Overview of Chapter 2

Introduction

Attention problems

Attention problems as a medical phenomenon

Incidence of attention problems

Symptoms of attention problems

Comorbidity

Causes of attention problems

Management of attention problems

Conclusion
2. Introduction

Attention is the ability to focus one’s mind distinctly on one particular stimulus among many different internal and external stimuli (Holz & Lessing, 2001:107). According to Amen (2001:13) learners with attention difficulties have trouble sustaining effort over prolonged periods of time. Their minds wander and they frequently get distracted, thinking about or doing things other than the task at hand. All learners can be restless, daydream and sometimes act impulsively, but when it affects the learner’s performance at school, social relationships and behaviour at home, there is a problem and the learner must be assisted (Amen, 1998:4).

It is important to provide the following literature review on attention problems, in order to expound the difficulties experienced by a learner with an erratic attention span, and why it is essential to intervene. Since the focus of this study is on attention problems the term Attention Deficit Disorder (ADD) will be used, which for the purpose of this study includes any of the three models: attention problems; attention problems with impulsivity and/or hyperactivity; attention problems with hyperactivity.

2.1. Attention Problems

Inattentive learners have trouble keeping their minds on one thing at a time. They get bored quickly and are distracted by irrelevant sights and sounds (Anon, 2006:190). Learners with attention problems often have to work twice as hard to experience even only half the success of their peers. Even then, branded as lazy, unmotivated, under-achieving, anti-social or having a behaviour problem, may be their only reward (Serfontein, 1995:8).

Serfontein (1995:9) describes attention problems as a “hidden handicap” compared to visible handicaps such as blindness, deafness, cerebral palsy or intellectual handicaps. If a handicap is considered to be a restriction of a child's abilities to develop appropriately, a child with learning disabilities or with developmental behavioural disorders is just as disadvantaged as one who is physically handicapped (Serfontein, 1995:9).
Taylor (2001:4) recognized the collection of traits that are considered as indicative of attention problems as so vast, that one child could appear and function completely differently from the next child who also has attention difficulties. Taylor (2001:8) found that learners with attention problems displayed behavioural patterns that were characterized by difficulty in identifying information that required sustained attention. Maintaining attention to relevant classroom directions, information and stimuli, is very difficult and would negatively affect school performance (Taylor, 2001:8).

From a study that Serfontein (1995:52) conducted he asserted that from a learning point of view, the diminished short-term memory appeared to be the biggest disadvantage. All new learning had to be held for a period of time so that when the learner was exposed to the same information again, the earlier information could be recognized, reinforced and eventually consigned to long-term memory. Learners with attention problems had particular difficulty with retention of auditory (or verbal) information. Consequently, when they learned something new or were re-exposed to it a week or two later, they are unable to reinforce the previous learning or to recall it. Consequently, if there is no short-term memory, learning will be limited (Serfontein, 1995:52).

2.1.1. Attention problems, as a medical phenomenon.

Amen (2001:12) states that during the last decade hundreds of books have been written about children who have difficulty in sustaining attention. Seminars have been held, studies have been conducted and experts have been engaged in discussions and arguments concerning the problem of sustained attention. A short attention span is the hallmark symptom of this problem. However, learners with attention problems do not have a short attention span in every activity or subject, and this often fools inexperienced parents and teachers.

Medical and psychological experts have agreed that the problems created by a lack of attention often create social, emotional and functioning deficits which can be classified as a disorder (DSM IV,1995:662). This disorder is described below:
The term ADHD (Attention Deficit Hyperactivity Disorder) is often used interchangeably with ADD (Attention Deficit Disorder). The symptoms can be categorized into three main areas: (NIMH, 2010; Picton, 2002:3; Taylor, 2001:2; Salend & Rohena, 2003:261; Amen, 2001:12)

- Attention problems with an inability to sustain attention accompanied by hypoactivity. In a learner this inattention manifests as forgetfulness, disorganization, careless mistakes, and losing things (Picton, 2002:3);

- Attention problems and impulsiveness. Learners displaying impulsive behaviour will blurt out answers in class, interrupt others, and have problems waiting their turn (Taylor, 2001:2); and

- Attention problems jointly displayed with hyperactive movement. Learners display hyperactive behaviour like fidgeting, continuous “ants in the pants” movement, leaving their classroom seat and so forth (Taylor, 2001:2).

This classification is a useful construct for medical doctors who typically will manage any child who meets these criteria with stimulant medication. There are, however, several reasons why a learner can experience problems with attention and this study will look at attention problems at large (Demos, 2005:133).

2.2. Incidence of attention problems

Many experts on attention problems classify ADD as the most common childhood psychiatric condition (Taylor, 2001:1; Salend & Rohena, 2003:260; Hardy, Warmbrodt & De Basio 2004:126; Sun, Zang, Zeng, Liu, Li, Seidman, Faraone & Wang, 2005:340). However, the symptoms of attention problems are not the only ones that many of these learners have to contend with, as ADD is often comorbid with other psychiatric problems such as mood and anxiety disorders, Tourette syndrome (cf. 2.7), oppositional-defiant disorder, conduct disorder, obsessive-compulsive disorder, other learning disorders and developmental disorders as well as speech, language and auditory disorders (Mash & Wolfe, 2008:22).
Attention problems may vary with age and gender (Meyer, Eilertsen, Sundet, Tsifularo, & Sagvolden, 2004:128). Some studies have found that boys are prone to experience acting out behaviour due to an inability to sustain attention. Other studies showed that girls have just as much difficulty in controlling their attention, but because they do not ‘act out’, the difficulties go unnoticed (Venter, 2004:445; Kokot, 2006:144). Not surprisingly, therefore, boys are three to nine times more likely than girls to be diagnosed as ADHD (Salend & Rohena, 2003:260).

Attention problems also vary along a continuum of mild to severe and are influenced by individual characteristics, as well as the environment (Dillon & Osborne, 2006:4). Different researchers tend to give a different value to the role of attention problems in learning difficulties (Kokot, 2006:134).

Estimates of the prevalence of attention problems among school-age children differ for different studies and range from 3% to 10% (Dillon & Osborne, 2006:11), 4% to 6% (Anona, 2008:19); and 3% to 5% (Taylor, 2001:2; Picton 2002:3; Salend & Rohena, 2003:260). Referrals for attention problems among gifted children have also been growing (Kokot, 2003:130).

As can be seen from the above numbers, the reality of learners struggling with attention problems in school is disconcerting. According to Picton (2002:111) based on these numbers the possibility of a teacher having one or two hyperactive or inattentive learners in the class is highly probable. Teachers often do not know how to identify learners with attention problems, and may not know how best to deal with them should they be identified. The difficulty arises when they have to adapt their own teaching style to accommodate these learners. The scenario is further complicated by questions as to whom the learners should be referred to for extra support. Managing to survive as a teacher with the many demands being made by learners, with not only attention problems, but who often have accompanying problems, is very stressful for teachers. Learners with attention problems are thus often not supported well by the teachers in their school environment (Picton, 2002:111).
2.3. Symptoms of attention problems

Attention problems affect multiple areas of functioning in learners. This includes behavioural, social, cognitive and academic functioning. The symptoms of poor attention control are highly variable and also manifest to varying degrees. (Holz & Lessing, undated:240; Salend & Rohena, 2003:260; Anon., 2008b:229). The uniqueness and individuality of learners with attention problems are very well described by Taylor (2001:4). He explains the different manifestations of attention problems as follows:

"Imagine giant decks of 200 cards for all children. On each card is a trait of the ADHD syndrome and its overlapping conditions: difficulty following teacher's instructions, bed-wetting, entering a sibling's room without permission, excessive flatulence, liking to take long showers and baths, craving cheese and sugar, grinding teeth, talking too loudly for the situation, sweating while asleep, and so forth. Each child receives some cards from the deck that represent particular behaviours. Some children receive only a few cards. Others might receive over 100 cards.

Even though two ADHD -identified children might have the same number of cards – say, 103 – the collection of traits that one child has is different from the array occurring in the next child. And each of those 103 traits is constantly fluctuating in severity, acted upon by idiosyncratic factors such as the amount of sleep obtained the night before and even what was eaten for breakfast."

This provides the reason why attention problems are so varied, why it manifests differently in individual learners and why it is often so difficult to identify and diagnose the source of the attention problems.

Learners who experience attention problems have difficulty with organization, commencing work, listening skills and controlling motor output. Meyer et al. (2004:122), Venter, (2004:445); Holz & Lessing, (2001:106), and Kokot, (2006:142) add the following to the list of symptoms that can indicate attention problems:
The learner:

- fails to give close attention and makes careless mistakes;
- shows difficulty in sustaining attention in play activities;
- does not seem to listen when spoken to directly;
- often avoids mental activities;
- loses things;
- are distracted by extraneous stimuli; and
- can be forgetful with daily chores, such as feeding pets (Brown, 2006 - 2007: 25; Venter, 2004:445; Hardy, Warmbrodt & Debasio, 2004: 428).

According to Levine (2002:318) adults usually survive by hiding their vulnerabilities and promoting their talents, but young children at school usually do not have the same skills. Levine asserts that without considering the individual's learning style, all the learners are mostly taught as a group in the same way. This can increase performance problems which will strongly increase anxiety and stress levels and decrease self-worth and self-esteem (Levine, 2002:318). Serfontein (1995: 11) feels that from a humane perspective society is obligated to help learners who suffer at school because of weak attention controls.

Inattention prevents the learner from making academic progress. The learner forgets what has been taught, falls behind, cannot catch up and experience feelings of frustration and inadequacy. The learner also experiences academic difficulties, a low self-esteem as well as poor interpersonal relationships with peers and family (Greenop & Kann, 2007:331; Shokane, Rataemane & Rataemane, 2004:67; Meyer et al., 2004:123). At school the high level of inattentiveness and its negative impact on school performance may cause frustration, behavioural problems, social rejection, low self-esteem and a general dislike of school (Levine, 2002:319).

### 2.3.1. Physical symptoms

The above comorbid conditions increase symptoms of inattention and poor school performance. To this extensive list Kokot (2006:142) adds physical problems that could also be a part of a specific learner's problems, such as:
- Low muscle tone which can be caused by active, uninhibited primitive reflexes;
- Visual problems such as light sensitivity, the loss of peripheral vision due to stress as well as the inability of the eyes to converge on the paper plane;
- Receptive/expressive language problems initiates problems with understanding what is said to the learner and also causes difficulty in expressing thoughts;
- Auditory perceptual problems refer to auditory processing problems and can include hypersensitivity to sounds which will cause the learner to block out sounds;
- Memory disorders include the inability to retain information in short term memory because of the lack of attention given to the incoming data;
- Dyslexia refers to learning problems such as reading and spelling difficulties;
- Speech articulation problems occur when the learner cannot reproduce sounds and words, because the sounds are not perceived correctly and clearly (Berard, 1993:19).

2.3.2. Manifestations in the teenage years

Taylor (2001:34) found that when the needs of the learner with attention problems are not met, it can lead to oppositional behaviour, conduct disorders, abuse of substances and/or underachievement in the teenage years. Teenagers with attention problems seek stimulation, and thus often engage in adrenaline stimulating activities, like extreme sports, and often abuse drugs and stimulating substances (Savitz & Jansen, 2005:74; Wright & Van Staden, 2005:6; Salend & Rohena, 2003:261; Amen, 2001:171; Holz & Lessing, 2001:107; Taylor, 2001: 34-36;).

Alcohol and marijuana are abused to settle the internal restlessness they feel, while cocaine and methamphetamines are used to make them feel more energetic. Nicotine and caffeine are common, and often overlooked, stimulants and are frequently used by teenagers with attention problems (Amen, 2001:171).

Shokane et al. (2004:69) declare that up to 30% to 40% of teenagers with attention problems progress into adulthood with antisocial personalities. There are also greater risks for morbidity and mortality, with higher rates of suicide under these teenagers.
2.3.3. Social, emotional and behavioural effects

The inability to pay sustained attention, disorganization and poor motivation interfere with learning and academic performance, but also with social interactions, friendships and emotional development (Salend & Rohena, 2003:261). According to Levine (2002:52), dysfunctions of the attention controls often lead to chaos in the learning process. Moreover, when the attention controls operate effectively, they help a learner not only to concentrate, to be productive and to learn, but to behave appropriately. It is commonly believed that the earlier you detect and deal with a learner’s dysfunction, the more likely the prevention of disastrous behavioural complications, e.g. oppositional disorder, conduct disorder and anti-social personality disorder, will be (Savitz & Jansen, 2005:75; Brown, 2006-2007: 28).

2.4. Comorbidity

Handelman (2001:1) states that problems co-existing with attention problems can be very stressful. Only 25% to 40% of children and teenagers have isolated attention problems. Mostly, there are additional problems that the learner has to deal with (Shokane et al., 2004:67-70).

According to Shokane et al. (2004:67), as well as Dillon and Osborne (2006:4), there are a myriad of disorders that mimic the manifestation of attention problems. This includes a high rate of comorbidity with psychiatric disorders, e.g:

- Disruptive behavioural disorders, i.e.: consistent patterns of behaviours that 'break the rules'; challenging behaviours; disobeying orders or requests; energy that seems excessive or destructive; impulsive and risk-taking behaviours (Anon., 2008b:1);
- Oppositional defiant disorder. This disorder may occur at any age. Learners are frequently defiant of the authority of parents, teachers and others, arguing and refusing to obey rules, failing to take responsibility for bad behaviour and mistakes and regular throwing temper tantrums (Anon., 2008b:1);
- Conduct disorders refer to serious misbehaviour, e.g. belligerent, destructive and threatening behaviour; physical cruelty; deceitfulness; disobedient and/ or
dishonest behaviour. This may include stealing, intentional injury, and forced sexual activity (Anon., 2006b:1).

- Depression and mood disorders. This is a prevalent, familial, and recurrent condition that generally continues episodically into adulthood. An increased risk exists for suicide, substance abuse, and behaviour problems. Children and adolescents with depression frequently have poor psychosocial, academic, and family functioning problems (Anon., 2008b:1);

- Anxiety disorders include disorders such as obsessive-compulsive disorder, panic disorder, posttraumatic stress disorder, general and social anxiety disorder (Anon., 2008b:1);

- Tic disorders, such as Tourette’s syndrome, are the persistent presence of tics which are abrupt, repetitive involuntary movements or sounds e.g. eye blinking, grimacing, head jerks and shoulder shrugs. It can also be vocal such as words or sentences or throat clearing, coughing and sniffing (Anon., 2008b:1);

- Bipolar disorder includes severe mood swings, with a manic phase and a depressed phase (Papalos & Papalos, 2000:6);

- Learning disabilities refer to problems such as short term memory, auditory attention, visual attention problems, as well as severe problems in reading, writing and mathematics (Levine, 2002:118);

- Developmental disabilities include disabilities such as intellectual impairments, Autism, Asperger syndrome, and Rett’s disorder (Barlow & Durand, 1995:671-672; Lawson, 2006:12);

- Medical disorders refer to chronic illnesses such as migraine headaches, absence seizures, thyroid problems (hypo or hyper), diabetes mellitus; and

- When the learners get older, substance abuse, dependencies and personality disorders can occur (Handelman, 2008:1).

The above mentioned problems are very important to keep in mind when a remedy is sought for the learner with attention problems. Any of these comorbid conditions can individually affect a learner’s classroom behaviour and the degree of attention that they can give to a given task (Hariharan & Pomerantz, 2008:15; Anon., 2007b:1; Hardy et al., 2004:127; Shokane et al., 2004: 67-70; Venter, 2004: 446; Taylor 2001: xiv;).
Handelman (2001:1) affirms that comorbid problems can completely dominate or change the learner’s personality. It will also influence the results of an intervention, e.g. the response to medication can be different. Some of the medications may be harmful if the co-morbid problem is for instance, anxiety. If a learner has a co-existing learning problem, this problem, as well as the attention problem, will have to be addressed to ensure a positive impact on the learner when intervention takes place (Handelman, 2001:1).

A thorough assessment will review whether there are any comorbid conditions present. It is crucial to be knowledgeable about co-existing conditions since it can affect the management of the attention problem (Handelman, 2008:1).

2.5. Causes of attention problems

Amen (2001:13) found that if learning material is presented in an engaging manner, where the learner can deliver an input without feeling threatened by possible failure, learners can often pay attention without problems. When information that is new, novel, highly stimulating, interesting or frightening is presented, most of the learners will not have trouble paying attention. The material will provide enough intrinsic stimulation to activate the brain to focus and concentrate.

Attention problems often arise when:

- the learner has no interest in the learning material,
- when the learner cannot associate with the presented information,
- when the learner’s learning style is not taken into account when teaching,
- when the learner’s ability to pay attention is not age related,
- when he has trouble understanding in class, and
- when the learner is in a state of anxiety (Levine, 2002:84-87).

Levine (2002:88) states that “...surveillance of a child’s attention controls is a critical way to monitor her overall well-being. Inattention is a distress signal, informing us that all is not well within the child or between her and her environment”.
The causes for problems in applying and maintaining attention are many and varied, and many are still unknown. Knowledge of the causes may contribute to the prevention and management of the phenomenon (Kokot, 2006:136). Kokot (2006:136) also states that intrinsic factors, such as the effect of certain food, medication and emotional difficulties as well as extrinsic factors, such as class size, the quality of tuition and the area in which the learning takes place, can be causal in effect. Learners with attention problems need their teachers to learn more about their unique learning challenges, so that the education they receive can be supportive (Salend & Rohena, 2006:260).

According to Holz and Lessing (2002:106) the following causes for attention problems have been documented:

- Environmental toxins such as:
  - Lead poisoning;
  - Exposure to cool white fluorescent lighting; and
  - Electromagnetic radiation emitted from televisions.
- Neurological and neuro-physiological factors for example:
  - Oxygen deprivation and head injuries;
  - Pregnancy and birth complications;
  - Dietary imbalances; and
  - Low iron stores (Picton, 2002:50)
- Food additives such as salicylates, food colorants and preservatives, sugar, aspartame, smoking, alcohol consumption by expectant mothers; and
- Hereditary factors. Attention problems often run in families. If parents are made aware of this, they would be better prepared for a child with attention problems and could start managing the symptoms at an early stage. This view is supported by Brown (2006-2007:28).

Venter (2004:447) adds some more possible causal agents:

- Emotional disturbances like depression, anxiety and trauma. Depression in learners in the primary school may surface as irritability rather than a depressed mood. Social withdrawal, school problems, aggression and antisocial behaviour and sleep problems also occur (Ruff, 2005:557);
• Uncontrolled epilepsy. An absence seizure manifests as attention problems, thus it appears as if the learner is not paying attention while the individual is actually having a seizure and is completely unaware of his/her surroundings; and
• Gilles de la Tourette’s syndrome. This disorder often accompanies hyperactivity and manifests as nervousness and as verbal and physical tics. Tics, an obvious symptom of Tourettes syndrome, can be explained as repetitive and involuntary body movements.

This is supported by Salend and Rohena (2003:262), amongst others, who classify causal agents for attention problems as:

• Biological factors: temperament and neuro-developmental deficits, such as slow brain waves, head injuries, anoxia (a lack of oxygen in a near-death experience). Hardy et al. (2004:130) found that there are differences in the brains of learners with attention problems. Specifically, compared to the brains of individuals without attention problems, the corpus collosum is consistently smaller, the basal ganglia and frontal lobes are also reduced in volume, and there is hypo-perfusion (a lack of sufficient blood flow). This may indicate why stimulation, as given in music training, may have the effect of diminishing inattention as blood flow through the brain is enhanced (Amen, 1998:30).

• Socio-economic underpinnings: for instance poor schooling, a lack of nutritious food and poor housing (Ruff, 2005: 557).

• Experiential factors, such as family interactions, interactions with educators, the learner’s cultural, linguistic and economic background. Failure of schools to provide learners with motivation cause learners to loose interest and display symptoms of ADD (Amen, 2001:10; Salend & Rohena, 2003:262; Shokane et al., 2004:67).

• The ability to focus and concentrate depends on the ability to filter out extraneous noises so that the individual can pay attention to what is important at that moment. If a learner has had negative experiences at school, either in the classroom or on the playground, he will be in a state of survival, be hyper alert and distractible. To be able to pay consistent attention the individual must feel safe, physically and emotionally, or the brain and body will stay alert and attention will be diverted to surrounding background stimuli. The integration of
relevant new information will not take place, learning will not occur, and recall will be impossible (Dennison, 2006:4).

- Sluggish cognitive tempo as another possible characteristic of attention problems were investigated by Carlson and Mann (in Dillon & Osborne, 2006:7). When this condition is prevalent, the learner's brain produces too many slow brainwaves, called theta waves. The ratio between the theta waves and the faster beta waves can indicate whether the learner has a cognitive deficit. Both beta and theta waves are needed for concentration and sustained attention. These brainwaves are measured on a QEEG (quantitative electroencephalograph) (cf.1.8.5.4) machine and can be seen as either a cause or a symptom of attention problems (Demos, 2005:94).

Berard AIT (cf. 4.5) has been found to have an impact on brainwaves in that the auditory training normalizes the brainwaves – too high beta waves are slowed down to an effective functioning level, and too slow theta and alpha waves are lessened by the stimulating effect of the musical training, with the result that the learner can shift attention without effort and produce the most effective brainwaves for every given situation (Demos, 2005:126).

Greenop and Kann (2007:333) found that attention problems may be caused by the lack of a stimulating environment. When material is presented that the learner finds uninteresting additional stimulation is needed for effective performance, but learners with attention problems have a particularly high threshold for this stimulation. These learners will display inattentive behaviour when levels of stimulation are low. Zentall's theory (in Greenop & Kann, 2007:332) is based on a feedback model that states that the active and distractible behaviour of learners with attention problems is due to a need to activate the brain's under-aroused state of too many slow brainwaves.

Extra stimulation, in the form of visual and auditory stimuli, will activate the brain to produce faster brainwaves and allow the learner to experience a brain state in which attention can be given without effort. Kokot (s.a.:3) feels that this might be a reason why gifted children lose interest in their work and display a lack of motivation and general disorganization.
Tanner (2007:1) found that the modern day scenario where children are less active and spend most of their extramural time in front of the television or a play station might also be an important cause of attention problems. A study done by Christalis and others (in Ruff, 2005:558) found that 10% of one year old children who watched television 2.2 hours per day, and 10% of 3 year-old children who watched 3.6 hours per day showed attention problems by age 7 years.

Slow theta waves, which are associated with attention problems, increase with 10% for every hour that a person watches television. An increase in television viewing hours for an individual child is associated with 28% increase in risk of attention problems at age 7 years (Landhuis, Poulton, Welch & Hancox, 2007:532). Landhuis et al. (2007:532) also reported that childhood TV and gaming is seen as a major health issue. Children who watch television more than two hours a day early in life can have attention problems when they are adolescents.

There is a 40% increase in attention problems among boys and girls as a result of watching television (Anon., 2007b:1). Tanner's research showed that for every hour that a child under three years watched violent child-orientated TV their risk of attention problems five years later, doubled (Tanner, 2007:1).

Ruff (2005:558) indicates that children are inundated with intense stimulation outside the classroom. Children are aroused with special effects of ultra-fast moving and often violent video games. This leads to distractibility, inattentiveness and impulsiveness, which are essentially symptoms of boredom with the pace of conventional classroom tuition. Ruff states that past generations were better poised and prepared to stay on task and attend in the classroom because of their life experiences outside the school. Thus, the current culture of TV, play station and computer games work against the development of good attention skills (Amen, 2001:29; Ruff, 2005:558).

According to Miller and Blum (2000:35) as well as Kokot (2006:136) an internal physiological state may be the most powerful force generating attention problems. Specifically, when attention problems are evident the sensory systems are most often not functioning adequately and are not monitoring and inhibiting incoming sensory stimuli. Learners with heightened awareness of incoming sensory stimuli hear
everything, feel everything and see everything. Unwanted, disorganized information flood the system and cause internal distractions. Concentration is broken and memory is therefore affected. Stress levels rise, which leads to frustration, mood swings and temper outbursts. The constant assault on the senses leave the learners weary and fatigued (Kokot, 2006:36).

Shokane et al. (2004:67-70) observed that a comorbid disorder like obsessive compulsive disorder can also in itself be a cause of inattention. Learners may recognize recurring obsessional thoughts as being a product of their own minds and therefore try to ignore or suppress them. This internal distraction may lead to inattention when they are expected to concentrate. Similarly, carrying out the compulsion, which may be silent, may cause the learner to be absent-minded in the classroom and therefore to perform poorly.

As can be seen from the above discussion, there are a myriad of reasons why a learner can display attention problems. This must be kept in mind when an intervention is sought for these learners, as different causal factors will need different solutions. The learner must always be seen as an individual, and it should be kept in mind that an intervention that assisted one learner, may or may not be effective for the next learner. On the other hand, an intervention that is not working for the majority should not be discarded as invalid for a specific individual. To really be of assistance to learners with attention problems, all interventions should be considered and evaluated (Levine 2002: 246).

2.6. Management of attention problems

Taylor (2001:58) declares that since the causes of attention problems are so varied, it is very important to determine the cause of the deficit in each individual learner before intervention is planned. There is no ‘one size fits all’.

For instance, if the cause is related to emotional problems, this should be addressed through counselling and support; if the cause is poor housing and nutrition, this underlying socio-economic problem must first be addressed before there will be a change in the way that the learner can pay sustained attention; if the cause of the
inattention is a hearing deficit and this problem can be rectified by wearing hearing aids, the inattention problem will most probably be permanently solved. In some cases the attention problem may be a life-long condition, e.g. a neurological lesion, and then the management of the deficit will have to be carefully monitored and controlled (Taylor, 2001:58).

2.6.1. A biochemical approach

Medical doctors, such as Shokane et al. (2004:67-70) and Venter (2004:3), see medication as the answer to attention deficits. Drug therapy is their treatment of choice, and most of the medications prescribed for individuals with ADHD are stimulants and anti-depressants. Amphetamines (Dexedrine and Adderall) and methylphenidate (Ritalin and Concerta) are the most commonly prescribed. The latest pharmaceutical in this arsenal is Stratera, which inhibits re-uptake of the neurotransmitter norepinephrine.

Thornton (2006:100) declares that the biochemical approach of stimulant medication has helped numerous learners in controlling their attention problems. However, not all individuals respond to stimulant medication; for instance, less than half of individuals with pervasive developmental disorders could be classified as methylphenidate-responders (Anon, 2005:1266). Moreover, there are many learners who suffer because of side-effects and others who have to stop taking the medication because of the negative effects (Thornton, 2006:100).

Venter (2004:447) lists common side-effects of the medications:

- Anorexia and weight loss;
- Insomnia and nervousness;
- Vague stomach aches/dry mouth/nausea;
- Transient dyskinetic states, tremors and tics;
- Cardiac symptoms;
- Long term effects on weight and height; and
- Skin rashes and fixed drug reactions.
These toxic effects can occur in 10% to 50% of learners. Changing the dosage, type of medication, or times of administration usually alters the effects. If it is needed, medications can help the individual learner, but it must be monitored and adjustments have to be made from time to time (Taylor, 2001:83). Some of these side-effects can themselves cause attention problems, while other side-effects are dangerous and life threatening, e.g. anorexia and cardiac problems (Thornton, 2006:103).

Ruff (2005:561) asserts that in trying to combat the negative effects of the medication, there is a trend to prescribe multiple medications simultaneously. There are some learners who are on four different medications, e.g. a stimulant substance to control attention deficit, and anti-anxiety medication, anti-depressant as well as sleeping tablets to combat the side-effect of the medication. Thus, side-effects of the primary therapeutic agent are ‘managed’ by giving more medication, which could produce even more side-effects.

The effects of the various medications influence learners in different ways, but many individuals have difficulty focusing their attention on the task at hand as a result (Thornton, 2006:108). There is a feeling that learners are increasingly subjected to quick-acting, inexpensive pharmacological treatments (with side-effects) as opposed to informed, multimodal therapy, which although not a quick-fix, may be associated with optimal outcomes (Ruff, 2005:561).

2.6.2. Alternative solutions

In the SA Psychiatry Review of 2006, the following types of support are suggested:

- Psychotherapy for the learner. The learner can explore and change self-defeating patterns of behaviour with the help of a life coach. Trauma counselling will be beneficial if the learner has developed attention problems because of past trauma. Counselling will also assist a learner with a poor sense of self, which developed because of the effects of the individual’s attention problems.

- Behavioural Therapy. Cognitive and behaviour therapy will teach the learner coping skills. Irrespective of the cause of the attention problems, advice and a
‘roadmap’ will be beneficial for the learner to know which behaviour is required for effective, optimal functioning.

- Social Skills Training. Learners with attention problems often have precocious socializing skills. They are rejected by their peers because they do not give attention to the ‘rules’ of peer interaction. To become aware of their behaviour and the impact that it has on others, and to then learn more appropriate behaviour, will enhance the individual’s social scenario.

- Support Groups. If parents attend support groups, they will feel less isolated and alienated by teachers and other parents. To acknowledge a problem with attention in their children and to obtain information about the problem is empowering.

- Parent Skills Training. This gives parents tools for effectively managing their child’s behaviour. Children with an attention deficit expect negative comments, and are all too often criticised. Hardy et al., (2004:131) confirm that family therapy is often a much needed component in the treatment of learners with attention problems.

2.6.3. Teaching skills

Dillon and Osborne (2006:11), being educators, see the management of attention problems as a learned behavioural intervention, which could and should be taught to educators and parents. Attention problems do not suggest a universal school treatment, e.g. special classes for learners with attention problems. Attention problems occur across the spectrum of other child characteristics such as ability, executive function and behaviours.

Schools should be prepared to meet the needs of these learners with excellent teaching and classroom management. Structured, and consistent use of consequences, and direct teaching of rules are needed for the effective management of learners with attention problems. The same model that is used by the school should be replicated at home (Dillon & Osborne, 2006:11-12).
According to Dillon and Osborne (2006:11-12), effective teaching skills for learners with attention problems are:

- Positive and negative consequences should be delivered immediately;
- Feedback must be given immediately;
- Reinforcers must be changed frequently to prevent rapid satiation; and
- Strong positive reinforcement must be present.

2.6.4. Other interventions

The following interventions also have a place in the treatment of attention problems, no matter what the cause of the problems:


- Learners with attention problems often have other accompanying sensory problems. Addressing these needs might not solve all the problems created by a lack of attention control. It will, however, make life easier for the learner and as a consequence for those in whose care he/she is, either at home or in school (Grey, 2009:50).

- Vision therapy. Learners might have problems with the working efficiency of the visual system. Although they might have a perfect 20/20 or 6/6 vision, the eyes might converge either in front of, or behind the page or point at which they are looking. Sometimes spectacles are needed, but often the problem can be solved with eye exercises. A behavioural optometrist will be of assistance in determining the cause of the problem as well as helping the learner to resolve the problem (Personal communication with Dr. Roger Brink, 2009).

- Educational Kinesiology practitioners may also be a valuable source of information and help. Simple movement patterns, called Brain Gym, help to maintain balance in space and provide the neurological foundation for higher functions. These Brain Gym movements have the power to reactivate whole-brain
function via the intimate connection with body movements (Dennison, 2006:87). In Educational Kinesiology the working of the eyes are integrated with the body movements.

- Ocular-vestibular treatments. Occupational therapy, the Handle Approach, Educational Kinesiology and Integrated Learning Therapy all address vestibular and other sensory system-derived problems that the learner might experience. An assessment is used to determine whether the vestibular system is hypo- or hyperactive and exercises to address the state of this or other systems are formulated accordingly, to stabilize the system. The ocular vestibular system is calmed down or awakened according to the needs of the learner (Dennison & Dennison, 1989:55).

- Auditory stimulation. There are different auditory stimulation programmes, e.g. the Tomatis approach; the Listening Programme; and Berard AIT (cf. 4.6) (Davis, 2004:12). The effect of auditory stimulation is further discussed below.

Barbara Bullard (2004:20) found that music in general is the one single input which naturally synchronizes the hemispheres of the brain. As it helps to co-ordinate the flow of the beta brainwaves between the two hemispheres, it activates the corpus collosum so that information can flow faster between the left- and right-brain half. This stimulates the top-down process of integrating the cortex with the limbic system, where the emotions are activated. Such integration helps to dissolve learning disabilities, specifically dyslexia and slow reading development. Both of these problems have as an underlying cause, a timing error between the hemispheres.

Studies have shown that hyperactive learners performed better when listening to a background of rock and roll music, than when there were no distractions. In another study it was found that up to 30% of learners with attention problems increased their academic productivity when music was playing (Abikoff, Courtney, Szeibel, Koplewicz, 1996:238).

Learners have been found to increase their sustained attention after training with Berard AIT (cf 4.6). The stimulation that a sustained music programme gives, can have a long lasting and even permanent effect in attention control (Stehli, 1995: xii).
2.7. Conclusion

Attention difficulties are a reality in our schools. There are different causes for these phenomena and different solutions. It is important to remember that a learner is firstly an individual and only secondly an individual with learning difficulties. Thus, solutions must be tailored to the individual needs of the specific learner. In the following chapter the auditory system will be discussed and since music plays a large part in the Berard AIT method, a closer look will also be taken into the effect of music on the brain.