, etc.) Teachers will need to be familiar with the equipment and they will have to know how to operate the health care machines. In order for learners to be active participants in the classroom, teachers will need to know how to assist these learners and know which level of self-help proficiency of which a particular learner is capable. These health care machines include nebulizers, glucometers, or suctioning machines. The transport of the equipment will also need to be investigated unless there is extra equipment available. Mobility equipment (wheelchairs, walkers, etc.) will need to be explained and demonstrated to the teaching staff and the occupational therapist will need to demonstrate the correct positioning of the equipment so that the teachers will know when and how the equipment should be used. Special adaptive tools may be needed for learners. These include specially designed cups, pencil adaptors, etc. These tools will help learners to function more independently (Dugger Wadsworth & Knight, 1999).

In every classroom, diversity is inevitable and teachers expect differences in styles and pace of learning. An inclusive classroom will accommodate learners with a variety of special needs that may require assistive devices in order to learn. The largest group will be learners with mild to moderate disabilities. These learners are the most difficult to identify. These learners are all disabled in different ways, some have fine-motor skill difficulties (handwriting, etc.) others experience reading, conceptualising and organizing difficulties. Some of the learners perform well in academic assessments but have very under-developed social skills. The teacher and the

learner with the disability may need to inform the other learners in the class about the disability and the assistive devices that the learner needs in the classroom. Learners often will need guidance and facilitation of peer interaction (Engelbrecht *et al.*, 1999:8).

3.5.4 Classroom considerations

Classrooms need to provide a safe and supportive atmosphere where all learners are prepared to take chances and to learn from their mistakes without being singled out and ridiculed. Acceptance, tolerance and caring should be the main aim. The teacher has to create this atmosphere in the classroom so that the personal, cognitive and social development of the learners can take place (Engelbrecht *et al.*, 1999:72).

The classroom design should ensure that learners have full access to all areas and materials in the class. Seating arrangements should ensure access to all areas around the class and ensure minimal disruption to other learners in the classroom (Engelbrecht *et al.*, 1999:47).

3.5.5 School Support Team

The NCSNET/NCESS report (1997) places some responsibility on the school support team for addressing the challenges of inclusion. This team should consist of teachers and where possible parents and learners. A teacher who has had training and experience in one of the competency areas (life skills education, counselling and/or learner support) should coordinate the functioning of the team. The team needs to assess available resources and determine the value of these resources for the whole community (Engelbrecht *et al.*, 1999:54).

3.5.6 The teacher and the curriculum

The effectiveness of inclusion depends primarily on the quality of instruction, specifically the teacher who should be flexible in their didactic approach. Inclusion implies that the classroom, curriculum and instruction must be flexible enough to educate the disabled learner to their full potential. The teacher will need to assess the learner's abilities and develop a teaching programme that is best suited for the disabled learner's needs, for example if the learner has a sensory disability, the teacher may need to present information in different formats, such as enlarged font, in contrasting colours or on audio-tape. The learner may also not be able to communicate orally/verbally and that may imply that the learner will have to use a computer for communication purposes (Dugger Wadsworth & Knight, 1999). Tests, examinations and homework assignments will have to be modified to suit the learners' needs and abilities. If the learner works on a computer at school, the teacher will need to know whether the learner has

access to a computer at home, because that would influence whether or not the child can do homework. The availability, due to the cost factor and the storage of computers at the school may also present problems.

The learner may need extended breaks or time which means that the format of tests and exams would have to be modified (Dugger Wadsworth & Knight, 1999). The learner may also suffer from fatigue and it would affect the learner's ability to complete tasks within the given time, resulting in extended deadlines (Dugger Wadsworth & Knight, 1999). Learners who have visual disabilities may need Braille equipment or audiotapes to learn, partially sighted learners may need sophisticated visual aids. Learners with hearing difficulties may need acoustic equipment or the teacher may need to learn sign language (Engelbrecht *et al.*, 1999:73). Information received from the parents will help to determine which extra-curricular activities the learner can take part. It will depend on the interest of the child, the type of support needed for the learner to participate and the availability of the family to assist with transport (Dugger Wadsworth & Knight, 1999).

3.5.7 Discipline changes

Classroom discipline does not need much modification due to inclusion because behavioural expectations are the same for all learners. Both the family of the learner and the teacher should sit together and discuss the code of conduct so that they are all clearly aware of behavioural expectations. Some of the learners may require psychotherapy when they experience psycho-social problems associated with their impairments or negative self-perceptions (Dugger Wadsworth & Knight, 1999). The ethos of the school will also influence the discipline in the classroom. If the school is more democratic in its organizational style, the participation of parents, teachers, learners and the community will be encouraged and this will influence classroom relationships. Strict discipline and punishment would therefore be replaced with a modified reward system and counselling approaches (Engelbrecht *et al.*, 1999:72). The culture and ethos of the school could also act as a barrier to learning and development. The norms, values and attitudes will influence the way the school is managed. The principles of inclusion should be reflected in the culture and ethos of the school. Major barriers to inclusion include prejudice towards social class, race, gender and disability. Negative attitudes must be addressed as soon as they occur so that it can be dealt with (Engelbrecht *et al.*, 1999:48).

3.5.8 Teacher's attitude to change

Most teachers are willing to practise inclusion but they are worried that the appropriate support would stop after the trial period. The age of the teacher seems to affect the disposition of the

teacher towards inclusion. Older teachers seem to be more resistant to change (Heflin & Bullock, 1999).

Some people say that inclusion will not provide all learners with good education, as inclusion simply redistributes resources and is not beneficial to the disabled learners. Others believe that the learners will benefit from inclusion (Fisher *et al.*, 1999). Elementary school teachers seem to ask disabled learners fewer questions and give them less feedback than non-disabled learners, according to Chow and Kasari (1999). However, contradicting evidence also exists that disabled learners receive more assistance from teachers. Teachers may perceive disabled learners as having low ability levels and therefore they provide more assistance to them (Chow & Kasari, 1999).

Teachers in South Africa have already had to make huge adjustments to the way they teach by adopting a new curriculum (Curriculum 2005), and teachers have to cope with many more curriculum demands and they need time to re-examine their understanding of teaching and learning (Engelbrecht *et al.*, 1999:70). They feel that inclusion must reflect natural proportions; classes should be divided equally so that one class is not predominantly full of special needs learners where the other class is mostly non-disabled learners. There must be instructional support and training for the school personnel, and there must be careful planning and the systematic implementation of the inclusion policy (Heflin & Bullock, 1999).

Teacher's attitudes towards intelligence differ; some view it as fixed and they will therefore have limited expectations of the learner's capacity for learning. Teachers need to believe that intellectual potential can change and that each individual has this potential. All of this is influenced by the teacher's attitude towards disabilities; many teachers resist the notion of inclusion as they have had very little experience of people who have disabilities. For teachers to change their attitudes, they will need to be sensitive to the learners' needs and to their own attitudes and feelings (Engelbrecht *et al.*, 1999:70). Some teachers have had positive experiences with inclusion and they have been able to see benefits that the disabled learners have brought to them personally, not to mention to the classroom climate and the curriculum. These benefits include curriculum modification, increased tolerance and a respect for diversity (Fisher *et al.*, 1999).

Many teachers feel that special education teachers should assist them with the teaching of learners experiencing academic difficulties. The majority of principals and special education teachers feel that teachers do not have the skills to meet the academic needs of disabled learners (Heflin & Bullock, 1999). Teachers are worried about finding the time to make the necessary curriculum modifications and they feel that the included learners will only succeed in

the work and school situation if they receive vocational education related to specific jobs (Heflin & Bullock, 1999). Wagner (1991) points out that learners with special needs have the highest dropout rate (54.8%) compared to 36.1% for learners with learning disabilities and 24.4% for the general school going population.

Teachers may feel apprehensive when they are notified of the placement of a disabled learner in their classroom. Very often, teachers had very little training of disabled learners in pre-service or in-service programmes. In order for the teacher to plan and manage inclusion effectively, he/she will need extra training and resources (Dugger Wadsworth & Knight, 1999; Heflin & Bullock, 1999).

3.6 IMPLICATIONS OF INCLUSIVE EDUCATION FOR TEACHERS OF LEARNERS WITH ADHD

In this section, specific attention will be given to the implications that the inclusion of learners with ADHD (in regular classrooms) will have for teachers.

3.6.1 Didactic approaches

The best way for teachers to allow the ADHD child to develop to their full potential in the classroom is by changing their ways of teaching and their class structure so that these learners can feel at ease and experience a safe learning environment.

Teachers can allow learners extra time to finish work (Parker, 2002; Anon., 2001a; De Caires-Wagner, 2002; Taljaard, sa). Giving ADHD learners extra time for tests and assignments can make a big difference to their self-image and scholastic progress. Teachers can also tape exam or test questions so that learners can hear the questions (Anon., 2001a; Parker, 2002; Taylor, 2002c; Allan & O'Meara, 2006). Before they write a test or examination, the teacher should tell them what to prepare and try and use the multimodal approach in giving the information so that all the types of learning will be covered (Anon., 2001a; ADHD Kids, 2001). In some cases, it might be possible to accept less correct responses given during tests or examinations (Parker, 2002).

The emphasis should be on the quality and not the quantity of work. The ADHD learner struggles to complete large amounts of work and may tend to hurry and make careless mistakes (Copeland & Love, 1995:101; Taylor, 2002c). The work that is assigned should be appropriately difficult and short. The teacher should regularly monitor the learners and frequently respond to

their work. If a complex task is given, then it may need to be broken down into smaller parts. Teachers should start with the simple tasks and gradually build them into more complex and abstract tasks (De Caires-Wagner, 2002; Anon., 2001a; Parker, 2002; Comfort, 1994; Taylor, 2002c; Taljaard, sa; Green & Chee, 1997:105). Assignments and worksheets should be given one at a time (Taylor, 2002c; Copeland & Love, 1995:107; Kidsource, 2000).

Clues can be provided to help them finish tasks and important facts/concepts can be highlighted. Tasks can be numbered and sequenced and the learners need to be reminded of deadlines for handing in assignments (Taljaard, sa; Allan & O'Meara, 2006).

Some learners learn better by doing, so it is advisable to include doing activities in the lesson plans. A couple of effective strategies are using colour during the lesson presentations (coloured chalk to underline key words but the use of colour must not be at random, as it then becomes distracting), using rhythm and music to learn rote facts and using dramatization to make learning activities more interesting (Copeland & Love, 1995:106).

When instructions are given, they should be given in simple, clear language and in a consistent manner (Taylor, 2002c; Irons, 2002; Anon., 1990: Taljaard, sa). Instructions should be clear and direct (Taljaard, sa; Allan & O'Meara, 2006; Kidsource, 2000). Learners should also feel comfortable in seeking assistance, and instructions that are repeated must be done in a calm and positive manner (Taljaard, sa; Kidsource, 2000). Teachers should regularly check for misunderstanding (Irons, 2002; Anon., 1990; Taljaard, sa). The teacher should also allow the learners to repeat the instructions (Comfort, 1994; Allan & O'Meara, 2006). Direct instruction should be kept short and should be followed by a break (Irons, 2002; Comfort, 1994; Taljaard, sa). All the resources the learners may need for tasks should be listed so that disorganized learners have a chance to organise themselves. Learners should be involved during the lessons in every way possible (Taylor, 2002c; Irons, 2002).

The teacher should keep the individual work periods short, as most learners have a problem concentrating for longer than 30 minutes. Independent written tasks should be kept to a maximum of fifteen or twenty minutes (Copeland & Love, 1995:107), as it is difficult enough for the ADHD learner to block out the visual and auditory distractions and to remain on track. ADHD learners need to be given work that they can think about instead of just providing straightforward answers (Comfort, 1994). Remind learners to edit their own work before they hand it in (Taljaard, 2002; Parker, 2002).

If they have lost track of what they were supposed to do, give them various options for getting back on track. For example, they can wait and see if they can remember, or they can quietly ask

another child, or raise their hand, or the teacher can provide the learner with note cards on which they can write down a question to ask the teacher later. Learners can be allowed to tape the lessons so they can play it back later. By giving the learners the opportunity to look for other options, they become more self-reliant, and because they interrupt less, they would receive more positive attention from the teacher.

Teachers should also keep a look out for learners who seem to lose attention and should regularly ask the learner a question to see if they are still paying attention (Copeland, 2002a; Copeland, 2002b). The teacher should not insist on correct responses all the time. Learners need to feel that they are allowed to make mistakes, and not be ridiculed because of them (Comfort, 1994). By making use of small group discussions, ADHD learners will get the chance to make a contribution in front of a few children and not feel that they are going to be laughed at or ridiculed (ADHD Kids, 2001). Group work and peer assistance can also be used effectively (Taljaard, sa; Parker, 2002).

Teachers should teach to the different learning styles of the learners (Copeland, 2002a), they should use multi-sensory teaching approaches (ADHD Kids, 2001; Taylor, 2002c; Copeland & Love, 1995:106) and oral instructions should be accompanied by written instructions due to the problems that ADHD learners have with visual memory and auditory discrimination (Parker, 2002; Taljaard, sa). Teachers should teach listening skills (Copeland & Love, 1995:104) and learning aids should be provided to assist learners. Visual aids that are used should be removed after they have been used to avoid distracting the learners (Taljaard, sa). Teachers should be flexible in their teaching approach and try various methods until they find the ones that best suit the ADHD learners in their class (Taljaard, sa).

After break, the teacher must allow time to re-orient the ADHD learner. The last ten minutes of the day should be spent on organizing the learners for the next day. Homework assignments should be repeated and learners should be given clear (preferably written) instructions about homework assignments (Copeland & Love, 1995:83). It may also be beneficial for the learners to begin and/or end the day with silent reading or journal writing, as it will help the learner to calm down and to get ready for a next activity. Lessons can also be started or ended in a fun and exciting way to keep their attention (ADHD Kids, 2001; Taljaard, sa). If the ADHD learner has finished work, and is bored, extra work can be given to keep them interested (ADHD Kids, 2001).

If learners have problems with reading, provide them with extra reading time and select text with less than a page for them to read. Try to avoid reading aloud sessions to the rest of the class, as it will place ADHD learners under unnecessary pressure. Encourage the learner to read for

pleasure at home and try to find books that are of interest to the learner (Parker, 2002; Taylor, 2002c). Make sure that the font is easy to read, nicely organized and not a solid text. If solid text is to be read, then allow the learners to highlight the text (Copeland, 2002b).

If the learners struggle with written language (which approximately eight percent of ADHD learners do), the teacher should use non-written forms of tasks and assessments (e.g. displays, oral projects, computerized tasks, oral assessments, etc.). Written work often causes major frustrations and can give learners a sense of failure right from the beginning of their school careers. Do not give the learners large amounts of written work; decide what is important and essential. Give them tests with multiple-choice options and fill-in items (Parker, 2002; Copeland & Love, 1995:111).

Most ADHD learners can verbalize their feelings and thoughts well but struggle to write it down. Their attention deficit and impulsivity makes written work far too demanding. When the teacher feels that written tasks are necessary, make sure to emphasize neat and careful work without having the learner to copy down pages and pages from a book. Do not penalize learners for poor handwriting, allow them to print if they have problems with cursive writing and do not insist on perfect handwriting (Copeland, 1991; Copeland & Love, 1995:110; Parker, 2002). Instruct the learners to adopt the correct pencil grip. Use sheaths around the pencil or rubber bands to help them with the correct grip. Start with huge letters, allow learners to copy it and then gradually reduce it to normal (Taylor, 2002c). To start learners with writing, let them write on unusual textures like sandpaper or sand trays (Taylor, 2002c). Teachers can also reduce unnecessary copying of work by giving written handouts to the learners (Taljaard, sa).

Mathematics challenges memory, abstraction, sequencing and perceptual skills. To help the ADHD learner in maths, have the learner circle or mark the sign to ensure that he/she pays attention to it. Graph paper can be used to help ADHD learners who have trouble keeping the figures aligned. Allow the use of a calculator, immediately show the learner how to do corrections and make sure that the learners do the corrections. Allow the learner extra time to complete the maths. When teachers introduce new material/mathematical concepts wherever possible, relate it to something the learners have already done, for example, multiplication is a shortcut type of addition and division is shortcut of subtraction (Copeland & Love, 1995:110; Taylor, 2002c; Parker, 2002; Taljaard, sa).

Just because a learner is doodling during the instructional period, does not mean they are not hearing every word. Teachers need to learn to recognize and accept the differences between visual, auditory and kinaesthetic learners (ADHD Kids, 2001). The learner may be taking in most of the stimuli around them simultaneously, but they may lack the ability to sort out the important

from the unimportant. Teachers need to recognise that *"different"* behaviour is not necessarily misbehaviour. The learner who is constantly rocking or tapping their pencil may not even be aware of what they are doing. If the action is bothering other learners in the class, then gently walk up to the learner and tap them on the shoulder, look in the learner's eyes and smile. The learner will immediately stop whatever action they are performing (ADHD Kids, 2001).

ADHD learners need to be supervised when writing down homework and they can get less homework than others do (Parker, 2002; Taljaard, sa; Kidsource, 2000). Homework should be done at the same time and same place everyday. Teachers should encourage the learner to use a homework diary, to use "post-it" notes and to plan ahead. They should pack their bags the night before and make use of lists and checklists (De Caires-Wagner, 2002).

The learner should be instructed in self-monitoring behaviour, for example they must raise their hand if they want to ask a question, the teacher should only respond to the learner if they have their hand raised (Taljaard, 2002; Parker, 2002). The learner should be assisted in setting short-term goals (Parker, 2002; Comfort, 1994) and teachers should allow learners to assess themselves. Teachers should introduce learners to different methods of problem solving and allow learners to make choices and teach them how to do so (Comfort, 1994; Norby, sa).

3.6.2 Behaviour management

3.6.2.1 Strategies related to teacher behaviour

Teachers need to establish eye contact because children with ADHD have difficulty following directions. If the learner is looking at the teacher, they have a better chance of following the instructions. The teacher should make sure that all learners are looking at them, before they give an instruction (Copeland, 2002b; Taylor, 2002c; Copeland & Love, 1995:104; Allan & O'Meara, 2006; Taljaard, sa). Eye contact can also be used as a motivational tool (positive eye contact) or as a disciplinary tool (negative eye contact) (Copeland, 2002a).

Teachers should also use various voice tones and inflections. It is very effective to give an oral instruction twice, and to change the volume or intonation of the two instructions (Copeland & Love, 1995:105; Irons, 2002; Taljaard, sa; Copeland, 2002a). Teachers can also move around the room as they speak and use body gestures to animate and emphasize their words. The use of facial and hand gestures can also help to increase the attention of the learners (Copeland, 2002a; Irons, 2002). Teachers' use of proximity and touch can be used as a very efficient strategy. When the ADHD learners appear to be distressed, or are behaving inappropriately, the teacher could walk over and touch the learner on their shoulder (Copeland, 2002a; ADHD Kids,

2001; Taljaard, sa). If the learner does not like being touched, a personal code system can be set up between the teacher and the learner (Comfort, 1994; Parker, 2002). A visual reminder, like a card on the table, may serve as a reminder for the learner to use the correct behaviour like raising their hand (Anon., 2001a; Parker, 2002).

Teachers should take time to talk alone with the ADHD learner (Parker, 2002; Copeland & Love, 1995:86). Teachers should not remind learners in front of other learners to take their medication (Taljaard, sa) and they should not compare learners or siblings with one another (Taljaard, sa). Teachers should not give compliments followed by a negative tail such as *"well done, but don't do it again"* (Taljaard, sa). Do not speak to learners more than three times before applying the class rules (De Caires-Wagner, 2002), do not argue with learners (Taljaard, sa) and do not criticise and ridicule learners (Taljaard, sa). Have a back-up plan when the strategy fails (Taljaard, sa).

ADHD learners usually love to please others, so if they receive attention by being the class clown, they will misbehave, because it is a way for them to fit in and feel accepted. ADHD learners need structure and routine but they also need a fair amount of independence and choice. The teacher that has an ADHD learner in their class will need to be flexible and willing to work with the learner and not continuously fight with them (Comfort, 1994).

Underachievers are often under constant stress. Their needs for safety and security are not met under constant stress of grades, evaluations, etc. (Norby, sa). Teachers need to determine the ADHD learner's strengths, learning styles and learning preferences so that the teacher can match the curriculum to the learners' needs in order to reduce their stress. The importance of encouragement is overwhelming; it will build the self-esteem of the learner. The teacher needs to develop a sense of humour and enjoy the children in their class (Copeland & Love, 1995:99). Teachers need to know what triggers ADHD learners' behaviour and try to manage the situation when these learners' levels of frustration are high (Parker, 2002; Taljaard, sa). Teachers should teach cooperation, not competition (Norby, sa).

Teachers should strive to be positive, because learners need positive reinforcement. It will encourage their self-image and they will feel more positive about themselves and the school (Anon., 1990; Consensus Statement, 1998). Teachers should find themselves a colleague who can assist if they are not coping with the ADHD learner on a particular day. The colleague can invite the learner to their class to help with something. The most important thing to remember is that the teachers must remain kind and discreet. Teachers should not vent their frustrations in the staff room, because the learner already has a label and future teachers are already worried about having the learner in their class the next year (ADHD Kids, 2001).

There are various behavioural techniques available for helping the ADHD learner to cope with their disability. Teachers need to educate their class, have discussions about the fact that everyone is different and excel in different things. The safer learners feel about discussing their problems, the easier the class will be in accepting learners with disabilities. The sensitivity of the ADHD learner needs to be kept in mind. Establish an environment of kindness and cooperation (Copeland & Love, 1995:97), give the difficult child a chance at leadership, a goal that he desires or a responsibility such as class captain, messenger boy, etc. (Parker, 2002; Taljaard, sa). Due to the underdevelopment of the ADHD child with regard to socialization, the teacher will need to monitor social interactions and prompt appropriate social behaviour either verbally or with a private signal. Try to find opportunities for the learner to display leadership roles in the classroom and give responsibilities to the learner in the presence of their peer group so that this learner can be observed in a positive light. It will boost their self-esteem (Parker, 2002). Positive behaviour must immediately be acknowledged and verbal reprimands must be immediate and unemotional (Parker, 2002; Taljaard, sa; De Caires-Wagner, 2002; Sergeant, Geurts, Huijbregts, Scheres & Oosterlaan, 2003).

Coping methods and interpersonal relationships should be discussed with the learners; they need to learn different ways of handling social situations (Norby, sa). Learners need to be made responsible for their own behaviour (Molina & Pelham, 2003).

Teachers need to keep up to date regarding their knowledge of ADHD, they need to try and meet the needs and interests of the learners and they need to focus not on the learner's problems, but on the child as a whole (Taljaard, sa).

3.6.2.2 Strategies for establishing structure and routine

ADHD learners have a problem with organization and routine. Teachers of ADHD learners need to ensure that they are organized so that they do not add to the learner's frustrations. The teacher should prepare lesson plans and make sure that all the teaching materials are available. They should post a work schedule to the bulletin board and keep to it consistently. Teachers should spend the first fifteen minutes of the day organizing the learners, making sure their desks are clean and their pencils sharp and then filling them in about the day schedule (Copeland & Love, 1995:98). If ADHD learners are unable to organize themselves in the morning, have a learner assist them. Teachers could help the learners to colour code their books and materials so that they do not have to spend time looking for the right book (Copeland & Love, 1995:81). Planning and organizational skills need to be taught to the learners (Parker, 2002).

Avoid disruptions when the teacher wants to move from one activity to another. Teachers need to warn the pupils and tell them exactly how they should behave. Extra time can also be allowed (Anon., 1990; De Caires-Wagner, 2002; Comfort, 1994). Keep a close watch on the ADHD learner when they are moving classes and during transition periods in the class. If at all possible, the teacher should stand close to the learner to provide support (Anon., 1990; Taljaard, 2002). The teacher should establish a daily routine and attempt not to change it without warning the learners. Learners with ADHD do not handle change very well because they need to understand and feel safe in their environment. If the teacher wants to organize a surprise, they need to prepare the ADHD learner for it or allow the parent to prepare the learner before they arrive at school. Another alternative is to include the learner in the planning of the surprise so that they know exactly what is going to happen (ADHD Kids, 2001). Teachers also need to avoid over-stimulating the learners and they need to be consistent and predictable in their approach to the learners. The learners need to know what is expected of them and when it is expected (Comfort, 1994; Anon., 1990).

3.6.2.3 Disciplinary strategies

Learners with ADHD can be quite creative and bright and teachers need to learn to accept and value these learners. Often ADHD learners tend to make impulsive or critical comments. Teachers should learn to wait before they respond to what appears to be rude behaviour. They should repeat what the learner has said, and ask them if that is what they meant. More than often the learners will be embarrassed and will explain themselves. It will help the learner to correct their communication skills (ADHD Kids, 2001). Teachers need to ignore minor behavioural transgressions and act on unacceptable behaviour immediately (Parker, 2002; Green & Chee, 1997:82; Taljaard, sa).

Any child with or without ADHD needs fair discipline, it should be constructive and age-appropriate and should include positive reinforcement for good behaviour. Punishment should be prompt, consistent and fair or else it will not be effective. Discipline should be based on expectations that are age-appropriate; it should have reasonable limits while still providing choices (Banks, 2002). Discipline fosters moral and social standards, and it should protect children from harm while teaching them what is safe and how to respect the rights and property of others. Verbal explanations may work with older children, and parents should show a unified front towards discipline. Verbal punishment only works if it is not used regularly. If it is the common way of exercising discipline at home, it will cause the child to ignore the parent. It may also be the only attention the child receives (Banks, 2002). Positive reinforcement is crucial to discipline, and parents and teachers alike should identify appropriate behaviours and give

regular feedback and immediate rewards. A point system may be used effectively (Copeland & Love, 1995:85; Banks, 2002; Consensus Statement, 1998; Mental Health, sa). Teachers do not have to give tangible rewards. A smile, praise, extra privileges and other signs of affection will be just as appreciated (Banks, 2002). Games can be played in class to role-play desired behaviour (Comfort, 1994).

Children that suffer from ADHD can get out of control very easily. They are unable to cope with changes and their ability to cope seems to be poorly developed. The first step to manage ADHD children is to prevent problems and to be proactive in planning for problem situations (De Caires-Wagner, 2002). When working with the ADHD child, the use of positive reinforcement, incentives and encouragement changes attitudes and behaviours. Punishment only stops negative behaviour temporarily (Copeland & Love, 1995:96). It is best to ignore minor or inappropriate behaviour because the learner is probably not even aware of their behaviour, and to comment on it would only cause more upheaval in the class (Taljaard, 2002; Parker, 2002). Teachers should make use of the time-out procedure for serious misbehaviour (Taljaard, 2002; Parker, 2002).

Teachers need to set up behaviour contracts with learners. The emphasis should be on behaviour modification. Throughout the day, learners would earn points, and be praised for good behaviour. High scorers are then rewarded with special privileges at the end of the day but the next morning the learners would start afresh with a new shot at rewards. Establish positive goals for the entire class and incentives for reaching those goals (Parker, 2002; Wallis, 1994; Copeland & Love, 1995:85). For learners with serious behaviour problems, a behaviour chart may be used for short time intervals, such as 15 minutes. The time will then be gradually lengthened until it includes the whole morning (Copeland & Love, 1995:85). When negative behaviour occurs, write it down, try to make use of a thinking chair or thinking room. Ask the learner to write sentences or essays about what happened and talk to the learner about what happened. The essence of behaviour management strategies is having positive consequences for appropriate behaviour and negative consequences for undesirable behaviours; consistency and no emotions must be enforced (Copeland & Love, 1995:86).

> According to Copeland and Love (1995:80), behaviour management approaches should *"assist teachers in selectively reinforcing the learner's impulse control, self-discipline, organizational skills and conformity to parental, school and societal expectations through use of both positive reinforcement for approved behaviours and negative consequences for inappropriate behaviour".*

Due to the nature of ADHD, specific ADHD behaviours will need to be addressed, such as training the learner to attend to relevant stimuli, to help him develop the system of stop, look and listen and to count to three before acting (Copeland & Love, 1995:80). For behaviour managements to be effective, they need to be conducted across settings, (home, school and community). Evidence of the effectiveness of behavioural training of the teacher is well established, but unfortunately the evidence for the parent training is less solid (Mental Health, sa). Behavioural therapy is about helping the ADHD child understand their feelings and actions, because it helps directly in changing their thinking and this leads to changes in their behaviour. Support given may be in the form of practical assistance, such as the teacher helping the learner in organizing tasks or schoolwork or dealing with events that are emotionally charged. The support may also be in helping the learner to monitor their own behaviour and to teach the learner to give self-praise and rewards for controlling their anger or thinking before they act (National Institute of Mental Health, 2003).

Behavioural techniques employ typical *"time-out"* sessions and points systems that can be conducted in the classroom. Parent training, clinical behaviour therapy and cognitive behavioural treatment (self-monitoring, verbal self-instructing, problem-solving strategies) can also be used (Mental Health, sa; Consensus Statement, 1998). Psychosocial treatment strategies are useful for ADHD learners who do not respond well to medication, or if the therapeutic benefits of medication have worn off, or in cases where the child only partially responds to medication (Mental Health, sa).

The use of cognitive-behaviour therapy, which is training in problem-solving and social skills, is not as effective in changing the behaviour and academic performance of the child with ADHD, but it may help with the associated co-morbid disorders such as oppositional defiant disorder or depression (Mental Health, sa). The use of cognitive therapy in the classroom has the goal to help ADHD children utilize language for problem solving rather than just responding impulsively. Cognitive therapy is more effective if it is used as part of a multi-modal treatment programme.

Teachers should help ADHD learners to verbalize their problems. It is more effective to speak to the learners individually in the beginning. Later on, they can learn to share their problems with small groups of learners and eventually the whole class group. The teacher can expose learners to various problematic situations (imaginary and real) and assist them to plan the problem-solving process. It will be beneficial to not only the ADHD learners, but to all the learners in the class to internalise the rules for positive behaviour, to develop self-control and to use mental dialogues in problem-solving situations because it lays the foundations for emotional maturity and good judgement (Copeland & Love, 1995:80). Class rules should be applied consistently and the disciplinary measures should be applied in a consistent and fair manner

(Green & Chee, 1997:23; Sergeant *et al.*, 2003; De Caires-Wagner, 2002; Taljaard, sa; Banks, 2002).

Psychotherapy assists learners with ADHD to develop self-acceptance and a positive self-concept. Psychotherapy helps ADHD learners to share their thoughts and feelings, to explore self-defeating patterns of behaviour and to learn constructive ways to cope with their emotions. The therapist tries to help them understand how they can cope better with ADHD. The therapist also makes use of social skills training to help learners learn new behaviour (National Institute of Mental Health, 2003). Learners with ADHD often appear to be insensitive to others' feelings and needs; they are often impulsive and find it difficult to read social cues from other people. Social skills training can be very useful in the classroom (Copeland & Love, 1995:90). The teacher discusses and models appropriate behaviour, e.g. sharing, asking for help, waiting for a turn, etc., which is important so that ADHD learners can develop and maintain social relationships. The teacher can also teach ADHD learners how to read other people's facial expressions and people's tone of voice (National Institute of Mental Health, 2003). Teachers can use this type of training with much success in the classroom. They can utilize stories that illustrate positive human behaviour and discuss the consequences of impulsive behaviour and different ways of reaction. The ADHD learner can also keep a daily diary and write down incidents, which they can analyze and learn from (Copeland & Love, 1995:89).

Family and parental counselling are often indicated to assist the parents and the other family members to cope with the presence and behavioural problems of the ADHD learner at home (Copeland & Love, 1995:90).

When teachers observe behaviour of ADHD learners that bothers them, they should write it down, try to identify the possible causes of it, and then meet with the learner, and discuss it with them. The teacher should constantly provide reassurance and encouragement and speak to the learner in a non-threatening manner. If the ADHD learner becomes frustrated, the teacher should reassure them. The teacher should constantly be on the lookout for signs of stress build-up and provide encouragement or reduce the workload to eliminate the pressure and avoid temper outbursts. The teacher should also provide the learner with brief training in anger management. Encourage the ADHD learner to walk away when they get angry, to use calming strategies and to tell a nearby adult if they are getting angry (Parker, 2002).

The teacher should on a daily basis act as a role model for positive behaviour. Teachers should manage the class without being over-strict and they should know how to handle conflict situations. In all cases, the focus of discipline should be on the misbehaviour and not on the learner (Taljaard, sa).

3.6.2.4 Strategies related to learner behaviour

A relaxed atmosphere should prevail in the classroom and learners must feel safe and secure in new things (Taljaard, sa; Copeland & Love, 1995:97). Learners should be rewarded for every task that they complete successfully (Anon., 2001b), and they should also be taught to attempt one thing at a time. Teachers should accept unfinished work from learners once the deadline has been met (Taljaard, sa).

By establishing a buddy system, learners can learn to help each other. ADHD learners are often drawn to each other, but unfortunately, in classroom situations these relationships can lead to more behaviour that is inappropriate. The ADHD learner should be paired with a quiet organized *"buddy"*, and the *"buddy"* should be changed every two to three weeks. The ADHD learner is afforded the opportunity to develop relationships with all the learners in the class. The inattentive ADHD learner may also benefit by being paired with a more alert and energetic learner. The teacher should promote good relationships between ADHD and non-ADHD learners in and outside the classroom situation (Copeland & Love, 1995:98; Anon., 1990). In this way, a study *"buddy"* can help the ADHD learner by repeating instructions to them or by answering questions on behalf of the ADHD learner. The study *"buddy"* can also assist the ADHD learner with note-taking (Anon., 1990; Parker, 2002). The teacher, however, must never punish the study *"buddy"* for the shortcomings of the ADHD learner (Taylor, 2002c).

It is very difficult for the ADHD learner to sit at their desks and work for more than ten minutes at a time (Copeland & Love, 1995:107). Some learners with ADHD tend to become easily bored in the regular classroom. To counteract this boredom, teachers should identify other tasks which ADHD learners can execute, e.g. cleaning the chalk board, arranging books in the class library, handing out books to other learners in the class, etc (ADHD Kids, 2001). Teachers must also recognise those ADHD learners who are capable of doing more than expected and who are not challenged enough by the class work. Teachers should plan other tasks for these learners and be available to discuss topics that are related to class assignments even though it may not directly be part of the curriculum or the teacher is planning for a particular day (ADHD Kids, 2001).

The following hints and practical suggestions can also assist the ADHD learner in the classroom and at home:

- Learners must be encouraged to ask their teachers to repeat instructions if they are unsure, rather than to guess (Anon., 2001a; Green & Chee, 1997:106; Taljaard, sa).

- Encourage learners to write down the questions that they would like to ask later (ADHD Kids, 2001).
- Learners need to make lists of what is expected of them and plan the best way of doing it. Teach them how to use a daily planner to keep themselves on track or how to use a notebook with dividers to organize work (Anon., 2001a; De Caires-Wagner, 2002; Copeland & Love, 1995:81).
- The teacher also needs to teach them how to correct errors in their books, e.g. crossing out errors with thin lines instead of tearing out pages or erasing holes on the pages of their books (Taljaard, sa).
- When learners are at home, they need to work in a quiet area, do one thing at a time and give themselves short breaks.
- They need to post notes to themselves, e.g. on the bathroom mirror, the fridge or anywhere else, so that they can be reminded by them.
- They need to make sure that all their things are organized and that similar things are kept together.
- Learners need to be encouraged to exercise, eat a balanced diet and get enough sleep (Anon., 2001a).
- Learners can, according to Taylor (2002c), simplify their note taking with the five L's. *"**L**ocate yourself near the teacher. **L**ook at the teachers eyes. **L**isten for test items, use **L**ines to divide topics. **L**imit words by using abbreviations".*
- Taylor (2002c) also suggests using **STEAM** to insure success on long-term assignments *"**S**tart early, and spend at least 15 minutes per day of the assignment. **T**horough coverage of subtopics. **E**nd early. Turn it in before the deadline. **A**ll subtopics must be covered. **M**ore do more than the teacher expects".*
- Teachers need to encourage learners to make one good comment each day and to arrive early for class and be friendly (Taljaard, sa).
- Teachers should only allow learners to leave when the bell rings and not to start packing up five minutes before the bell rings (Taljaard, sa).
- Teachers need to encourage learners to make use of *"self-talk"*, so that they can learn to monitor their own behaviour (Green & Chee, 1997:104).

3.6.2.5 Structuring the classroom environment

Many ADHD learners experience problems with spatial relations, and they struggle to understand the difference between left and right. Teachers can assist learners in this regard by letting them wear watches and by asking them to point out directions with alternatively their left and right hands. Due to their spatial orientation problems, some ADHD learners also tend to

bump into things. The teacher needs to be aware of this and must not interpret this type of behaviour as naughtiness. Teachers must ensure that the classroom environment is safe and allows the learners enough space in which to move around (Copeland, 2002b).

If at all possible, the ADHD learner should be in a classroom that is not distracting. The desks in the class should all face the same direction, the walls should be made of solid materials and the windows should be on one side only (Taylor, 2002c). Pictures or illustrations can be demarcated with thick borders, and background on the pictures should be reduced (Taljaard, sa).

The ADHD learner should also be placed correctly. Some researchers state that the child should be placed as close as possible to the chalkboard or the teacher's desk. However, this type of placement will not work if the teacher allows learners to bring papers to her desk for correction, because this spot will then become the most distracting place in the entire classroom (Copeland & Love, 1995:103; Taljaard, sa; Allan & O'Meara, 2006; Anon., 1990; ADHD Kids, 2001; Wallis, 1994). By placing the ADHD learner near the teacher's desk, the learner can talk to the teacher when there is a need for it. It will provide the learner with a sense of security, which is needed, by these learners (ADHD Kids, 2001). Placing the ADHD learner next to the pencil sharpener or next to the window is far too distracting. Surprisingly enough, some ADHD learners function better in the middle of the classroom, where the learner is surrounded by other learners (Copeland & Love, 1995:103). Placing the ADHD learner at the back of the class will cause too many distractions and the learner will not receive enough attention from the teacher. By increasing the distance between desks, the ADHD learner will have fewer opportunities to touch, kick and bother the other learners (Parker, 2002; Copeland & Love, 1995:103).

The learner can be seated alone or next to a positive role model or with the ADHD learner's back to the class (Parker, 2002; Taylor, 2002c; Green & Chee, 1997:103; Taljaard, sa). The good role model may also be used as the study *"buddy"* (Parker, 2002). Ensure that the learners keep their desks free from distractions and try to obstruct the learner's lateral visual field with a cardboard screen (Taylor, 2002c).

One must remember that learners with ADHD are not choosing to act the way they are, and teachers must make sure that the classroom environment is safe and reduces the impact of ADHD to the maximum (Anon., 1990).The classroom environment should be organized so that distractions are kept to the minimum. Everything should have a specific place (Comfort, 1994; De Caires-Wagner, 2002). Teachers should also ensure that there is an extra supply of pencils and books in the class (Taljaard, sa). Teachers are very quick to limit auditory distractions, for example, they have clear rules to prevent talking, and shouting out questions, finger tapping, etc., but the number of visual distractions remains a problem. Most teachers want to decorate

their classrooms in bright colours, with interesting bulletin boards, mobiles and learning stations. Unfortunately, these are visually distracting to learners with ADHD. Teachers should use visually distracting objects with care, for example pointers, flashing lights, desk novelties, animal cages, etc (Taljaard, sa; Taylor, 2002c). The classroom's lighting should be efficient to prevent glare (Taylor, 2002c).

To help control auditory distractions, the teacher can allow the learners to make use of earplugs and earphones, (with or without music, or white noise, etc.) (Copeland & Love, 1995:110; De Caires-Wagner, 2002; Taylor, 2002c). Teachers can also play classical music as background sound (Taljaard, sa; Copeland & Love, 1995:110).

Due to their fidgety and squirmy mannerisms, the teacher can provide a place where the learner can move around and release excess energy (Anon., 2001a; ADHD Kids, 2001; Parker, 2002), for example learners could be allowed to stand at their desks when they are working (Parker, 2002; Wallis, 1994; ADHD Kids, 2001; Taylor, 2002c). Allowing the ADHD learner freedom for body movement (kinesthesis) is critical to learning, especially in pre-primary classes or schools where many free movement activities take place. Once the learner enters school, the learning environment becomes much more restrictive, bringing the worst out of the ADHD learner. Even the hypo-active child suffers because the long periods of being seated increases inattention and daydreaming behaviour. Allowing the learners to stand and sit several times during a class period provides enough physical movement to release energy and prevents the inattentive child from daydreaming (Copeland & Love, 1995:108). Several strategies can be used. During auditory drills with primary school children, the teacher for instance calls out a letter or group of letters and the learners respond by giving the sound that the letter(s) produce(s). The learners can do this while standing or walking around the room (Copeland & Love, 1995:109). To help the ADHD learner discharge extra energy, they can hold or manipulate things such as beanbags, paper clips, a balloon filled with sand, a sponge ball, clay, etc. They can also make regular movements with their hands like twiddling their thumbs, popping plastic packaging material or putting on hand lotion (Taylor, 2002c). The ADHD learner's yearning for movement can be satisfied by allowing seat breaks every 20 minutes (Taljaard, 2002; Taljaard, sa; Taylor, 2002c).

Researchers disagree about the use of timers. According to Copeland and Love (1995:107), timers will make the ADHD learner nervous and will increase their tension, thus aggravating the situation. Timers can also be strong auditory distractions. Some learners may work faster and produce more work but the neatness of the handwriting and the accuracy of the work will be negatively influenced. Taylor (2002c) advocates the use of timers as it will remind the learner to

get back on track. It is up to the teacher to try this technique and see what effect timers have on the ADHD learners in the class.

3.6.3 Parental involvement

Teachers need to meet with the parents of their learners on a regular basis (Parker, 2002). Parents need to know that the teacher wants to act in the best interests of learners, and in order to do so, needs the co-operation of the parents. If their child has already been diagnosed with ADHD, positive school intervention will be a relief to the parents (Norby, sa; De Caires-Wagner, 2002). Parents are strongly influenced by their own school and if they were happy in school, they expect their child to be happy as well (De Caires-Wagner, 2002). On the other hand, if parents were unhappy at school, they would expect their child to be happy. By sharing information about the learner with parents, it will be easier for parents to assist their child in their schoolwork at home. Goals need to be set together and the teacher and parents need to be open to suggestions from one another (De Caires-Wagner, 2002). Parents need to inform the teacher of changes in medication and teachers need to inform parents when they observe changes in the learner's behaviour. Teachers also need to inform the parents about the latest developments in the field of ADHD (ADHD Kids, 2001; De Caires-Wagner, 2002). Teachers should understand what parents of ADHD children are experiencing and must give them many opportunities to share their feelings. Parents must feel safe, and accepted in the company of the teacher, and parents must never doubt the teacher's sincerity and love for their child (ADHD Kids, 2001).

Teachers learn a lot from parents about the ADHD learner's interests and achievements outside the school situation. Teachers can use this information to develop a positive relationship with the learner so that the learner will experience the teacher's sincere interest in them as individuals. Teachers should often send positive notes about the learner's positive behaviour and progress to the parents. The ADHD learner must be aware of the positive contents of these notes, because it will motivate them to repeat the same positive behaviour in the future (De Caires-Wagner, 2002; Parker, 2002; Taljaard, sa). Teachers should also assist parents in establishing and maintaining consistent and constructive discipline at home. In order to do this, regular contact and communication between the parent(s) and the teacher(s) must be maintained.

3.7 SUMMARY

The previous paragraphs made it clear that the child with ADHD faces many potential obstacles at home and at school. In order to optimally accommodate the ADHD child in the classroom so that they can realise their full potential, a close and very positive relationship should exist between the parents and the school system (National Institute of Mental Health, 2003).

> According to De Caires-Wagner (2002:7), teachers and parents are faced with the *"awesome responsibility of developing the potential of children who struggle to meet the demands of society".*

Society will be immeasurably enriched by ADHD children if parents and teachers join hands and find ways to include these learners in regular classrooms so that their creativity and energy can be harnessed to the full. Teachers need to realize that the school situation is not ideally suited for the needs of ADHD learners, and that:

> *"Learners with ADHD cannot always change their behaviour, I as a teacher, can change mine".* (ADHD Kids, 2001:1).

The method of research will be discussed in the next chapter.

CHAPTER 4

METHOD OF RESEARCH

4.1 INRODUCTION

In Chapter 2 the aetiology, diagnostic criteria and the associated co-morbid features of ADHD were discussed. Attention was also given to the emotional, social and academic implications of ADHD on the affected child as well as the different treatments that are normally utilized to alleviate the consequences of the disorder. The aspects related to Inclusive Education, with specific reference to the inclusion of ADHD learners in regular classrooms, were addressed in Chapter 3.

In this chapter the research method will be discussed which was implemented to answer the stated research problems and to achieve the aims of the research.

4.2 RESEARCH QUESTIONS

For the purposes of this study, the following primary and secondary research questions were formulated:

4.2.1 Primary research question

Is there a significant difference between teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in "regular" classrooms on the one hand, and the frequency of teachers' implementation thereof on the other?

4.2.2 Secondary research questions

The following secondary research problems, which are related to the above-mentioned primary research problem, were formulated:
How do variables such as gender, age, teaching experience and qualifications affect:

(A): teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in "regular" classrooms, and,

(B): the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement?

4.3 RESEARCH AIMS

In accordance with the above-stated research questions, the following primary and secondary research aims were formulated:

4.3.1 Primary research aim:

The primary research aim is to determine whether a significant difference exists between teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other.

4.3.2 Secondary research aims

The secondary research aims are to determine how variables such as gender, age, teaching experience and qualifications affect:

- teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms, and
- the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement.

4.4 RESEARCH HYPOTHESES

In accordance with the above-mentioned research questions and aims, the following primary and secondary research hypotheses are stated:

4.4.1 Primary research hypotheses

Null hypothesis 1 (H_0^1):
No significant difference exists between teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other.

Alternative hypothesis 1 (H_a^1):
A significant difference exists between teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other.

4.4.2 Secondary research hypotheses

Null hypothesis 2 (H_0^2):
Variables such as gender, age, teaching experience and qualifications do not significantly affect teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms.

Alternative hypothesis 2 (H_a^2):
Variables such as gender, age, teaching experience and qualifications significantly affect teachers' ratings of the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms.

Null hypothesis 3 (H_0^3):
Variables such as gender, age, teaching experience and qualifications do not significantly affect the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement.

Alternative hypothesis 3 (H_a^3):

Variables such as gender, age, teaching experience and qualifications significantly affect the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement.

4.5 STUDY POPULATION AND PARTICIPANTS

The researcher included all the ex-Model C primary schools in the Klerksdorp and Potchefstroom school districts in the study population. All the intermediate phase teachers who are teaching in Grades 4 – 7, (n = 115) were approached to participate in the survey on a voluntary basis. One hundred teachers participated in the survey and biographical information concerning the participants is displayed in Table 4.1.

Table 4.1: Biographical information concerning the participants

Gender	Male	Female
	21	78

* One participant did not indicate gender.

Age (yrs)	20-25	26-30	31-35	36–40	41–45	46-50	51-55	56-60	61–65
	7	4	8	17	19	16	19	7	3

Teaching experience (yrs)	0-5	6-10	11-15	16–20	21-25	26-30	31-35	36-40
	7	14	10	26	18	15	5	5

Qualifications	Teaching Diploma (3yrs)	Teaching Diploma (4yrs)	B Ed.	B.Ed. Hons.
	9	62	19	9

* One participant omitted information regarding qualification.

4.6 ETHICAL CONSIDERATIONS

The researcher approached the Department of Education of the North-West Province for permission to conduct the research. Permission was granted on the basis that no school or participant would be identified, that the research would not impact negatively on the teaching and learning programmes of the schools in the study population and that schools and participants would participate on a voluntary basis. The researcher approached the principals of the ex-Model C primary schools in the Potchefstroom and Klerksdorp school districts for permission to conduct the research in their schools and a questionnaire was distributed amongst the teachers who volunteered to participate in the research.

4.7 DATA COLLECTION

The researcher conducted a survey by means of a structured questionnaire, which was distributed amongst the participants in the study population. Further details concerning the data collection instrument are given in the sections below.

4.7.1 Data collection instrument

4.7.1.1 Development of the questionnaire

A structured teacher questionnaire was compiled (see Appendix 1) based on the literature survey that was conducted on ADHD, its characteristics and associated learning problems (see Chapter 2) and the didactic implications of including learners with ADHD in *"regular"* classrooms (see Chapter 3).

The aims of the questionnaire were (1) to survey the opinions of participants on the importance of implementing certain didactic approaches and strategies in order to accommodate learners with ADHD in *"regular"* classrooms, and (2) to determine how frequently the participants implement these approaches and strategies.

The rationale for the above-mentioned aims lies in the fact that, although teachers may be aware of the importance of certain didactic approaches and strategies for the optimal inclusion of ADHD learners in *"regular"* classrooms, they may not necessarily implement them frequently. Should this be the case, one could argue that learners with ADHD would not be successfully or optimally accommodated in *"regular"* classrooms.

4.7.1.2 Contents and format of the questionnaire

The questionnaire consists of the following sections and sub-sections:

- Section A: *Didactic approaches*
- Section B: *Behaviour management*, with the following sub-sections:
    - B1: Strategies related to teacher behaviour
    - B2: Strategies for establishing structure and routine
    - B3: Disciplinary strategies
    - B4: Strategies related to learner behaviour
    - B5: Structuring the classroom environment
- Section C: Parental involvement

Section A: *Didactic approaches* include statements referring to specific didactic approaches/strategies, which teachers can implement in order to facilitate the teaching, and learning of learners with ADHD. A few examples of these statements are:

- Allowing learners extra time to finish work
- Breaking up tasks into smaller units
- Utilizing simple examples and exercises and gradually introducing more difficult work
- Keeping lessons (direct instruction) short and allowing for short breaks

Section B: *Behaviour management* and its sub-sections include statements referring to strategies that teachers can follow to manage the behaviour of ADHD learners in the classroom. A few examples of the items in the different sub-sections are:

B1: *Strategies related to teacher behaviour:*

- Making use of proximity and touch
- Calling on learners only when their hands are raised
- Avoiding ridicule and criticism

B2: *Strategies for establishing structure and routine:*

- Establishing a structured daily classroom routine
- Avoiding over-stimulation of learners

B3: *Disciplinary strategies:*

- Making use of a points system for rewarding positive behaviour
- Making use of a behaviour chart to plot positive/negative behaviour

- Making use of *"time out"* as a disciplinary measure
- Applying class rules consistently

B4: *Strategies related to learner behaviour:*

- Rewarding learners for every task that each successfully completes
- Teaching learners to attempt one thing at a time
- Encouraging learners to ask for a repetition of instructions when they feel unsure
- Encouraging learners to make use of *"self-talk"* to monitor their own behaviour

B5: *Structuring the classroom environment:*

- Limiting distractions in the classroom
- Allowing learners to discharge energy at certain intervals
- Making use of white noise, e.g. CDs with the sound of running water
- Increasing distance between desks

Section C: Parental involvement includes statements referring to measures that teachers can take to establish parental involvement. Some examples of these statements are:

- Meeting with parents regularly
- Contacting parents frequently by means of written notes
- Asking parents to inform you of new developments regarding the management of their child's ADHD

4.7.1.3 Administration and scoring of the questionnaire

Participants must respond to the statements contained in the various sections and sub-sections of the questionnaire by using the following two 5-point scales:

Scale A: Importance	Scale B: Frequency
1. No importance	1. Never
2. Little importance	2. Very seldom
3. Uncertain	3. Seldom
4. Important	4. Most of the time
5. Very important	5. Always

For example: How important do you rate the following statement and how frequently do you implement it?

	Scale A: Importance						Scale B: Frequency				
Placing the learner as near as possible to your table in the classroom	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**

In order to obtain scores for the different sections and sub-sections of Scales A and B, the participant's responses to the individual statements contained in the different sections and sub-sections of Scales A and B are summed.

4.7.1.4 Reliability of the questionnaire

In order to determine the internal-consistency reliability of the questionnaire, Cronbach's Alpha coefficient was calculated. Internal-consistency reliability refers to the degree of relatedness of the items in a questionnaire (Rosnow and Rosenthal, 1996:124). In other words, internal-consistency reliability refers to the extent to which the items in a questionnaire are measuring a common characteristic or construct (Vockell & Asher, 1995:97). Cronbach's Alpha measures how well a set of items in a questionnaire measure a single latent construct.

Table 4.2 gives information concerning the Cronbach Alpha coefficients for the different sections and scales of the questionnaire.

Table 4.2.1: Cronbach's Alpha coefficients for the questionnaire (Scale A)

Scale A: Importance of the Didactic approaches, Behaviour management strategies and Parental involvement	
Section:	**Cronbach's Alpha Coefficients**
A. Didactic Approaches	0.909
B1. Strategies related to teacher behaviour	0.858
B2. Strategies to establish structure and routine	0.600
B3. Strategies related to discipline	0.761
B4. Strategies related to learner behaviour	0.854
B5. Strategies related to the classroom environment	0.898
C. Parental involvement	0.877

Table 4.2.2: Cronbach's Alpha coefficients for the questionnaire (Scale B)

Scale B: Frequency of implementing the Didactic approaches, Behaviour management strategies and Parental involvement	
Section:	**Cronbach's Alpha Coefficients**
A. Didactic Approaches	0.908
B1. Strategies related to teacher behaviour	0.888
B2. Strategies to establish structure and routine	0.689
B3. Strategies related to discipline	0.710
B4. Strategies related to learner behaviour	0.842
B5. Strategies related to the classroom environment	0.897
C. Parental involvement	0.862

Considering the Alpha coefficients in Table 4.2, it can be concluded that the questionnaire has high internal-consistency reliability.

4.8 DATA ANALYSIS

The questionnaires were taken to the Department of Statistical Consultation Services of the North-West University (Potchefstroom Campus) for data capturing and statistical analysis.
The following statistical techniques were used to test the hypotheses stated in paragraph 4.4:

- Dependent and independent T-Tests
- The calculation of Effect Sizes as measures of practical significance
- Analysis of variance (ANOVA)

4.9 SUMMARY

In this chapter, the method of research was discussed with reference to the research problems and aims, different hypotheses, study population and participants and the data collection instrument.
In Chapter 5, the results and findings of the research will be discussed.

CHAPTER 5

RESULTS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In the previous chapter, the research method was discussed in terms of the research problems and aims, the different hypotheses, study population and participants and the data collection instrument.

In this chapter, the results of the statistical analyses will be given and discussed, conclusions will be drawn and recommendations will be made for teachers to optimally include ADHD learners in the regular classroom situation.

5.2 DESCRIPTIVE STATISTICS

Descriptive statistics regarding the responses of the participants on the various scales and sections of the questionnaire are given in Table 5.1 below.

Table 5.1: Descriptive statistics: Responses of the participants on the various scales and sections of the questionnaire

Scale	N	Mean	Std Deviation	Minimum Value	Maximum Value
Scale A: Importance					
Didactic Approaches	100	4.21	0.32	3.55	4.94
Teacher Behaviour	100	4.37	0.34	3.59	5.00
Structure and Routine	100	4.51	0.42	3.25	5.00
Disciplinary Strategies	100	4.12	0.44	2.71	5.00
Learner Behaviour	100	4.25	0.44	2.94	5.00
Classroom Environment	100	4.03	0.56	2.11	4.95
Parental Involvement	100	4.44	0.55	2.86	5.00
Scale B: Frequency					
Didactic Approaches	100	3.96	0.34	3.22	4.94
Teacher Behaviour	100	4.16	0.38	3.16	4.81
Structure and Routine	100	4.29	0.49	2.75	5.00
Disciplinary Strategies	100	3.85	0.41	2.71	4.64
Learner Behaviour	100	4.02	0.46	2.67	4.83
Classroom Environment	100	3.74	0.61	1.79	4.79
Parental Involvement	100	4.09	0.64	2.00	5.00

5.3 RESULTS: DEPENDENT T-TEST

In order to determine whether there is a significant difference between the participants' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD in regular classrooms on the one hand, and the frequency of the participants' implementation thereof on the other hand, the dependent t-test was used.

The results of the t-test in terms of statistical (p-values) and practical (effect sizes) significance are displayed in Table 5.2 below.

Table: 5.2: Difference between participants' scores on Scales A (Importance) and B (Frequency) of the questionnaire

Scale A (Rating of importance) vs. Scale B (Frequency of implementation)	N	t-value	Probability	Difference between means	Standard deviation	Effect size (d)
Didactic approaches	100	10.39	< .0001 +	0.2498	0.2405	1.04**
Strategies related to teacher behaviour	100	6.96	< .0001 +	0.2041	0.2933	0.70*
Strategies for establishing structure and routine	100	5.36	< .0001 +	0.2208	0.4122	0.54*
Disciplinary strategies	100	7.67	< .0001 +	0.2666	0.3475	0.77*
Strategies related to learner behaviour	100	7.22	< .0001 +	0.2224	0.308	0.72*
Structuring the classroom environment	100	7.39	< .0001 +	0.2889	0.3911	0.74*
Parental involvement	100	7.27	< .0001 +	0.3483	0.4791	0.73*

+ Reject Null hypothesis : $p < .05$
** Large effect
* Medium effect
According to Cohen's (1988) guidelines where:
Small effect: d = 0.2
Medium effect: d = 0.5
Large effect: d = 0.8

The t-values in the table above indicate that Null hypothesis1 (H_0^1) can be rejected. Thus, there is a significant difference between teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in regular classrooms on the one hand, and the frequency of teachers' implementation thereof on the other.

Because the researcher did not use a random sampling technique to select the teachers who participated in the present study, no assumption can be made concerning the representativeness of the sample. For this reason, as well as to determine the practical significance of statistically significant test results, effect sizes were calculated. Effect size is independent of sample size and is a measure of practical significance (Ellis & Steyn, 2003). Practical significance refers to the practical importance of the results (Rosnow & Rosenthal, 1996: 275). A result that is statistically significant does not necessarily have significant practical implications. The following formula was used to calculate the effect sizes, which appear in Table 5.2:

$$d = \frac{\left|\overline{x}_1 - \overline{x}_2\right|}{s}$$ (Ellis & Steyn, sa)

Where: d = Effect size $\overline{X_1}$ = Mean 1

$\overline{X_2}$ = Mean 2 S = Standard deviation

The effect sizes in Table 5.2 indicate that the difference between teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in regular classrooms on the one hand, and the frequency of teachers' implementation thereof on the other, is practically significant.

5.4 RESULTS: INDEPENDENT T-TEST

In order to determine whether male and female teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in" regular" classrooms, and the frequency of male and female teachers' implementation thereof differ significantly where the independent t-test was used. Information regarding the means and standard deviations of male and female participants' scores on Scales A and B of the questionnaire are presented in Table 5.3 below.

Table 5.3: Means and standard deviations of male and female participants' scores on Scale A (Importance) and Scale B (Frequency of implementation) of the questionnaire

Scale A (Rating of importance)	N		Mean		Standard deviation	
	Male	Female	Male	Female	Male	Female
Didactic approaches	21	78	4.0338	4.2569	0.2553	0.3143
Strategies related to teacher behaviour	21	78	4.1279	4.4287	0.3816	0.2947
Strategies for establishing structure and routine	21	78	4.4167	4.5353	0.3979	0.4240
Disciplinary strategies	21	78	4.0408	4.1420	0.5144	0.4229
Strategies related to learner behaviour	21	78	4.2143	4.2557	0.4329	0.4419
Structuring the classroom environment	21	78	3.8571	4.0806	0.6010	0.5468
Parental involvement	21	78	4.1497	4.5220	0.6316	0.5059
Scale B (Frequency of implementation)	**N**		**Mean**		**Standard deviation**	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
Didactic approaches	21	78	3.7935	4.0071	0.2528	0.3471
Strategies related to teacher behaviour	21	78	3.9503	4.2193	0.3575	0.3688
Strategies for establishing structure and routine	21	78	4.2500	4.2959	0.4677	0.5076
Disciplinary strategies	21	78	3.7721	3.8716	0.5396	0.3757
Strategies related to learner behaviour	21	78	4.0238	4.0227	0.4810	0.4556
Structuring the classroom environment	21	78	3.5388	3.7959	0.6324	0.5979
Parental involvement	21	78	3.8435	4.1593	0.7026	0.6087

The results of the t-test in terms of statistical (p-values) and practical (effect sizes) significance are displayed in Table 5.4 below.

Table 5.4: Difference between male and female participants' scores on Scale A (Importance) and Scale B (Frequency of implementation) of the questionnaire

Scale A (Rating of importance)	N	t-value	p-value	Difference between means	Standard deviation	Effect size (d)
Didactic approaches	99	-2.99	0.0035+	-0.223	0.3143	0.71**
Strategies related to teacher behaviour	99	-3.89	0.0002+	-0.301	0.3816	0.79***
Strategies for establishing structure and routine	99	-1.15	0.2521	-0.119	0.4187	0.28*

Scale A (Rating of importance)	N	t-value	p-value	Difference between means	Standard deviation	Effect size (d)
Disciplinary strategies	99	-0.93	0.3555	-0.101	0.5144	0.20*
Strategies related to learner behaviour	99	-0.38	0.7026	-0.041	0.4329	0.09
Structuring the classroom environment	99	-1.63	0.1068	-0.223	0.601	0.37*
Parental involvement	99	-2.83	0.0056+	-0.372	0.6316	0.59**

Scale B (Frequency of implementation)	N	t-value	p-value	Difference between means	Standard deviation	Effect size (d)
Didactic approaches	99	-2.63	0.0098+	-0.214	0.3471	0.62**
Strategies related to teacher behaviour	99	-2.99	0.0036+	-0.269	0.3688	0.73**
Strategies for establishing structure and routine	99	-0.37	0.7092	-0.046	0.5076	0.09
Disciplinary strategies	99	-0.98	0.3315	-0.1	0.5396	0.19
Strategies related to learner behaviour	99	0.01	0.9925	0.001	0.481	0.00
Structuring the classroom environment	99	-1.73	0.0872	-0.257	0.6324	0.41*
Parental involvement	99	-2.04	0.0439*	-0.316	0.7026	0.45*

+ Reject Null hypothesis : $p < 0.05$
** Large effect
* Medium effect
According to Cohen's (1988) guidelines where:
Small effect: d = 0.2
Medium effect: d = 0.5
Large effect: d = 0.8

The t-values in Table 5.4 indicate that:

- Male and female teachers' scores differ significantly in terms of their ratings regarding the importance of implementing certain didactic approaches, strategies related to teacher behaviour, and the importance of parental involvement. This can be ascribed to the fact that the mean scores that female participants obtained on these sections of the questionnaire were significantly higher than those of the male participants were (see Table 5.3). Thus, it can be deduced that female teachers rate the implementation of certain didactic approaches, strategies related to teacher behaviour and parental involvement as more important for accommodating ADHD-learners in their classrooms than their male counterparts.

- Male and female teachers' scores differ significantly in terms of the frequency of implementing certain didactic approaches, strategies related to teacher behaviour and parental involvement. This can be ascribed to the fact that the mean scores that female participants obtained on these sections of the questionnaire were significantly higher than those of the male participants were (see Table 5.3). Thus, it can be deduced that in order to accommodate ADHD-learners in their classrooms, female teachers implement certain didactic approaches, strategies related to teacher behaviour and parental involvement more frequently than their male counterparts do.

The effect sizes in Table 5.4 indicate that the following differences between male and female participants' scores on Scale A (Rating of importance) and Scale B (Frequency of implementation) may be regarded as practically significant:

- Male and female participants' ratings regarding the importance of implementing certain didactic approaches. This can be ascribed to the fact that the mean score which female participants obtained on this section of the questionnaire was significantly higher than those of the male participants (see Table 5.3). Thus, it can be deduced that in practice female teachers rate the implementation of certain didactic approaches as more important for accommodating ADHD-learners in their classrooms than their male counterparts.

- Male and female participants' ratings regarding the importance of implementing strategies related to teacher behaviour. This can be ascribed to the fact that the mean score which female participants obtained on this section of the questionnaire was significantly higher than that of the male participants (see Table 5.3). Thus, it can be

deduced that in practice, female teachers rate the implementation of strategies related to teacher behaviour as more important for accommodating ADHD-learners in their classrooms than their male counterparts.

- Male and female participants' frequency of implementing strategies related to teacher behaviour. This can be ascribed to the fact that the mean score which female participants obtained on this section of the questionnaire was significantly higher than the mean score of the male participants (see Table 5.3). Thus, it can be deduced that in order to accommodate ADHD-learners in their classrooms, female teachers implement strategies related to teacher behaviour more frequently in practice than their male counterparts.

5.5 RESULTS: ANALYSIS OF VARIANCE (ANOVA)

5.5.1 The relationship between teachers' age, teaching experience and qualifications and their ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement.

In order to determine whether independent variables such as age, teaching experience and qualifications significantly affect teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms, analysis of variance (ANOVA) was implemented as a statistical technique. Table 5.5 contains the results of the analysis.

Table 5.5: ANOVA: The relationship between age, teaching experience and qualifications and teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms

Didactic approaches					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	0.5685	0.1137	1.15	0.3380
	93	9.1651	0.0985		
Teaching	5	0.7996	0.1599	1.66	0.1523
Experience	94	9.0657	0.0964		
Qualifications	3	0.0187	0.0062	0.06	0.9802
	94	9.6358	0.1025		

Strategies related to teacher behaviour					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	0.6618	0.1323	1.18	0.3250
	93	10.433	0.1121		
Teaching	5	1.1651	0.233	2.19	0.0616
Experience	94	9.9971	0.1063		
Qualifications	3	0.1416	0.0472	0.41	0.7474
	94	10.867	0.1156		
Strategies for establishing structure and routine					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	0.5961	0.1192	0.67	0.6500
	93	16.643	0.1789		
Teaching	5	1.0875	0.2175	1.26	0.2860
Experience	94	16.176	0.1720		
Qualifications	3	0.2904	0.0968	0.54	0.6569
	94	16.891	0.1796		
Disciplinary strategies					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	0.4296	0.0859	0.42	0.8302
	93	18.8030	0.2021		
Teaching	5	1.2639	0.2527	1.32	0.2616
Experience	94	17.9770	0.1912		
Qualifications	3	0.5479	0.1826	0.92	0.4346
	94	18.6700	0.1986		
Strategies related to learner behaviour					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	1.3370	0.2674	1.42	0.2233
	93	17.4770	0.1879		
Teaching	5	1.6225	0.3245	1.77	0.1256
Experience	94	17.1920	0.1828		
Qualifications	3	0.2533	0.0844	0.43	0.7335
	94	18.5530	0.1973		

Structuring the classroom environment					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	3.3512	0.6702	2.25	0.0559
	93	27.7220	0.2980		
Teaching	5	3.6553	0.7310	2.49	0.0367*
Experience	94	27.6220	0.2938		
Qualifications	3	0.0527	0.0175	0.05	0.9832
	94	30.443	0.3238		
Parental involvement					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	2.0755	0.4151	1.38	0.2376
	93	27.903	0.3		
Teaching	5	3.1425	0.6285	2.20	0.0606
Experience	94	26.838	0.2855		
Qualifications	3	0.6416	0.2138	0.69	0.5588
	94	29.665	0.3087		
* Reject Null hypothesis: p <0.05					

The F-values in the table above indicate that in general, variables such as age, teaching experience and qualifications do not significantly affect teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in regular classrooms. The only exception is a significant relationship between teachers' teaching experience and their ratings regarding the importance of structuring the classroom environment.

Teachers with 11 to 15 yrs of teaching experience gave the highest rating to the importance of structuring the classroom environment, whereas teachers with 31 to 40 years of teaching experience gave the lowest rating to the importance of structuring the classroom environment.

5.5.2 The relationship between teachers' age, teaching experience and qualifications and the frequency of implementing certain didactic approaches, behaviour management strategies and parental involvement.

In order to determine whether variables such as age, teaching experience and qualifications significantly affect the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners

in *"regular"* classrooms, ANOVA was implemented as a statistical technique. Table 5.6 contains the results of the analysis.

Table 5.6: ANOVA: The relationship between age, teaching experience and qualifications and the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms

Didactic approaches					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	1.6450	0.3290	3.17	0.0110*
	93	9.6627	0.1039		
Teaching	5	0.8901	0.1780	1.60	0.1671
Experience	94	10.4440	0.1111		
Qualifications	3	0.0052	0.0017	0.01	0.9975
	94	10.9980	0.1170		
Strategies related to teacher behaviour					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	1.5226	0.3045	2.23	0.0577
	93	12.7000	0.1365		
Teaching	5	1.1524	0.2304	1.66	0.1530
Experience	94	13.0850	0.1392		
Qualifications	3	0.0251	0.0083	0.06	0.9822
	94	13.9510	0.1484		
Strategies for establishing structure and routine					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	2.8598	0.5719	2.49	0.0368*
	93	21.3920	0.2300		
Teaching	5	0.9516	0.1903	0.76	0.5803
Experience	94	23.5130	0.2501		
Qualifications	3	0.4586	0.1528	0.61	0.6104
	94	23.576	0.2508		

Disciplinary strategies					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	0.7427	0.1485	0.86	0.5129
	93	16.1120	0.1732		
Teaching	5	1.1599	0.2319	1.37	0.2415
Experience	94	15.8820	0.1689		
Qualifications	3	0.4399	0.1466	0.84	0.4748
	94	16.3920	0.1743		
Strategies related to learner behaviour					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	2.0652	0.4130	2.07	0.0760
	93	18.5460	0.1994		
Teaching	5	1.6272	0.3254	1.61	0.1650
Experience	94	19.0040	0.2021		
Qualifications	3	0.6673	0.2224	1.05	0.3727
	94	19.8470	0.2111		
Structuring the classroom environment					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	5.0674	1.0134	2.99	0.0152*
	93	31.5550	0.3393		
Teaching	5	4.2949	0.8589	2.50	0.0362*
Experience	94	32.3530	0.3441		
Qualifications	3	0.3443	0.1147	0.31	0.8204
	94	35.1687	0.3741		
Parental involvement					
Independent Variable	**Degrees of freedom**	**Sum of squares**	**Mean square**	**f-value**	**Probability p-values**
Age	5	5.3047	1.06	2.84	0.0197*
	93	34.748	0.3736		
Teaching	5	3.6231	0.7246	1.87	0.1073
Experience	94	36.467	0.3879		
Qualifications	3	0.1561	0.052	0.13	0.9449
	94	39.065	0.4155		
* Reject Null hypothesis: $p < 0.05$					

The F-values in the table above indicate that in general, variables such as age, teaching experience and qualifications do not significantly affect the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms. The only exceptions are significant relationships between:

- teachers' age and the frequency of implementing certain didactic approaches (teachers between the ages of 56 to 65 years implement certain didactic approaches most frequently, whereas the 46 to 50 year old age group implement it less frequently);

- teachers' age and the frequency of implementing strategies to establish structure and routine (teachers between the ages of 20 to 30 years implement strategies to establish structure and routine most frequently, whereas the 46 to 50 year old age group implement it less frequently);

- teachers' age and the frequency of structuring the classroom environment (teachers between the ages of 20 to 30 years structure the classroom environment most frequently, whereas the 46 to 50 year old age group structure it less frequently);

- teaching experience and the frequency of structuring the classroom environment (teachers with null to 10 yrs of teaching experience structure the classroom environment most frequently, whereas those with 16 to 20 years of teaching experience structure it less frequently); and

- teachers' age and the frequency of getting parental involvement (teachers in the 56, 60, 65 year old age group involve parents most frequently, whereas the 41 to 45 year old age group involve parents least frequently).

5.6 SUMMARY OF RESULTS

The results emanating from the statistical analyses can be summarized as follows:

- There is a significant difference between teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other (see Table 5.2).

- The difference between teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms on the one hand, and the frequency of teachers' implementation thereof on the other, is practically significant (see Table 5.2).
- Male and female teachers' scores differ significantly in terms of their ratings regarding the importance of implementing certain didactic approaches; strategies related to teacher behaviour and the importance of parental involvement (see Table 5.4). Female teachers rate the implementation of certain didactic approaches, strategies related to teacher behaviour and parental involvement as more important for accommodating ADHD-learners in their classrooms than their male counterparts.
- Male and female teachers' scores differ significantly in terms of the frequency of implementing certain didactic approaches, strategies related to teacher behaviour and parental involvement (see Table 5.4). Female teachers implement certain didactic approaches, strategies related to teacher behaviour and parental involvement more frequently than their male counterparts did.
- The following differences between male and female participants' scores on Scale A (Rating of importance) and Scale B (Frequency of implementation) may be regarded as practically significant (see Table 5.4):
    - Male and female participants' ratings regarding the importance of implementing certain didactic approaches
    - Male and female participants' ratings regarding the importance of implementing strategies related to teacher behaviour
    - Male and female participants' frequency of implementing strategies related to teacher behaviour.

(In all the cases above, female participants obtained higher mean scores than their male counterparts.)

- In general, variables such as age, teaching experience and qualifications do not significantly affect teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in regular classrooms. However, there is a significant relationship between teachers' teaching experience and their ratings regarding the importance of structuring the classroom environment (see Table 5.5).
- In general, variables such as age, teaching experience and qualifications do not significantly affect the frequency of teachers' implementation of certain didactic

approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms. The only exceptions are significant relationships between:

- teachers' age and the frequency of implementing certain didactic approaches;
- teachers' age and the frequency of implementing strategies to establish structure and routine;
- teachers' age and the frequency of structuring the classroom environment;
- teaching experience and the frequency of structuring the classroom environment, and
- teachers' age and the frequency of getting parental involvement (see Table 5.6).

5.7 DISCUSSION OF THE RESULTS

In the following paragraphs, the results emanating from the empirical investigation will be discussed.

5.7.1 Teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement versus the frequency of implementation thereof.

Although teachers rate certain didactic approaches, behaviour management strategies and parental involvement as important for accommodating ADHD learners in 'regular' classrooms, there is a significant difference between teachers' ratings of its importance and the frequency of their implementation thereof (see Table 5.2). The effect sizes in Table 5.2 also indicate that this difference is practically significant. The implication of this finding is that although teachers are aware of the importance of certain didactic approaches, behaviour management strategies and parental involvement for the optimal inclusion of ADHD learners in *"regular"* classrooms, in practice they do not implement these aspects so frequently. Based on this, it could be argued that learners with ADHD are not optimally accommodated or included in *"regular"* classrooms. The following factors could lie at the root of this finding:

- The teacher-learner ratio: According to Johnson (1999), for inclusion to be effective, a reduction in class size is crucial. A very high teacher-learner ratio makes it very difficult (if not impossible) for teachers to pay attention to the needs of individual learners (Salend, 1999). For example, if equal time should be given by the teacher to each learner in a class of say 35 during a 35-minute lesson period, the individual learner would receive one minute of individualised attention. It takes a large amount of effort for

each teacher to determine each learner's academic level, social needs and learning style according to Johnson (1999), and if there are too many learners in the class this would be very difficult to achieve.

- Over-crowded classrooms: The over-crowding of classrooms also has serious implications for the implementation of certain behaviour management strategies (Johnson, 1999). For example, the limited physical space makes it very difficult for the teacher to structure the classroom environment in such a way that it could contribute towards the optimal inclusion and learning of ADHD learners.
- Language barriers to learning: More and more second and third language learners are accommodated in ex-Model C schools where the language of instruction is either Afrikaans or English (Donald *et al*, 2002:31). Unfortunately, most of these schools do not have the necessary language support systems in place and it is expected of classroom teachers to address the diverse language needs of learners as well. Teachers must spend more time with these learners to help them to overcome their language barriers and in the process, less time can be devoted to ADHD learners.
- Diverse needs of learners: Apart from diverse language needs, most classrooms contain learners with other barriers to learning (Donald *et al.* 2002:30).The inclusion approach has created a situation where the teacher must address multiple learning needs. Therefore, it becomes very difficult for teachers to focus exclusively on the learning needs of ADHD learners and to regularly implement various didactic approaches and strategies to cater for their needs (Heflin & Bullock, 1999).
- Lack of training/experience with regard to the implementation of inclusive approaches and/or strategies: Teachers may feel inadequate to accommodate learners with special needs (and in particular ADHD learners) in their classrooms due to their lack of training and experience (Heflin & Bullock, 1999; Cook, Semmel & Gerber. 1999; Dugger Wadsworth & Knight, 1999; Salend, 1999).
- Curriculum requirements/demands: Teachers are still trying to cope with the requirements and demands of implementing the Outcomes Based (OBE) curriculum. The majority of teachers complain that the implementation of the OBE curriculum (especially assessment) has placed such an administrative burden on them (Engelbrecht *et al.* 1999:123) that there is little time for teaching and the implementation of inclusive strategies to accommodate learners with special needs. Teachers also have to change their curriculum to include all learners and this has put extra strain on them (Fisher *et al.* 1999; Guetzloe, 1999).

5.7.2 Male and female teachers' ratings regarding the importance of implementing certain didactic approaches, behavioural management strategies and parental involvement as well as the frequency with which it is implemented by male and female teachers.

The results in Table 5.4 indicate that there is a significant difference between male and female teachers in terms of their ratings regarding the importance of implementing certain didactic approaches, behavioural management strategies and parental involvement as well as the frequency with which it is implemented by male and female teachers. Female teachers rate the implementation of certain didactic approaches; strategies related to teacher behaviour and parental involvement as more important for accommodating ADHD learners in their classrooms than their male counterparts. Female teachers also implement these approaches, strategies and parental involvement more frequently than male teachers do.

The following factors could explain the above-mentioned differences:

- *Attitude and focus:* In general, female teachers tend to demonstrate more empathy and understanding towards individual learners and their needs than male teachers do. Female teachers focus more on the social and emotional needs of learners, whereas male teachers focus more on the intellectual/scholastic needs of learners (Gerlach, 2002).
- *Personality:* Personality differences between male and female teachers will affect their attitudes and behaviour towards learners. Female teachers in general are perceived as more loving, caring and nurturing in their attitude and behaviour than male teachers are (Gerlach, 2002). Therefore female teachers would rate teacher behaviour such as making use of proximity and touch, establishing eye contact, taking time to talk individually with learners, complementing and encouraging positive behaviour, meeting the needs and interests of individual learners, the establishment of a co-operative and non-competitive classroom atmosphere and the avoidance of ridicule and criticism as more important than their male counterparts do.
- *Approachability:* The finding that female teachers rate parental involvement as more important than male teachers can be ascribed to the fact that female teachers are more open to communication with parents and more approachable than male teachers. In general, women are more willing to share their thoughts and feelings and to co-operate with others when problems are addressed than men (Gerlach, 2002). It seems that mothers feel more comfortable to discuss their children's' problems with female teachers than with male teachers. The more open and frequent communication between mothers and female teachers may be ascribed to the fact that they both share a warm and

nurturing disposition and that female teachers display more empathy towards the mother and the problems of the ADHD learner.

5.7.3 The relationship between teachers' age, teaching experience and qualifications and their ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement.

In general, the results in Table 5.5 indicate that variables such as age, teaching experience and qualifications do not significantly affect teachers' ratings regarding the importance of implementing certain didactic approaches, behaviour management strategies and parental involvement. However, a significant relationship exists between teachers' teaching experience and their ratings regarding the importance of structuring the classroom environment.

Teachers' with 11 to 15 years of experience rated the importance of structuring the classroom environment highest, whereas teachers with 31 to 41 years of teaching experience gave it the lowest rating.

It could be that teachers with 11 to 15 years of experience have stayed abreast, by means of further studies or in-service training, with the latest developments in the fields of classroom management and inclusion, and are willing to implement inclusive strategies and approaches and adapt their teaching and classroom management strategies, as they are not yet fixed in their didactic approaches. Experienced teachers (with 31–40 years of experience) will have already established a classroom structure and routine that they are comfortable with, because it works for them. Therefore, a re-structuring of the classroom environment will not be a priority to them, as they have already established a fixed routine and structure. These teachers will normally also be resistant to change their routine and classroom structure to accommodate learners with special needs (Heflin & Bullock, 1999; Salend, 1999).

5.7.4 The relationship between teachers' age, teaching experience and qualifications, and the frequency of implementing certain didactic approaches, behaviour management strategies and parental involvement.

The results in Table 5.6 indicate that in general, variables such as age, teaching experience and qualifications do not significantly affect the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms. The only exceptions are significant relationships between:

- teachers' age and the frequency of implementing certain didactic approaches (teachers between ages 56 and 65 implement certain didactic approaches most frequently, whereas the 46 to 50 year old age group implement it less frequently);
- teachers' age and the frequency of implementing strategies to establish structure and routine (teachers between ages 20 and 30 implement strategies to establish structure and routine most frequently, whereas the 46 to 50 year old age group implement it less frequently);
- teachers' age and the frequency of structuring the classroom environment (teachers between ages 20 and 30 structure the classroom environment most frequently, whereas the 46 to 50 year old age group structure it less frequently);
- teaching experience and the frequency of structuring the classroom environment (teachers with null to 10 years of teaching experience structure the classroom environment most frequently, whereas those with 16 to 20 years of teaching experience structure it less frequently); and
- teachers' age and the frequency of getting parental involvement (teachers in the 56 to 65 year old age group involve parents most frequently, whereas the 41 to 45 year old age group involve parents least frequently).

Structure and routine may be more important for teachers between ages 20 and 30 because they are still young and gaining experience. They are 'fresh out of college' and are still eager and willing at attempting change, experimenting with, and finding ways that suit them best. Older teachers may not need to implement such rigid methods of establishing structure and routine so frequently, as they have already established their own unique teaching styles and classroom routines through the years (Centre for Teaching and Learning, sa; Salend, 1999).

The finding that older and more experienced teachers more frequently involve parents in the scholastic education of their ADHD children than younger or less experienced teachers may be ascribed to the fact that older and more experienced teachers have come to realize through experience that inclusive education cannot succeed without the partnership and assistance of parents (Copeland & Love, 1995).

5.8 CONCLUSIONS

Based on the results emanating from this research, the following conclusions are drawn:

- Although teachers are aware of the importance of certain didactic approaches, behaviour management strategies and parental involvement for the optimal inclusion of

ADHD learners in *"regular"* classrooms, in practice they do not implement these aspects so frequently.

- Female teachers rate the implementation of certain didactic approaches, strategies related to teacher behaviour and parental involvement as more important for accommodating ADHD learners in their classrooms than their male counterparts.
- Female teachers implement certain didactic approaches, strategies related to teacher behaviour and parental involvement more frequently when accommodating ADHD learners in their classrooms than their male counterparts.
- In general, variables such as age, teaching experience and qualifications do not significantly affect teachers' ratings regarding the importance of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in regular classrooms. However, there is a significant relationship between teachers' teaching experience and their ratings regarding the importance of structuring the classroom environment.
- In general, variables such as age, teaching experience and qualifications do not significantly affect the frequency of teachers' implementation of certain didactic approaches, behaviour management strategies and parental involvement in accommodating ADHD learners in *"regular"* classrooms. The only exceptions are significant relationships between:
    - teachers' age and the frequency of implementing certain didactic approaches;
    - teachers' age and the frequency of implementing strategies to establish structure and routine;
    - teachers' age and the frequency of structuring the classroom environment;
    - teaching experience and the frequency of structuring the classroom environment; and
    - teachers' age and the frequency of getting parental involvement.

5. 9 RECOMMENDATIONS

Based on the mean ratings of importance (4 and higher) that the participants gave to the different items contained in the different sections and sub-sections of the questionnaire (see Appendix 2), as well as the information contained in paragraph 3.6 of Chapter 3, the following practical guidelines for the inclusion of ADHD learners in *"regular"* classrooms are recommended:

5.9.1 Guidelines to facilitate the inclusion of ADHD learners in *"regular"* classrooms

In order for ADHD-learners to be optimally included in *"regular"* classrooms, teachers should implement the following guidelines:

5.9.1.1 Didactic guidelines

- Allow learners extra time to finish work.
- Give tasks one at a time.
- Break tasks up into smaller units.
- Provide learners with clues to help them to finish tasks.
- Number and sequence tasks that the learners must do.
- Highlight important facts/concepts for learners
- Remind learners of deadlines for handing in tasks/assignments.
- Emphasize the quality of work expected and not necessarily the quantity of work to be done.
- Give tasks that require physical activity, e.g. measuring objects during a maths lesson.
- Teach to the different learning styles of the learners.
- Provide learning aids to the learners.
- Utilize small class-group discussions.
- Teach study techniques to learners (e.g. Keywords, associations, rhymes, mnemonics, flow charts, diagrams, etc.).
- Teach learners self-monitoring behaviour (e.g. putting up of hand, not shouting out, waiting their turn, etc.).
- Assist learners in setting short-term goals for themselves.
- Use simple, clear and understandable language when speaking to learners.
- Give instructions to learners in a clear and consistent manner.
- Repeat instructions in a calm positive manner.
- Allow learners to feel comfortable when seeking assistance.
- Keep lessons (direct instruction) short, and allow for short breaks.
- Regularly, check for misunderstandings.
- Encourage and accept different methods of problem solving.
- Allow learners to assess themselves.
- Use simple examples and exercises and gradually introduce more difficult/complex work.
- Allow learners to repeat instructions that were given to them.
- Do not insist on *"perfect"* handwriting.

- Allow peer assistance during class work.
- Allow learners to make choices and teach them how to do so.
- Involve learners during lessons.
- Teach listening skills.
- Use colour to emphasize important information during lessons.
- Be flexible in your teaching approach.
- Make use of oral assessments.
- Reduce unnecessary copying of work by giving written handouts to learners.
- Keep individual work periods short.
- Give independent work to do if learners are bored.

5.9.1.2 Guidelines for behaviour management

5.9.1.2.1 Guidelines related to teacher behaviour:

- Make use of proximity and touch.
- Make use of voice regulation.
- Move around the classroom during lessons.
- Call on learners, only when their hands are raised.
- Establish eye contact with learners.
- Call on learners to get their attention.
- Take time to talk alone to learners.
- Acknowledge positive behaviour of learners.
- Speak not more than three times to learners before applying class rules.
- Avoid arguments with learners.
- Do not compare learners or siblings with one another.
- Do not remind learners to take their medication in front of others.
- Acknowledge positive behaviour with compliments.
- Keep sensitivities of the learners in mind.
- Know what triggers learners' behaviour.
- Try to encourage learners' self-esteem.
- Try to provide a co-operative, non-competitive social climate in the classroom.
- Try to meet the needs and interests of learners.
- Try to keep up to date with regard to knowledge on ADHD.
- Know how to manage the situation, when learners' levels of frustration are high.
- Focus not on the learner's problem(s) only, but on the child as a whole person.

- Look for opportunities for learners to display leadership.
- Try to teach the class that everyone is different and should be accepted as such.
- Try to determine each learner's strengths.
- Teach learners different ways to handle social situations.
- Discuss coping mechanisms with learners.
- Teach learners about interpersonal relationships.
- Avoid ridicule and criticism.
- Have a back up plan when a particular strategy fails.
- Make learners responsible for their own behaviour.

5.9.1.2.2 Guidelines for establishing structure and routine:

- Establish a structured daily classroom routine.
- Teach planning and organizational skills to learners.
- Avoid over-stimulation of learners.
- Be consistent and predictable in your approach to learners.

5.9.1.2.3 Guidelines to improve discipline:

- Make use of a points system for rewarding positive behaviour.
- Make use of a behavioural contract that has been negotiated with the learner.
- Reward good behaviour immediately.
- Manage the class discipline without being over-strict.
- Know how to handle conflict situations.
- Act on negative (unacceptable) behaviour immediately.
- Apply disciplinary measures in a consistent and fair manner.
- Focus on the misbehaviour and not on the learner.
- Apply class rules consistently.
- Act as a role model for positive behaviour on a daily basis.

5.9.1.2.4 Guidelines to improve learner behaviour:

- Reward learners for every task that he/she successfully completes.
- Establish a relaxed classroom atmosphere.
- Teach learners to attempt one thing at a time.
- Allow learners to take short breaks during work sessions.

- Encourage learners to ask for a repetition of instructions if they feel unsure.
- Encourage learners to ask the teacher first if they experience a problem with the work.
- Encourage learners to look at the teacher when he/she is explaining something.
- Encourage learners to make one good comment each day.
- Encourage learners to arrive early and to be friendly.
- Encourage learners to get exercise, enough sleep and a balanced diet.
- Teach learners to listen for clues during tests.
- Teach learners to cross out errors with a thin line in their books.

5.9.1.2.5 Guidelines for structuring the classroom environment:

- Keep an extra supply of pencils and books in class.
- Limit distractions in the classroom.
- Seat the learner alone, near the teacher or next to a positive role model.
- Increase the distance between desks.
- Encourage learners to get rid of desktop distractions.
- Control for glare with curtains or the positioning of the desks.
- Use distracting objects with care (pointers etc).
- Reduce class distracters to the minimum.
- Ensure that there is sufficient light in the classroom.
- Make use of timing devices to let the learners know how much time is left.
- Control auditory distractions.

5.9.1.3 Guidelines for improving parental involvement:

- Meet with parents regularly.
- Contact parents frequently by means of written notes.
- Get parents involved in the learner's schoolwork.
- Get parents involved in the general school activities.
- Assist parents to read up on ADHD and to keep up to date with the latest developments.
- Ask parents to inform teacher(s) of new developments regarding the management of their child's ADHD.
- Ask parents to inform teacher(s) about any changes regarding the learner's home situation.

5.9.2 Limitations of the research and recommendations for further research:

The current research focused on a particular study population, namely the ex-Model C primary schools in the Klerksdorp and Potchefstroom school districts. The participants were intermediate phase teachers who are teaching in Grades 4–7 in these schools. Thus, the results emanating from the research are only applicable to the above-mentioned study population and cannot be generalized to the South African population of intermediate phase teachers. Therefore, the study should be replicated involving a national sample of intermediate phase teachers.
Consideration should also be given to the expansion of the sample, so that it would be representative of teachers from all three teaching phases (Foundation Phase, General Education and Training Phase and Further Education and Training Phase).

In the current research, only the perceptions of teachers regarding the inclusion of ADHD learners in *"regular"* classrooms were surveyed. In order to obtain a more holistic understanding of the perceptions of the different role players, perceptions of ADHD learners and their parents should also be surveyed.

5.10 SUMMARY

In this chapter, the results emanating from the research were given and discussed. Based on the results, conclusions were drawn and guidelines were given to facilitate the inclusion of learners with ADHD in *"regular"* classrooms. Some of the limitations of the research were highlighted and recommendations were made for further research on the topic.

5.11 CONCLUDING REMARKS

The primary aim of this research was to determine whether there is a significant difference between teachers' perceptions regarding the importance of certain didactic approaches and strategies for accommodating learners with ADHD in *"regular"* classrooms and the frequency with which teachers implement these approaches and strategies. The research results indicated that there is a significant difference between teachers' ratings regarding the importance of these approaches and strategies and the frequency of teacher's implementation thereof. In practice, this means that although the teachers in this study population regard these didactic approaches and strategies as important for the optimal inclusion of ADHD learners in *"regular"* classrooms, in reality teachers implement them less frequently.

Various reasons for the discrepancy mentioned above can be given. Although most of these reasons can be accepted as valid excuses why teachers do not implement inclusive approaches and strategies as frequently as they should, the fact remains that under these circumstances, learners with ADHD will not actualize their true potential.

In order to accommodate learners with ADHD optimally in "regular" classrooms, certain systemic changes are also required. These systemic changes are mostly the responsibility of education departments. Education departments must provide the necessary support and infrastructure to empower schools and teachers for the optimal inclusion of learners with barriers to learning.

BIBLIOGRAPHY

ABIKOFF, H. 1991. Cognitive training in ADHD children: less to it than meets the eye. *Journal of learning disabilities*, 24(4):205-209, April.

ADHASA. sa. The safe and natural nutritional supplement for very active kids. Calmolin A.D.D. Pamphlet distributed by The Attention Deficit Hyperactivity disorder Association of South Africa for Children and Adults.

ADHASA. 2002. Will the diet ever die out? *Pulse newsletter. The official newsletter of the Attention Deficit Disorder and Hyperactivity support group of Southern Africa*, 49:1-20, 1st Quarter.

ADHD Kids. 2001. How to help misunderstood kids: teaching students who have ADHD. http://adhd.kids.tripod.com/adhd.html Date of access: 14 June 2002.

ALLAN, H. & O'MEARA, M. 2006. Unravelling the Central Auditory Processing Puzzle. *Southern African Association for learning and educational difficulties, Newsletter*, 26(1):1-20, February.

AMERICAN PSYCHIATRIC ASSOCIATION (APA). 1994. *Diagnostic and statistical manual of mental disorders. DSM-IV. 4th Edition.* Washington, D.C.: American Psychiatric Association. 886 p.

ANON. sa. Helping the underachieving. http//members.aol.com/svennord/ed/uag.htm Date of access: 14 June 2002.

ANON. 1990. Tips for teachers: why don't they behave? *Educamus*, 40(1):6, November.

ANON. 1998. Health promotion – Australia. Australian Health Promoting Schools Association. *Health education. Primary educator*, 4(5):1-4.

ANON. 2001a. Special education inclusion. http://www.weac.org/resource/june96/speced.htm. Date of access: 6 October 2003.

ANON. 2001b. What are the educational options? Adopted from Weinstein, C. 'Cognitive remediation strategies'. *Journal of psychotherapy practise and research*, 3(1):44-57. http://www.medhelp.org.HIHlib/GF-226.html#adhd9. Date of access: 2 May 2001.

ANON. 2005. Coping and caring in the classroom. *Whizz kids (ADHASA)*, 1(1):1- 9, Spring.

ATHEALTH. 2004. Teaching children with ADHD. http://www.athealth.com/consumer/disorders/ teach-adhd.html Date of access: 15 March 2004.

BANKS, B.J. 2002. Childhood discipline: challenges for clinicians and parents. *American family physician*, 66(8):1447-1452, October.

BARLOW, D.H. & DURAND, M.V. 2002. *Abnormal psychology: an integrative approach. 3rd Edition.* Belmont, Calif.: Wadsworth/Thompson Learning. 1 vol. + CD-ROM.

BAUMEL, J. 2002. AD/HD - An overview. http://www.schwablearning.org. Date of access: 6 October 2003.

BENN, D., VENTER, A., AUCAMP, A. & BENN, J. s.a. ADHD Attention Deficit Hyperactivity Disorder. Novartis South Africa.

BOTTING, N., POWLS, A., COOKE, R.W.I. & MARLOW, N. 1997. Attention Deficit Hyperactivity Disorders and other psychiatric outcomes in very low birth weight children at 12 years. *Journal of child psychology and psychiatry*, 38(8):931-941.

CENTRE FOR TEACHING AND LEARNING. sa. Your diversity: the academic culture, and teaching and learning styles. http://ctl.unc.edu/tfil.htm Date of access: 20 May 2005.

CHOW, V. & KASARI, C. 1999. Task-related Interactions among teachers and exceptional, at risk and typical learners in inclusive classrooms. *Remedial and special education*, 20(4):226-232, Jul/Aug.

COHEN, J. 1988. Statistical power analysis for behavioural sciences. 2nd Edition. Hillsdale, NJ: Erlbaum.

COLLINS, M. 2004. ADHD without Ritalin. *Your family* :42-44, February

COMFORT, R. 1994. Students with ADHD need balance of structure and choice in the classroom. Ebsco Host Academic Search Premier. *Brown university child & adolescent behavioural letter*, 10(9):1 -3, Sept.

CONSENSUS STATEMENT. 1998. Diagnosis and treatment of Attention Deficit-Hyperactive Disorder. http://consensus.nih.gov/cons/110/110.statement.htm. Date of access: 16 March 2004.

COOK, B., SEMMEL, M. & GERBER, M. 1999. Attitudes of principals and special education teachers toward the inclusion of students with mild disabilities: critical differences of opinion. *Remedial and special education*, 20(4):199-209, July/August.

COPELAND, E. 1991. Academic problems of ADHD/ADD students. Central Georgia Institute for Developmental Medicine. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March 2002, Pretoria, Gauteng.)

COPELAND, E. 2002a. The classroom teacher: the most significant instrument of positive and productive behavioural changes in students. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

COPELAND, E. 2002b. Academic intervention for reading and language disorders. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

COPELAND, E. & LOVE, V. 1995. Attention without tension. *A teacher's handbook on attention disorders*. Florida: Specialty Press. 175 p.

COPPS, S.C. 2000. Attention deficit disorder: not exactly the Midas touch. *Official Newsletter of the National Attention Deficit Disorder Association*, Fall.

COPPS, S.C. 2002. Understanding medications used for attentional disorders; the educator's and parent's as key roles in effective medication management. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

DE CAIRES-WAGNER, A. 2002. Module 2: Attitudes: teacher-child, teacher-parent, parent-child. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

DENMAN, S. 1999. Health promoting schools in England - a way forward in development. *Journal of public medicine,* 21(2):215-220.

DEPARTMENT OF EDUCATION. 1997. Quality education for all. Report of the National Commission on Special Needs in Education and Training and the National Committee on Education Support Services. Pretoria: Government Printer.

DEPARTMENT OF EDUCATION. 2001. Education White Paper 6. Special Needs Education. Building on Inclusive Education and Training System. Pretoria: Government Printer.

DONALD, D., LAZARUS, S. & LOLWANA, P. 2002. *Educational psychology in social context. Challenges of development, social issues and special need in Southern Africa. 2nd Edition.* Cape Town: Oxford University Press. 378 p.

DUGGER WADSWORTH, D.E. & KNIGHT, D. 1999. Preparing the inclusion classroom for students with special physical and health needs. *Intervention in school & clinic*, 34(3):170-176, January.

DU TOIT, L. 1996. An introduction to specialized education. In Engelbrecht, P., Kriegler, S.M. & Booysen, M.I., *eds. Perspectives on learning difficulties. International concerns and South African realities.* Pretoria: Van Schaik Publishers.

DYSON, A. 2001. Varieties and inclusion. (Paper presented at the Conference, IV Jornadas de /investigacion sobre Personas con Discapacidad, Salamanca, Spain.)

ELLIS, E.M. & STEYN, H.S. sa. Practical significance (effect sizes) versus or in combination with Statistical significance (p-values). Potchefstroom: Potchefstroom University for Christian Higher Education. (Unpublished article.)

ELLIS, E.M. & STEYN, H.S. 2003. Practical significance (effect sizes) versus or in combination with statistical significance (p-values). *Management dynamics*, 12(4)51-53.

ENGELBRECHT, P. & GREEN, L. 2001. *Promoting learner development. Preventing and working with barriers to learning.* Pretoria: Van Schaik Publishers.

ENGELBRECHT, P., GREEN, S.N., NAICKERS, S. & ENGELBRECHT, L. 1999. *Inclusive education in action in South Africa.* Pretoria: Van Schaik Publishers. 195 p.

ERASMUS, J. 2002. Diagnose, assessering, behandeling - chemiese medikasie. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

FERGUSON, D.L. 1996. Is it inclusion yet? Bursting the bubbles. In Berres, M.S., Ferguson, D.L., Knoblock, P. & Wood, C., eds. *Creating tomorrow's schools today. Stories of inclusion,* change and renewal. New York: Teacher's College Press. 16-37 p.

FISHER, D., SAX, C., RODIFER, K. & PUMPIAN, I. 1999. Teachers' perspectives of curriculum and climate changes: benefits of inclusive education. *Journal for a just and caring education*, 5(3):256-269, July.

GARBER, S.W., GARBER, M.D. & SPIZMAN, R.F. 1990. *If your child is hyperactive, inattentive, impulsive, distractible ... Helping the ADD (Attention Deficit Disorder) Hyperactive Child.* New York: Villard Books.

GERLACH, P.K. 2002. Effective communication skills. http://www.shelp.org/02/ gender.htm Date of access: 10 May 2005.

GIANGRECO, M, R., CLONINGER, C.J. & IVERSON, V.S. 1998. *Choosing outcomes and accommodations for children: a guide to educational planning for students with disabilities.* 2nd Edition. Baltimore, Md.: Brookes.

GREEN, C. & CHEE, K. 1997. *Understanding ADHD. A parent's guide to Attention Deficit Hyperactive Disorder in children.* London: Vermillion.

GUETZLOE, E. 1999. Inclusion: the broken promise. *Preventing school failure*, 43(3):92-99, Spring.

HALLOWELL, E.M. & RATEY, J.J. 2002. 50 tips on the management of adult attention deficit disorder. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

HEFLIN, L.J. & BULLOCK, L.M. 1999. Inclusion of students with emotional/behavioural disorders: a survey of teachers in general and special education. *Preventing school failure*, 43(3):103-112, Spring.

IRONS, D. 2002. Auditory processing deficits and the ADHD learner. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

JANSE VAN RENSBURG, S.M. 2003. Parents' perceptions of including their child with a disability in a mainstream school. Unpublished M Ed dissertation. Johannesburg: RAU. (Mini-dissertation.) 108 p.

JOHNSON, G.M. 1999. Inclusive education: fundamental instructional strategies and considerations. *Preventing school failure*, 43(2):72-77, Winter.

KANE, A. 2004. ADD ADHD advances: helping you take control of your child's ADHD. http://addadhdadvances.com. Date of access: 16 March 2004.

KAPLAN, B.J., CRAWFORD, S.G., DEWEY, D.M. & FISHER, G.C. 2000. The IQ's of children with ADHD are normally distributed. *Journal of learning disabilities*, 33(5):425-432, September/ October.

KAPLAN, H.I. & SADOCK, B.J. 1998. *Synopsis of psychiatry behavioural sciences/clinical psychiatry 8th Edition*. Baltimore, Md.: Williams & Wilkins. 1401 p.

KIDSOURCE. 2000. Teaching children with Attention Deficit Disorder. http://www.kidsource.com/ kidsource/ content2/add.html. Date of access: 15 March 2004.

KNIVESBERG, A., REICHELT, K. & NODLAND, M. 1999. Co-morbidity, or co-existence between dyslexia and attention deficit hyperactivity disorder. *British journal of special education*, 26(1):42-47, March.

LESESNE, C.A., VISSER, S.N. & WHITE, C.P. 2003. Attention-Deficit/Hyperactivity Disorder in school age children: association with maternal health and use of health care resources. *Paediatrics*, 111(5). Ebscohost Research Databases.

LOMOFSKY, L. & LAZARUS, S. 2001. South Africa: first steps in the development of an inclusive education system. *Cambridge journal of education*, 31(3). Ebscohost Research Databases.

MAJOREK, M., TUCHELMANN, T. & HEUSSER, P. 2004. Therapeutic eurhythmy – movement therapy for children with attention deficit hyperactivity disorder (ADHD): a pilot study. *Complementary therapies in nursing and midwifery*, 10(1):46-53, February

MAYES, S.D., CALHOUN, S.L. & CROWELL, E.W. 2000. Learning disabilities and ADHD: overlapping spectrum disorders. *Journal of learning disabilities*, 33(5):417-424, Sep/Oct.

MEDHELP. 2001. What are the educational options? Adopted from Winstein, C. 'Cognitive remediation strategies', 1994. http://www.medhelp.org/NlHlib/GF - 226.html#adhd9 Date of access: 14 June 2002.

MEIJER, C.J., PIJL, S.J. & HEGARTY, S. 1997. Inclusion: implementation and approaches. In Pijl, S.J., Meijer, C.J. & Hegarty, S., eds. *Inclusive education: a global agenda*. London: Routledge. 161 p.

MENTAL HEALTH. sa. Attention Deficit Disorder. http://www.mentalhealth.samhsa.gov/features/ surgeongenralreport/chapter3/sec4.asp. Date of access: 20 May 2004.

MESSINA, J. & MESSINA, C. sa. Accommodations for students with communications and learning disorders. http://www.coping.org/involvepar/accomform.htm Date of access: 30 August 2004.

MITTLER, P. 1995. Special needs education: an international perspective. *British journal of special education*, 22(3):105-108.

MOLINA, B. & PELHAM, W. 2003. Childhood predictors of adolescent substance use in longitudinal study of children with ADHD. *Journal of abnormal psychology*, 112(3):497-507.

NATIONAL INSTITUTE FOR MENTAL HEALTH. 2003. Attention Deficit Hyperactivity Disorder. http://www.nimb.nih.gov/Publicat/ADHD.cfm. Date of access: 20 May 2004.

NORBY, S. sa. Helping the underachieving. http://members.aol.com.svennord/ed/uag.htm. Date of access: 14 June 2002.

NORTH - WEST DEPARTMENT OF EDUCATION. sa. Inclusive education: a guide for educators and parents. Education White Paper 6, Special needs education: Building an inclusive education and training system. Mafikeng: Government Printer.

OPRAH'S BOOKS. 2003. A mind at a time, by Dr Mel Levine. http://www.oprah.com/tows/booksseen/2002/tows_book_20020327_mlevine.jhtml. Date of access: 4 July 2003.

PARKER, H.C. 2002. Accommodations help students with Attention Deficit Disorders. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

PARKER, J.D.A., MAJESKI, S.A. & COLLIN, T. 2004. ADHD symptoms and personality: relationships with the five-factor model. *Personality and individual differences*, 36(4):977-987, March.

PETECH. 2003. The ADHD family. http://www.petech.ac.za/health/Health Sense2003-010.html Date of access: 16 July 2002.

REPUBLIC OF SOUTH AFRICA. 1996. Constitution of the Republic of South Africa, Act 108 of 1996. Pretoria: Government Printer.

ROSNOW, R.L. & ROSENTHAL, R. 1996. *Beginning behavioural research: a conceptual primer. 2nd Edition.* Upper Saddle River, N.J.: Prentice Hall. 447 p.

SALEND, S.J. 1999. The impact of inclusion on students with and without disabilities and their educators. *Remedial and special education*, 20(2):114-127, March/April.

SERGEANT, A.T., GEURTS, H., HUIJBREGTS, S., SCHERES, A. & OOSTERLAAN, J. 2003.
The top and the bottom of ADHD: a neuropsychological perspective. *Neuroscience & behavioural reviews,* 27(7):583-592, Nov.

SOLANTO, M.V. 2002. A parent's guide to helping kids with learning difficulties: inattentive AD/HD: overlooked and under treated? http://www.schwablearning.org. Date of access: 6 October 2003.

ST LEGER, L. 2001. Schools, health literacy and public health: possibilities and challenges. *Health promotion international*, 16(2):198-205.

SOUTH AFRICAN FEDERAL COUNCIL ON DISABILITY (SAFCD). 1995. Statement on disability. Durban: SAFCD.

SWART, D. & REDDY, P. 1999. Establishing networks for health promoting schools in South Africa. *Journal of school health*, 69(2):47-50.

TALJAARD, E. sa. Teachers manual. Accept, don't reject. Publication of the support Group for Attention Deficit Hyperactivity Disorder of Southern Africa.

TALJAARD, E. 2002. Algemene oorsig (Terminologie, simptome, oorsake, kosintervensie asook natuurlike intervensie). (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

TAYLOR, J.F. 2002a. The ABC's of ADD and related conditions for parents, teachers, counsellors and other involved caregivers. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

TAYLOR, J.F. 2002b. Why can't my child behave? Treating ADD/H the natural way - a closer look at the role of nutrition in treatment. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

TAYLOR, J.F. 2002c. Teaching strategies. (Unpublished paper delivered at the International Conference on ADHD and co-morbid disorders, 6-9 March, Pretoria, Gauteng.)

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION (UNESCO). 1994. The Salamanca statement and framework for action on special needs education. World Conference on Special Needs Education: access and quality. Salamanca: Ministry of Education and Science, Spain.

UNIVERSITY OF MARYLAND STUDY. 2004. Treat the parents of ADHD children, too. Ascribe health and fitness news service. Ebscohost Research Databases.

VOCKELL, H.L. & ASHER, W.J. 1995. *Educational research*. 2nd Edition. Upper Saddle River, N.J.: Prentice Hall. 489 p.

WAGNER, M. 1991. *Dropouts with disabilities: What do we know? What can we do?* Menlo Park: SRI International.

WALLIS, C. 1994. Attention Deficit Hyperactivity Disorder: life in overdrive. http://www.mentalhealth.com/magl/p51-adhd.html Date of access: 11 June 2002.

WILMOT, J., AUERBACH, F., DESAI, Z., GILIOMEE, H., JORDAN, P., KROG, A., KULATI, T., LEHOKO, K., LEIBOWITZ, B. & TLAKULA, P. 2000. Values, education and democracy: Report of the working group on Values in Education. http://www.gov.za/reports/2000/education.htm Date of access: 8 February 2002.

WOODWARD, I., DOWDNEY, L. & TAYLOR, E. 1997. Child and family factors influencing the clinical referral of children with hyperactivity: a research note. *Journal of child psychology and psychiatry*, 38(4):479-485.

YELL, M. & DRASGOW, E. 1999. A legal analysis of inclusion. *Preventing school failure,* 43(3):118-123, Spring.

ZENTALL, S.S., HARPER, G.W. & STORMONT-SPURGIN, M. 1993. Children with Hyperactivity and their organizational abilities. *Journal of educational research*, 87(2):112-117, November/December.

ZINKIL, S. & GILBERT, T. 2000. Parent's view: What to consider when contemplating inclusion. *Intervention in school and clinic*, 35(4):224-228, March.

APPENDICES

APPENDIX 1: Questionnaire on ADHD

Questionnaire: ADHD

Dear colleague

I am currently busy with my Masters degree in Education at the North-West University (Potchefstroom Campus) and I am researching the inclusion of learners with Attention Deficit Disorder (ADHD) in classrooms. I feel that by setting up guidelines for teachers it will be easier for these learners to fit into the class situation and to reach their full potential.

I kindly ask you to complete the following questionnaire as honestly as you can. The information will remain confidential and no school or educator's name will be mentioned in my research. The first part of the questionnaire covers biographical details about yourself, which you must please complete by ticking the appropriate block.

The questionnaire consists of a number of items regarding approaches/strategies for accommodating ADHD learners and you must please indicate the importance of these approaches/strategies and how often you implement them.

I appreciate your valuable time and professional input very much.

Kind regards

Ms Tracey Stewart

Biographical Details of Educator

Gender:

Male ☐ Female ☐

Age:

20 - 25 ☐
26 - 30 ☐
31 - 35 ☐
36 - 40 ☐
41 - 45 ☐
46 - 50 ☐
51 - 55 ☐
56 - 60 ☐
61 - 65 ☐

Years of teaching experience:

0 - 5 ☐
6 - 10 ☐
11 - 15 ☐
16 - 20 ☐
21 - 25 ☐
26 - 30 ☐
31 - 35 ☐
36 - 40 ☐

Qualifications:

3 year teaching Diploma ☐
4 year teaching Diploma ☐
Teaching Degree ☐
B.Ed Hons ☐
M.Ed ☐
D. Ed ☐

Type of school:

Preparatory: Gr 1 to Gr 3 ☐
Primary: Gr 1 to Gr 7 ☐
Combined: Gr 1 to Gr 12 ☐

Grade level that you currently teach:

Gr 1 ☐ Gr 5 ☐
Gr 2 ☐ Gr 6 ☐
Gr 3 ☐ Gr 7 ☐
Gr 4 ☐

Questionnaire on ADHD

INSTRUCTIONS

Please respond to the items in the questionnaire by using the following two 5 point scales:

Scale A: Importance	Scale B: Frequency
1 - No importance	1 - Never
2 - Little importance	2 - Very seldom
3 -Uncertain	3 - Seldom
4 - Important	4 - Most of the time
5 - Very important	5 - Always

For Example: How important do you rate the following statement and how frequently do you implement it:

Placing the learner as near as possible to your table in the classroom

Scale A: Importance					Scale B: Frequency				
1	2	3	4	5	1	2	3	4	5
			X				X		

A Didactic Approaches

Please indicate in **Scale A** how important you rate the following didactic approaches in teaching ADHD learners in your classroom and please indicate in **Scale B** how frequently you implement these approaches.

		Scale A: Importance					Scale B: Frequency				
		1	2	3	4	5	1	2	3	4	5
1	Allowing learners extra time to finish work										
2	Giving tasks one at a time										
3	Breaking up tasks into smaller units										
4	Providing clues to help learners to finish tasks										
5	Numbering and sequencing of tasks that learners must do										
6	Highlighting important facts/concepts for learners *"This is important..."*.										
7	Reminding learners of deadlines for handing in tasks/assignments										
8	Emphasizing the quality of work expected and not necessarily the quantity of work to be done										
9	Giving tasks that require physical activity, e.g. measuring objects during a maths lesson										
10	Teaching to the different learning styles of the learners										
11	Providing learning aids to the learners										
12	Utilizing a multi-sensory (e.g. visual, auditory, tactile, kinaesthetic) teaching approach										
13	Utilizing small class-group discussions										

14	Teaching study techniques e.g. keywords, association, rhymes, mnemonics, flow charts, diagram's, etc										
15	Teaching self- monitoring behaviour (e.g. putting up of hand, not shouting out, waiting turn, etc)										
16	Assisting learners in setting short term goals for themselves										
17	Not insisting on correct responses all the time when asking questions										
18	Supplementing oral instructions with written instructions										
19	Using simple, clear and understandable language when speaking to learners										
20	Giving instructions in a consistent manner to learners										
21	Repeating instructions in a calm positive manner										
22	Allowing learners to feel comfortable when seeking assistance										
23	Giving clear and non-confusing instructions to learners e.g. *"Pack away your books now".*										
24	Keeping lessons (direct instruction) short and then allow for a short break										
25	Checking for misunderstanding regularly										
26	Encouraging and accepting different methods of problem-solving										
27	Allowing learners to assess themselves										
28	Utilizing simple examples and exercises and gradually introduce more difficult/complex work										
29	Allowing learners to repeat instructions that you have given to them										
30	Insisting on *"perfect"* handwriting										
31	Allowing learners to print when they experience problems with cursive writing										
32	Allowing peer assistance during class work										
33	Beginning or ending lessons with activities like journal writing or reading										
34	Allowing learners to use a note taker or tape recorder										
35	Supervising the writing down of homework										
36	Allowing learners to make choices and teaching them how to do so										
37	Involving learners during lessons										
38	Making use of group work during lessons										
39	Teaching listening skills										
40	Using colour to emphasize important information during lessons										
41	Putting away visual aids to avoid distraction after they were used										

42	Being flexible in your teaching approach										
43	Making use of oral assessments										
44	Beginning and ending lessons in a *"fun"* way										
45	Reducing unnecessary copying of work by giving written handouts to learners										
46	Keeping individual work periods short										
47	Giving independent work to do if learners are bored										

B Behaviour management

Please indicate in **Scale A** how important you rate the following strategies for managing the behaviour of ADHD learners in your class and please indicate in **Scale B** how frequently you implement these strategies

B1 Strategies related to teacher behaviour

		Scale A: Importance					Scale B: Frequency				
		1	2	3	4	5	1	2	3	4	5
1	Making use of proximity and touch										
2	Making use of voice regulation										
3	Moving around the classroom during lessons										
4	Calling on learners, only when their hands are raised										
5	Establishing eye contact with learners										
6	Calling on learners to get their attention										
7	Taking time to talk alone to learners										
8	Acknowledging positive behaviour of learners										
9	Speaking not more than 3 times to learners before applying class rules										
10	Avoiding arguments with learners										
11	Avoiding compliments being followed up with a negative tail such as: *" Well done, but don't do it again".*										
12	Comparing learners or siblings with one another										
13	Reminding learners to take their medication in front of others										
14	Keeping verbal reprimands immediate and unemotional										
15	Acknowledging positive behaviour with compliments										
16	Keeping sensitivities of the learners in mind										
17	Knowing what triggers learners' behaviour										
18	Trying to encourage learners' self-esteem										
19	Trying to provide a co-operative, non-competitive social climate in the classroom										
20	Trying to meet the needs and interests of learners										
21	Trying to keep up to date with regard to knowledge on ADHD										

22	Knowing how to manage the situation, when learners' levels of frustration are high										
23	Focusing not only on the learner's problem(s) but on the child as a whole person										
24	Looking for opportunities for learners to display leadership										
25	Trying to teach the class that everyone is different and should be accepted as such										
26	Trying to determine each learner's strengths										
27	Teaching learners different ways to handle social situations										
28	Discussing coping mechanisms with learners										
29	Teaching learners about interpersonal relationships										
30	Avoiding ridicule and criticism										
31	Having a back up plan when a particular strategy fails										
32	Making learners responsible for their own behaviour										

B2	**Strategies for establishing structure and routine**	**Scale A: Importance**					**Scale B: Frequency**				
		1	2	3	4	5	1	2	3	4	5
1	Establishing a structured daily classroom routine										
2	Teaching planning and organizational skills to learners										
3	Avoiding over-stimulation of learners										
4	Being consistent and predictable in your approach to learners										

B3	**Disciplinary strategies**	**Scale A: Importance**					**Scale B: Frequency**				
		1	2	3	4	5	1	2	3	4	5
1	Making use of a points system for rewarding positive behaviour										
2	Making use of a behavioural contract which you have negotiated with learner										
3	Playing games and exercises that practise the desired behaviour										
4	Rewarding good behaviour immediately										
5	Making use of a behaviour chart to plot positive/negative behaviour										
6	Ignoring minor behavioural transgressions										
7	Managing the class discipline without being over-strict										
8	Knowing how to handle conflict situations										
9	Making use of *"time out"* as a disciplinary measure										
10	Acting on negative (unacceptable) behaviour immediately										
11	Applying disciplinary measures in a consistent and fair manner										

12	Focusing on the misbehaviour and not on the learner										
13	Applying class rules consistently										
14	Acting as a role model for positive behaviour on a daily basis										

B4	**Strategies related to learner behaviour**	**Scale A: Importance**					**Scale B: Frequency**				
		1	2	3	4	5	1	2	3	4	5
1	Rewarding learners for every task that he/she successfully completes										
2	Establishing a relaxed classroom atmosphere										
3	Teaching learners to attempt one thing at a time										
4	Allowing learners to take short breaks during work sessions										
5	Allowing learners to make use of a notebook with dividers to organize work										
6	Taking in unfinished work from learners										
7	Encouraging learners to write down questions which they would like to ask later										
8	Encouraging learners to ask for a repetition of instructions if they feel unsure										
9	Encouraging learners to ask you first if they experience a problem with the work										
10	Encouraging learners to look at you when you are explaining something										
11	Encouraging learners to make one good comment each day										
12	Encouraging learners to arrive early and to be friendly										
13	Allowing learners only to get ready to leave when the bell rings										
14	Encouraging learners to have a *"study buddy"* in class										
15	Encouraging learners to get exercise, enough sleep and a balanced diet										
16	Encouraging learners to make use of *"self-talk"* to monitor their own behaviour										
17	Teaching learners to listen for clues during tests										
18	Teaching learners to cross out errors with a thin line in their books										

B5	**Structuring the classroom environment**	**Scale A: Importance**					**Scale B: Frequency**				
		1	2	3	4	5	1	2	3	4	5
1	Keeping an extra supply of pencils and books in class										
2	Making use of classical background music										
3	Limiting distractions in the classroom										
4	Seating the learner alone, near teacher or next to a positive role model										
5	Increasing distance between desks										

6	Encouraging learners to get rid of desktop distractions										
7	Controlling for glare with curtains or the positioning of the desks										
8	Attempting to reduce the visual field of the learner										
9	Attempting to define desk borders if the learners do not have their own desks										
10	Placing learner with his/her back to the class										
11	Allowing learners to discharge energy at certain intervals										
12	Using distracting objects with care (pointers etc)										
13	Reducing class distracters to the minimum										
14	Ensuing that there is sufficient light in your classroom										
15	Making use of timing devices to let the learners know how much time is left										
16	Controlling auditory distractions										
17	Making use of white noise, e.g. CD's with the sound of running water, etc										
18	Demarcating pictures/illustrations with thick Koki										
19	Reducing backgrounds on pictures										

C Parental involvement

As a teacher how would you rate the importance of the following statements in accommodating ADHD learners in your class and please indicate how often you implement these approaches

		Scale A: Importance					Scale B: Frequency				
		1	2	3	4	5	1	2	3	4	5
1	Meeting with parents regularly										
2	Contacting parents frequently by means of written notes										
3	Getting parents involved in the learner's school work										
4	Getting parents involved in the general school activities										
5	Assisting parents to read up on ADHD and to keep up to date with the latest developments										
6	Asking parents to inform you of new developments regarding the management of their child's ADHD										
7	Asking parents to inform you about any changes regarding the learner's home situation										

Thank you for your co-operation

APPENDIX 2

Appendix 2: Means: Scale A. (Ratings of importance)

A: Didactic approaches					
Item	**N**	**Mean**	**Std Dev**	**Minimum**	**Maximum**
1	100	4.0000000	0.6195469	2.0000000	5.0000000
2	100	4.3700000	0.6614187	2.0000000	5.0000000
3	99	4.0505051	0.7336481	1.0000000	5.0000000
4	99	4.2626263	0.5990785	3.0000000	5.0000000
5	100	4.4400000	0.7563869	2.0000000	5.0000000
6	100	4.4400000	0.6714976	3.0000000	5.0000000
7	100	4.4500000	0.7299509	1.0000000	5.0000000
8	100	4.4600000	0.7023769	2.0000000	5.0000000
9	99	4.1616162	0.7100887	1.0000000	5.0000000
10	99	4.2828283	0.7148627	2.0000000	5.0000000
11	100	4.4500000	0.5924611	3.0000000	5.0000000
12	100	3.9500000	0.8453677	1.0000000	5.0000000
13	99	4.3232323	0.6519716	2.0000000	5.0000000
14	100	4.3600000	0.6438520	3.0000000	5.0000000
15	100	4.6900000	0.4860685	3.0000000	5.0000000
16	100	4.3100000	0.5630903	3.0000000	5.0000000
17	99	3.8080808	0.8532862	1.0000000	5.0000000
18	100	4.3500000	0.6256310	3.0000000	5.0000000
19	100	4.6200000	0.5276209	3.0000000	5.0000000
20	100	4.5100000	0.6112580	2.0000000	5.0000000
21	100	4.5600000	0.5187397	3.0000000	5.0000000
22	100	4.7000000	0.4819992	3.0000000	5.0000000
23	100	4.5800000	0.5160064	3.0000000	5.0000000
24	100	4.3700000	0.7057484	2.0000000	5.0000000
25	100	4.6200000	0.5646130	2.0000000	5.0000000
26	99	4.4747475	0.6118462	3.0000000	5.0000000
27	100	4.1700000	0.7114504	2.0000000	5.0000000
28	100	4.4300000	0.5366375	3.0000000	5.0000000
29	100	4.1700000	0.7528397	1.0000000	5.0000000
30	100	2.8500000	1.1492202	1.0000000	5.0000000
31	99	3.5555556	1.0711640	1.0000000	5.0000000
32	100	4.0300000	0.6583573	2.0000000	5.0000000
33	100	3.6300000	1.0411241	1.0000000	5.0000000
34	98	3.0918367	1.0462179	1.0000000	5.0000000
35	100	3.9600000	1.0436920	1.0000000	5.0000000
36	97	4.2061856	0.7629185	1.0000000	5.0000000
37	100	4.5800000	0.5537749	2.0000000	5.0000000
38	100	3.8100000	0.8372031	1.0000000	5.0000000
39	99	4.4141414	0.6702132	2.0000000	5.0000000
40	99	4.2121212	0.7460471	2.0000000	5.0000000
41	100	3.9600000	0.8518548	1.0000000	5.0000000
42	99	4.3535354	0.6113406	2.0000000	5.0000000
43	100	4.1300000	0.6614187	2.0000000	5.0000000
44	100	3.9800000	0.8162491	2.0000000	5.0000000
45	99	4.0505051	0.6906628	2.0000000	5.0000000
46	100	4.1000000	0.6741999	2.0000000	5.0000000
47	100	4.4100000	0.6528106	2.0000000	5.0000000

B1: Strategies related to teacher behaviour					
Item	N	Mean	Std Dev	Minimum	Maximum
1	100	4.0400000	0.7774603	2.0000000	5.0000000
2	100	4.4500000	0.5388915	3.0000000	5.0000000
3	100	4.4700000	0.7028801	2.0000000	5.0000000
4	100	4.2000000	1.0636320	1.0000000	5.0000000
5	100	4.8100000	0.4425591	3.0000000	5.0000000
6	100	4.5300000	0.6269213	2.0000000	5.0000000
7	100	4.4200000	0.6060303	3.0000000	5.0000000
8	99	4.7777778	0.4416009	3.0000000	5.0000000
9	100	4.1700000	0.9749903	1.0000000	5.0000000
10	100	4.3200000	0.7769404	2.0000000	5.0000000
11	99	3.8787879	1.0426881	1.0000000	5.0000000
12	99	2.1212121	1.5069413	1.0000000	5.0000000
13	100	2.1800000	1.3437472	1.0000000	5.0000000
14	100	3.0900000	1.4290987	1.0000000	5.0000000
15	100	4.6900000	0.5630903	2.0000000	5.0000000
16	100	4.6900000	0.4860685	3.0000000	5.0000000
17	99	4.5151515	0.6121831	3.0000000	5.0000000
18	99	4.7070707	0.4792112	3.0000000	5.0000000
19	100	4.4600000	0.6263571	3.0000000	5.0000000
20	100	4.6000000	0.6195469	2.0000000	5.0000000
21	99	4.4545455	0.7596015	2.0000000	5.0000000
22	100	4.2600000	0.7469805	2.0000000	5.0000000
23	99	4.1313131	0.9329180	1.0000000	5.0000000
24	99	4.4343434	0.6414527	2.0000000	5.0000000
25	100	4.6300000	0.5252224	3.0000000	5.0000000
26	100	4.5600000	0.5563227	3.0000000	5.0000000
27	100	4.4000000	0.6356417	3.0000000	5.0000000
28	100	4.1900000	0.7479940	2.0000000	5.0000000
29	100	4.4000000	0.6030227	3.0000000	5.0000000
30	100	4.6500000	0.6571287	1.0000000	5.0000000
31	99	4.5555556	0.5387480	3.0000000	5.0000000
32	100	4.5800000	0.6224747	3.0000000	5.0000000
B2: Strategies for establishing structure and routine					
Item	N	Mean	Std Dev	Minimum	Maximum
1	100	4.7100000	0.4983812	3.0000000	5.0000000
2	99	4.6060606	0.5310402	3.0000000	5.0000000
3	99	4.1616162	0.7786313	1.0000000	5.0000000
4	100	4.5600000	0.6247424	2.0000000	5.0000000

B3: Disciplinary strategies					
Item	N	Mean	Std Dev	Minimum	Maximum
1	99	4.0000000	1.0400157	1.0000000	5.0000000
2	98	4.0000000	0.9081532	1.0000000	5.0000000
3	100	3.9400000	0.8624607	1.0000000	5.0000000
4	100	4.6900000	0.5259911	3.0000000	5.0000000
5	98	3.5408163	1.3406289	1.0000000	5.0000000
6	98	3.4081633	1.0535823	1.0000000	5.0000000
7	100	4.2900000	0.5910955	3.0000000	5.0000000
8	100	4.4400000	0.5741925	3.0000000	5.0000000
9	100	3.0600000	1.2698525	1.0000000	5.0000000
10	99	4.1515152	0.9298193	1.0000000	5.0000000
11	100	4.6000000	0.6030227	1.0000000	5.0000000
12	100	4.1600000	1.1782541	1.0000000	5.0000000
13	100	4.6600000	0.5359783	2.0000000	5.0000000
14	100	4.7400000	0.4631905	3.0000000	5.0000000
15	100	4.2900000	0.7951240	1.0000000	5.0000000
16	100	4.6500000	0.4793725	4.0000000	5.0000000
17	100	4.5100000	0.5411361	3.0000000	5.0000000
18	100	4.0800000	0.8490042	1.0000000	5.0000000
B4: Structuring the classroom environment					
Item	N	Mean	Std Dev	Minimum	Maximum
1	100	4.2700000	0.7365631	2.0000000	5.0000000
2	100	3.5600000	1.1487367	1.0000000	5.0000000
3	99	4.3131313	0.7511415	2.0000000	5.0000000
4	100	4.0600000	1.0523663	1.0000000	5.0000000
5	100	4.0300000	0.9791256	1.0000000	5.0000000
6	100	4.4300000	0.7818006	1.0000000	5.0000000
7	100	4.1400000	0.9746276	1.0000000	5.0000000
8	97	3.8659794	0.9961265	1.0000000	5.0000000
9	99	3.9393939	1.0083142	1.0000000	5.0000000
10	97	3.1134021	1.5402671	1.0000000	5.0000000
11	99	3.9797980	0.9473895	1.0000000	5.0000000
12	100	4.3300000	0.7528397	1.0000000	5.0000000
13	100	4.3600000	0.7722458	1.0000000	5.0000000
14	100	4.6600000	0.5167888	3.0000000	5.0000000
15	100	4.3100000	0.8250497	1.0000000	5.0000000
16	100	4.4600000	0.6578201	1.0000000	5.0000000
17	97	3.2268041	1.3424570	1.0000000	5.0000000
18	98	3.5000000	1.1052825	1.0000000	5.0000000
19	99	3.8787879	1.0229282	1.0000000	5.0000000
C: Parental involvement					
Item	N	Mean	Std Dev	Minimum	Maximum
1	100	4.4400000	0.6562828	2.0000000	5.0000000
2	99	4.3838384	0.7916280	2.0000000	5.0000000
3	99	4.5252525	0.6599851	2.0000000	5.0000000
4	100	4.5200000	0.6110101	3.0000000	5.0000000
5	100	4.3400000	0.8435136	1.0000000	5.0000000
6	100	4.3100000	0.8841477	1.0000000	5.0000000
7	100	4.5800000	0.6060303	3.0000000	5.0000000