Attention Deficit Hyperactivity Disorder: Towards an Inclusive Approach in the Management of ADHD in South African Classrooms.

By

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a world-wide phenomenon which has a major impact not only on a child's academic performance but also daily activities and social interactions. It is a phenomena which manifests in most classrooms. This dissertation investigates ADHD, not only as a medical phenomenon, but also as a social phenomenon, with a specific focus on how it manifests and applies in South African schools. Using Vygotsky's Cultural Historical Activity Theory, and linking it with the ideals of the Education White Paper 6. The research is presented as a literature review that focuses on what current literature suggests is happening, and what theoretically should be happening in practice. The research is intended to demonstrate the need of the school-going aged child to be supported by the family, the school, and, if chosen, by medical professionals as well as the need to have informed parents and teachers. This need is linked to an exploration in this research of the practices and procedures currently being used to support learners with ADHD in mainstream South African schools in the context of an inclusive education model. The research concludes that Educators needs further support and training to be fully equipped to support learners formally and informally diagnosed with ADHD.

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"With God all things are possible." Matthew 19:26

DECLARATION

I, *Simone Loedolff*, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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CHAPTER I. INTRODUCTION

This dissertation investigates Attention Deficit Hyperactivity Disorder (ADHD), not only as a medical phenomenon, but also as a social phenomenon, with a specific focus on how it manifests and applies in South African schools. Using Vygotskian theory, and linking it with the ideals of the Education White Paper 6 (EWP6) of 2001, the research is intended to demonstrate the need of the school-going aged child to be supported by the family, the school, and, if chosen, by medical professionals. This need is linked to an exploration in this research of the practices and procedures currently being used to support learners with ADHD in mainstream South African schools in the context of an inclusive education model.

While this research is founded on the assumption that ADHD is something that teachers in all classrooms (i.e. working in an inclusive education system), and in all walks of life, need to deal with on a daily basis, it questions whether ADHD, in all of its complexities and nuances, is sufficiently understood and represented in South African literature.

How is ADHD understood in the literature coming out of South Africa, and how is it managed during (mainstream) schooling, and classroom teaching and learning? To aid us in supporting both teacher and learner in the classroom, the current study focuses on four key questions in order to draw a clearer picture of ADHD and how it is understood and addressed in South African schools:

- According to the available literature, is the understanding of ADHD amongst teachers sufficient to enable them to fully support all learners in their classrooms in an inclusive education system?
- What are the discipline implications for teachers and learners of ADHD in a classroom environment?
- What strategies are recommended for ADHD by the Department of Education in its official documents regarding inclusive education, and how do these relate to, or align with, Vygotsky's Cultural Historical Activity Theory?
- What are the major 'barriers to learning' and to 'normal' development experienced by ADHD learners in 'normal'/mainstream (inclusive) classrooms, and how can these barriers be addressed by classroom management?

The research has been structured in a way that allows the reader to gain an in-depth and nuanced understanding of what Attention Deficit Hyperactivity Disorder (ADHD) is, how it is commonly diagnosed, and what the impact of such a diagnosis can and does have on the ADHD child and on the child's social environment. The research also aims to lead the reader through Vygotsky's theory and to explore ways in which it can be applied to gain a deeper understanding of how teachers and family members could and should engage in informed and sensitive ways with the child with ADHD. In addition, the thesis looks at research into common classroom practices for classroom management in mainstream schools before drawing conclusions as to what could be the most effective methods of dealing with ADHD.

The primary aim of this dissertation is to guide the reader towards an in-depth understanding of the phenomenon of ADHD. The reader is provided with an overview of ADHD as a disorder that is most commonly known in general society as a medical disorder that warrants medical attention. The dissertation also explores the symptoms and the commonly accepted diagnostic methods used by psychiatrists to diagnose children with such disorders. The chapter goes on to explore the common behaviours related to the diagnosis of ADHD, together with the classroom practices and government policies available to guide teachers, as well as the kinds of further training offered and available to teachers regarding special needs education. The section of the chapter following this serves to broadly inform the reader's understanding of human cognitive and emotional development, and of the problems and challenges of this development which some children experience and are commonly diagnosed as facing. In the course of this section Vygotsky's perspective on special needs education and the function of the Zone of Proximal development are explored in specific relation to special needs.

Chapter II provides a detailed and in depth review of the literature and the available research conducted on ADHD and its management. The chapter provides a brief overview of methods currently used to manage ADHD by the majority of teachers and parents, both across the globe and locally. The review also examines what policy documents are in place and medical treatment options available to children with ADHD both globally and locally. These will be discussed in detail in chapter IV. The chapter also identifies, explores and evaluates the reliability and value of that information that is readily available and accessible to teachers and parents in newspapers, on social media, and in flyers, in order to provide a comprehensive understanding of the amount, nature,

quality, value, and accessibility of information that parents, and often teachers, use on which to base their decisions as to how to address and manage this problem both in the home and in classrooms.

The reader is then provided, in chapter III, with the research methodology and framework used to gather the information as well as the rationale for the particular method employed.

Chapter IV is the substance of the research. It provides an in-depth account of the current literature regarding ADHD diagnosis, management (medical and classroom).

The final chapter concludes with a discussion of the findings of the research conducted for the current study in order for the reader to understand the results and conclusions that have been drawn from this research, and on which certain recommendations for managing ADHD sensitively and sustainably in a classroom are based.

A. Research aim

The aim of the study is to provide a systematic understanding of the literature with regard to ADHD, as well as the implications of ADHD for the mainstream classroom environment, and the deciphering of knowledge that could have implications for a specific organisation of professional practices, such as classroom teaching and learning, learner support, and inclusive practices in education facilities. The research focuses essentially on the understanding of that literature which addresses the details and implications of diagnosis, management, and related issues of ADHD for classroom teaching and learning processes, as well as the implications for the over-all well-being of all learners during school learning.

B. Rationale

As a teacher in a mainstream school offering an inclusive education model, I am confronted with the challenges of working in an inclusive classroom on a daily basis. Although very few of the learners have been formally diagnosed with ADHD, many of those exhibiting some of the behaviour of ADHD have to deal with difficulties similar as those associated with ADHD. The daily challenges of trying to inspire these learners academically, assist them to focus, and deal with their behaviour, has sparked my interest in the subject. This interest is motivated by an awareness of the relevance of

Vygotsky's theory that connects teaching and learning with the peculiarities of learners with ADHD through the concepts of the Zone of Proximal Development (ZPD). I have also recently had direct experience the deeply rooted negative effects that ADHD drugs have on the mental and emotional welfare of these young learners. As much as medication assists the teacher in the classroom with discipline, the question remains: is the cost really worth the gain, and can it in fact be described as a 'gain'? Or can teachers, parents and medical professionals work together to find a more suitable and sustainable solution?

The research also looks at the impact that ADHD has on learning with regard to behaviour and associated language impairments, where, in Vygotskian terms, learning can only take place within a socially interactive environment where the learner actively engages with the more knowledgeable other to access the ZPD. The study also explores ways in which classroom strategies can be adapted to optimally counter, or be used to the benefit of, the kind of behavioural displays that generally disrupt learning in a mainstream classroom.

According to Vygotsky's theory, learning happens when knowledge has been internalised, automized and fossilised by the learner. When internalisation, automization, and fossilisation have been achieved, the learner feels a sense of mastery towards the subject. Vygotsky further states that cognitive development results from an internalization of language, and thus, according to him, and to subsequent Vygotskian theorists, language plays a central role in educational and social contexts.

Firmly based in constructivism, Vygotsky places emphasis on the importance of 'construction' of knowledge by building, or adding onto, what is already known through the ZPD. Language and social interactions form an essential part of this construction, and ultimately the internalisation, fossilisation and automization of knowledge. This implies that, if language and social interactions are underdeveloped, then the learner might not be able access their true academic potential, and underperformance is a very possible result.

If it is a given that teachers are responsible for creating an environment that encourages and stimulates learning, this responsibility includes the management of discipline, and of social, and other structures in the classroom. It is therefore vital that teachers are properly equipped with appropriate classroom management skills to enhance the opportunities for learning and constructive social interactions between peers, and ultimately to create instances in which all learners engage and

learn through the ZPD. This study is ultimately intended to provide guidelines for effective classroom management linked to the specific challenges associated with ADHD. The proposed guidelines are supported and directed by Vygotsky's theory.

CHAPTER II. OVERVIEW

This section provides a broad overview of ADHD and the theoretical framework of special needs education.

A. Overview of ADHD

The previous chapter introduced my topic and provided reasons for my keen interest in doing this research. It also provided the reader with the ABCs (basics) of ADHD, what it is and is not, including an introduction to well-known cognitive development theories, such as those of Vygotsky, as well as how it is diagnosed and commonly treated by medical professionals. This chapter goes on to explore what current research has revealed about what is happening in mainstream classroom environments, particularly in South African classrooms, and what guidelines are provided by education policy documents regarding discipline and the management of ADHD in a mainstream (inclusive) classroom. A more detailed and in-depth literature review is presented in Chapter II.

As has been mentioned, the purpose of the research is to enable us to understand ADHD, not only as an organic and medical issue, but also to understand this 'disorder' in the context of social activities and as a part of life, and specifically as a social manifestation that can be identified in classrooms and formal/mainstream schooling. The purpose of reviewing the available literature on ADHD is to provide an in-depth understanding of the conditions and behaviour commonly associated with ADHD as being not only of biological or genetic origin (a medical challenge), but also the possibility of their constituting a social manifestation within a specific social context. For example, Malherbe (2017) describes a common scenario where parents cannot fully grasp how and why their child is able to focus and concentrate on a computer game for hours on end, but is then diagnosed with ADHD within a classroom context.

Through my personal experience with learners formally, and informally, diagnosed with ADHD, it has come to my attention that there is an increasing expectation placed on the average South African teacher, teaching, not in a special needs school, but in a mainstream school, to take (almost) full responsibility in terms of managing the condition, making decisions, and taking responsibility, not only for its diagnosis but also for the administration of the prescribed drugs. This patently unsatisfactory situation -and short term solution to the problem -would indicate the necessity to engage in a systematic and in-depth study that explores the meanings, associations, and 'common

sense' knowledge connected with this condition, along with the dominant and common methods and procedures employed for its diagnosis (by psychiatrists and medical professionals) and management (by teachers, psychiatrists/ medical professionals and parents or caregivers). This study is therefore *exploratory*, seeking to provide a systematic understanding of how ADHD as a psychological condition, particularly prevalent in South Africa's mainstream primary schools today, is generally diagnosed and managed and by whom, what management procedures are recommended for it, and what specific implications there are for teachers' involvement in its management during classroom teaching and learning.

From my own experience, and from some of the literature, it is evident that there is still much to learn regarding ADHD and classroom management, particularly in a mainstream, inclusive education system. There remains a clear gap between what teacher training prepares our teachers for and what schools and parents expect our teachers be able to do in cases such as the management of ADHD learners in a mainstream classroom.

The British Medical Association, 2006 concluded at the time that there was a rise in "mental" disorders amongst the youth, a conclusion based on longitudinal studies. During the 1980's and 1990's the diagnosis of ADHD escalated. (Smith, 2013). Since then ADHD has been found to be one of the most commonly diagnosed childhood disorders worldwide (Moore, DuPaul, George &, Power, 2005; Schellack & Meyer, 2012; Perold, Louw & Kleynhans, 2010; American Psychiatric Association, 2013). Polanczyk (2007) conducted a comprehensive study/survey that estimated the world prevalence of ADHD in children at the time to be 5.2%. However, in 2015, Thomas, Sanders, Doust, Beller and Glasziou re-estimated the world prevalence and concluded that 7.2% of children between the ages of five and eighteen had ADHD. The increase in children formally diagnosed with this disorder can either be interpreted as associated with a raised awareness of the condition or that the prevalence of the condition is increasing. Timimi and Leo (2009 p.1) were of the view that "the diagnosis of ADHD had reached epidemic proportions" by 2009. Furthermore, these authors (p.1) noted that ADHD had been firmly been rooted in most Western Cultures, "…with economically and politically powerful groups (such as drug companies, doctors, psychologists and teachers) having had a major, but often unacknowledged impact on local communities' conceptions about the nature of childhood." This kind of research has led to the construction of a new identity in child psychology – 'the ADHD child'. This suggests that, within a globalizing society, communities are not only sharing goods, but values and ideas are also being shared. The expansion of globalised therapeutic

methods has unconsciously simulated colonial dynamics by imposing Western concepts of family childhood, and self on non-Western populations. (Timimi, 2012) This can be said to haves added to the rise in ADHD diagnoses. Timimi, (2010) suggests that the rise in ADHD diagnoses could be attributed to the changes in our cultural and environmental contexts, which causes an increase in certain behavioural and emotional challenges and, in turn, changes our insights, meanings and values regarding 'appropriate' childhood behaviour.

The ways in which a society conceptualises children/childhood, and the challenges of childhood, are shaped by an assortment of political, cultural, social, and economic pressures, beliefs and practices around children and families (Timimi, 2012). ADHD is thus often misunderstood and mismanaged, and perceived as a negative trait in children, particularly in western societies (Perold, Louw & Kleynhans, 2010). Children with learning and behavioural difficulties associated with ADHD are inclined to struggle with the rules associated with a formal mainstream classroom environment. In a formal school environment, children with ADHD are often perceived as disorderly, disruptive, and as difficult or poor learners who often display inappropriate behaviour (Biederman, 2005). While it is human nature to want to classify and organise everything, probably in an attempt to "understand" a phenomenon, I am of the view that, in this case we – teachers and education authorities and policy makers - often go too far, or oversimplify. We forget to take the whole "person" or child into consideration, as noted in a study done by Baydala et al. (2006) on the characteristics of ADHD in Canadian Aboriginal children. The study concluded that this sampled group of Aboriginal children showed a higher than expected number of children who met the criteria for (western defined) ADHD symptoms. Based on the assumption that ADHD is highly inheritable (Larsson, Larsson & Lichtenstein, 2004; Thapar, Harrington, Ross & Mcguffin,2000) and that the symptoms that classify a child as ADHD could be seen as highly beneficial for Hunter Gatherers (Baydala et al., 2006). In this context, these researchers argued, that a high motor activity enables a person to continuously identify new opportunities and to explore their environment. In addition, rapid shifts of attention are said to improve a person's capability to observe, while impulsivity enables a person to be quick in decision making in response to changes in the environment (Jensen, Mrazek, Knapp, Steinberg, Pfeffer, Schowalter, & Shapiro, 1997) All of these are characteristics are said, or assumed to, benefit a Hunter Gatherer who would need such abilities to optimise his/her survival. However, the current study aims to show that we should not be too quick to make unfounded assumptions, or stereotype, when something does not fit into our "perfect" water-tight box. Behaviour is often learned and inherited based upon our social, cultural, and economic environment, as suggested by

Vygotsky. The children in South African schools come from various backgrounds and what is seen as acceptable learned behaviour differs t significantly, depending on the socio-economic and cultural backgrounds and socialisation of children, especially in the earlier grades. In this diverse context, as teachers it is thus of vital importance to have clear and informed behavioural expectations and to be vigilant and consistent in the implementation of behavioural strategies, while remaining sensitive and understanding towards the individual child. We need also to find functional ways to improve our current classroom management styles, as the current study aims to show.

Research conducted in South Africa suggests that teachers tend to remove learners who display ADHD-like behaviour (being hyperactive, inattentive and/ or impulsive) from the learning environment by means of sending them on messages to other classes, giving them tasks such as sweeping the classroom, or giving them other alternative activities in order to better manage their classroom behaviour (Topkin & Roman, 2015). It is interesting to note that the majority of these management methods are aimed at managing the symptoms on the "outside" rather than taking into consideration the whole child and her/his cultural, social and economic circumstances and background.

According to Liebenberg (2017), ADHD has become what is described as a "chronic childhood disorder", with a heritability rate of 76 %(world-wide). This means that most families will have to deal with a parent and at least one child who is affected by this disorder (Liebenberg, 2017). It is evident that ADHD is a worldwide phenomenon: Polanczyk (2007) mentions that the prevalence of ADHD has been studied on all continents across diverse cultures. The prevalence rate in South Africa has not yet officially been determined, but it is estimated that around 10% of children display symptoms commonly associated with ADHD (Perold, Louw & Kleynhans, 2010: Kern, Amod, Seabi & Voster 2015: Muthukrishna, in Lloyd, Stead & Cohen, 2006; Schellack & Meyer, 2016). Montingoe (2017) reports that at least 50% of children who consult a psychiatrist in South Africa present symptoms indicative of ADHD. The Medical Schemes Act (1998) of South Africa requires all medical aid providers to pay in full only for those conditions e listed on the Prescribed Minimum Benefit (PMB) list or Chronic Disease List (CDL). ADHD is not considered a life-threatening condition, and has not been added to these lists. Medical Aid providers therefore have no legal obligation to provide medical cover for ADHD diagnosed patients. Although there are some medical aid schemes that do provide cover for ADHD, it is only available on the top tier options.

This often leaves parents with the responsibility of financially supporting a very expensive and ongoing treatment, often for themselves and at least one child (Liebenberg, 2017).

In a modern western society, the intensified use of medical enlightenments for behavioural problems exercises a far wider and more entrenched influences than we realise. The effects of this are changing our concepts pertaining to choice, personal responsibility for our behaviour, and free will/agency. For instance, if unorganised and impulsive behaviour of a child is defined as and termed a brain disorder termed (ADHD), then it is alleged to be behaviour that neither a child nor their parent can intentionally control or manage. This 'brain disorder 'then requires medical assistance to rectify or modify it.. By accepting and perpetuating this solution to this 'disorder', or handing our agency to the medical establishment, we are shifting behaviours formerly considered to fall under pedagogy, and to be the responsibility of teachers and parents, onto the medical establishment (Tait, 2006, Timimi, 2012).There is a perspective that medical professionals tend to look to subdue the symptoms and to provide a quick fix. But, in my and others' view, our children are more complex and valuable, and this disorder is often oversimplified using medical models.

The next chapter explores the argument presented in some of the literature reviewed that ADHD as a condition relates more to, and manifests in, classroom activities, and is generally unofficially 'diagnosed' and managed in the classroom context rather than by medical interventions and the prescribing of costly medication . Tannock (2007) states that disruptive and off-task behaviour can be, and frequently is, generally reduced and/or managed by means of psychological and medical interventions. These include the use of medication, parental or guardian training in behaviour management, classroom-based behaviour training, and social skills training and multimodal pedagogic methods. Tannock (2007) further explains how medication cannot be substantiated as a method that improves academic performance in an effective and sustainable way, as it merely addresses – and subdues - the disruptive and unwanted behavioural trends. However, strategic and creative classroom based interventions have been found to have positive implications for both behaviour and academic outcomes in ADHD learners (Tannock, 2007). It has been my experience, supported by the literature, that, while engaging with 'ADHD' learners, and implementing behavioural management strategies, can be time consuming, building a relationship with the learner and encouraging and positively reinforcing accepted behaviour seems to be more beneficial than imply dosing, or 'subduing' these learners with medication. This approach is, of course, dependent

on the resources and time available to teachers, particularly those with large classes, as will be discussed later.

The effects of untreated/unmanaged ADHD can be far reaching, influencing all aspects of a child's life. Most notable, and widely documented by the literature, is the often negative impact it can have on their social, academic, and family relationships. According to Bailey (2015), the most common, and easily recognisable symptoms of ADHD are inattentiveness, hyperactivity, and impulsiveness. Although, this is merely the tip of the iceberg of the daily struggles that are faced by children with ADHD, as well as their parents, caregivers or teachers. Children with ADHD are more forgetful and disorganised than their non-ADHD peers. Furthermore, they often struggle with secondary symptoms, such as low self-esteem and emotional immaturity (Bailey, 2015) which creates frustrating situations in the classroom. These symptoms (low self-esteem and emotional immaturity) are often directly linked to academic underperformance, and can easily be mismanaged by teachers, parents and caregivers (Barkley et al., 1990; Biederman et al., 1998; Biederman, 2005).

Learners with ADHD not only face academic challenges: they also struggle with social interactions. As a result of their attention span difficulties, lack of impulse control, and high activity levels, it is self-evident that they will struggle academically (Barkley, Murphy & Fischer, 2008; Du Paul & Stoner, 2003; Perold, Louw & Kleynhans, 2010). Prolonged academic challenges are likely to bring about negative attitudes towards learning. On top of this, the ADHD child's unique struggle with emotional immaturity, impulsivity, and inattentiveness can contribute to a negative learning environment for them, which further hampers their ability to learn effectively. Norman (2002, describes how a person's emotions affect the way in which their brain processes information. When an activity is enjoyable it can seem easier than when an activity is unpleasant or forced upon a learner. An unpleasant activity will naturally be more difficult to complete and thus more difficult to learn effectively.

ADHD is often also present in children who have been diagnosed with Autism spectrum disorder, who experience anxiety, depression, and manifest conduct disorder, and learning difficulties. It is a common misperception that learners with ADHD display an inflexible obedience to non-functional routines (Sciutto et al., 2000). These behavioural manifestations in children are challenging in a class of more than 30 learners, and they are rarely presented in isolation. Faced with a combination with the different manifestations of ADHD and general classroom misbehaviour, it is of vital importance

for the teacher to have sufficient knowledge and skills to effectively manage classroom behaviour and not make incorrect judgements or referrals.

A number of studies have recognised a stigma attached to ADHD expressed in a tendency to attribute a range of behavioural problems to ADHD (Glass & Wegar, 2000; Kellison, Bussing, Bell & Garvan, 2010; Martin, Pescosolido, Olafsdottir, & Mcleod, 2007; Walker, Coleman, Lee, Squire, & Friesen, 2008). This points strongly not only to the need for teachers to be educated about ADHD, but also the need for teachers to find ways and pedagogies to effectively manage classroom behaviour. The attitude and approach a teacher has towards ADHD can greatly influence the nature of the classroom management and pedagogic strategies implemented. Pasternak (2013) concluded in her study that there is a strong and direct relationship between discipline skills and academic achievement. If a teacher fails to enforce discipline in the classroom, effective teaching and learning cannot take place. This can lead to intense frustration for both the teacher and the learner(s). With a crowded curriculum that has to be covered within a limited timeframe in a mainstream education system, most teachers might resort to an authoritarian teaching style with little to no learner participation. This kind of pedagogy can also lead to more learners in the class being left behind, because there is no way of effectively managing, or gauging whether or not all learners have truly grasped the concept. This top down, teacher-centred pedagogy is in strong contrast to the – somewhat unrealistic -stated aim of CAPS and the current teaching philosophy, underpinned by the Department of Basic Education (DBE), that teaching should ideally move away from a teacher-centred environment and focus on a learner-centred environment.

ADHD not only influences the behaviour of the ADHD learner; it also creates various barriers to learning for the affected learner and their peers. One of the most significant barriers to learning experienced by an ADHD learner is language impairment. Learning impairments imply that the learner is likely to experience difficulties in either the production or the understanding of language, both of which are vital for all types of learning. Learners with ADHD may also struggle with the delayed onset of words/vocabulary, challenges with regard to conversations, and lower academic achievements in standardised tests (Ladikos, 2017). In a classroom situation these challenges have the potential to create frustration for the teacher, which in turn might amplify the negative behavioural traits associated with ADHD. According to Vygotskian theory, language is the crux of learning, as knowledge is directed, formed, and adjusted by thought, and thought is created through language. Automization of a skill cannot manifest without the corresponding language, which first

leads the learner by means of private speech, after appropriate intervention through the ZPD (as is discussed in detail later); thus additional support is needed to assist ADHD learners towards reach their full potential.

As mentioned above, ADHD tends to be seen as a psychological or medical problem, thus not really considered to be of direct concern to teachers. The disorder is considered a medical problem because it is said to affect various parts of the brain and neurotransmitters. Biologically it is seen to affects *dopamine* and *noradrenalin* levels, which are responsible for sustaining memory and attention. Neurologically, ADHD effects the prefrontal cortex which influences cognitive functions (Schellack & Meyer, 2016).

Medical professionals seldom include teachers in the treatment and diagnosis of learners. Perold, Louw and Kleynhans (2010), concluded in their study that practitioners lacked sufficient communication with educators relating to leaners diagnosed with ADHD. Teachers, the people who almost always spend the most time with the children, do not fully understand what ADHD actually entails, and they are not sufficiently equipped to support each child. However, educational psychologists and medical professionals often turn to teachers for vital information before making a diagnosis. In addition, parents often do not see it as a teacher's place to recommend interventions or assistance for their children, often rightly so, since teachers do not always have enough knowledge of ADHD to make such suggestions. A study done in 2005, which questioned the knowledge and competence of primary school teachers with regard to the symptoms, treatment, and management of behaviour, suggests a need for teachers to acquire more knowledge and the skills to effectively support learners with ADHD (Topkin, & Roman, 2005). Teachers and parents often turn to their own research and can easily be influenced by ungrounded, biased information with regard to ADHD, which in turn makes them vulnerable to the often biased opinions of medical doctors and psychiatrists who may be advising and prescribing medication as a short term solution.

B. Overview of Vygotsky

This section guides the reader through some common understandings of Vygotsky and also leads the reader to some possibly lesser known Vygotskian insights. This forms the basis from which the conclusions in this study are drawn in terms of finding alternative methods of dealing with ADHD in a classroom.

This current study is informed by the assumptions accepted by the theory of Vygotsky's general law of cultural development – a theory which attempts to provide an interpretation of cognitive development and learning as mediated processes (Daniels, Cole & Wertsch, 2007).

Bakhurst (2007) describes t Vygotsky's insistence that the processes through which the concept of the matured human mind emerges must first be understood in order for the workings of the mature human mind to be understood. Vygotsky conducted his research during the early twentieth-century in Russia, in a time of extreme social change, and social and political revolution, and therefore it is not surprising that he engaged in developing a theory of the cultural, social, and historic formation of the human mind (Daniels, Cole & Wertsch, 2007). Vygotsky recognised the vital relationship between the mental processes of the individual and the interactions that the individual has with historical, institutional, social, and cultural settings (Rogoff 1990, Wertsch 1991).

Based on his research and theories, Vygotsky (1978) sees self-regulation as being acquired through social interaction. The child explores their inner potential by imitating adult actions that s/he has observed (Bruner, 1977)

For Vygotsky (1978, 1987), the cognitive development of children is to be recognised as manifesting through their interaction with other members of their society who are more knowledgeable and practised in their society's intellectual tools and practices (particularly language) for mediating intellectual activity, and so introducing the concept of a more knowledgeable other, together with mediated learning through social interactions (Rogoff, 1990).

Vygotsky argued that children develop through a series of stable development stages: infancy, early childhood, preschool age, school age, and puberty. The child's stable developmental stages are interrupted by phases of crisis; at birth and at the ages of one, three, seven, thirteen and seventeen. These stages were based upon the social construction of Vygotsky, but were intended to be reliant on

the manifestation of particular structural changes in the child's relation to their social environment, and similarly in their cognitive life. Vygotsky claimed that all of these stages would inevitably occur in all normally progressing children, but that they might happen in different ways and at different ages (Vygotsky, 1978).

Thus, according to this theory of human cognitive development, an individual's development and thought process cannot be explained or examined without a distinct reference to their social processes and interactions. The child is simultaneously developing through her past, and her present, and should be understood in total existence with these. Through this, Vygotsky made the assumption that culture changes the course of development for every person. In modern society cultures are very integrated with one another and we have to make a further distinction: that different social groups and the diverse socio-economic classes all influence l the development of learners who are members of these various social groups in various complex ways. Furthermore, Vygotsky placed more importance on the social factors that influence cognitive development than on other factors. He focused on the way in which adults convey their beliefs, general applications and skills are embedded within their society. Vygotsky thought that, based on the assumption that the fundamental aim of society is to enable children to learn cultural values and skills, every part of a child's development should be considered against the backdrop of their society, and on what their parents believe to be important in order for them to flourish within that society (Louw & Louw, 2007).Thus, it follows from this developmental theory that intelligence is a person's ability to adapt and survive within their society.

Vygotsky further argued that children (this can be applied to adults as well) are not passive participants within their learning, but they are agents of their own learning: they are learning and developing while they actively participate, interact with each other and members of their society, and often change their constructed world. This does not necessarily mean that they physically change the world they live in. Often, by participating with others they can change or construct knowledge and understanding of their world, and thus their opinion, perception and knowledge of that same world changes. If one relates this theory to the ADHD child, one can observe that, while a child so 'diagnosed' is generally very actively participating within their immediate environment, the organisational and intentional response to their environment is often questionable in terms of that society's norms. Malherbe (2017) explains that in the same scenario the ADHD child, however, appears to be disorganised in activities, and unable to properly plan and follow through with activities. When you move a person to another society, inevitably they will construct new opinions,

perceptions, and knowledge as they adapt to their new society, culture, or environment through active participation. Vygotsky's entire theory is based on active participation by the learner with members of her or his society, which leads to the construction of new knowledge. This in itself proves to be the very basis of the challenges that surround a child with ADHD, specifically in terms of how s/he interacts with her peers and they with her:

> (i) Vygotsky states cognitive development stems from social interactions from guided learning within the zone of proximal development as children and their partners co-construct knowledge. (ii) For Vygotsky, the environment in which children grow up will influence how they think and what they think about. (Vygotsky, 1978).

Children do not merely develop under the circumstances of interaction, but by means of socially spread interactions, and primarily due to alterations from the inter-individual to the intra-individual plane, from the social, external to the individual, in collaborative activities with other people (Vianna & Stetstenko, 2006). Vygotsky describes this process and the two 'planes' of cultural development:

> Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition. (1981a, p.163)

Learning, as explained by Vygotsky, happens through mediation of concepts in the critical Zone of Proximal Development (ZPD). Gallimore and Tharp (1999) developed a four stage model to explain the process of learning through the ZPD. According to these authors, the stages of the ZPD usually start with information being mediated from the expert (more knowledgeable other) and then from the self (Stages I & II) .The next step internalises the information (self-speech is often present) and this leads to the fossilization of information through repetition of the previous stages, (Stages III & IV), and it is then that de-automatization occurs.

For example, when we learn to drive a car information is mediated to us by a more knowledgeable other in the ZPD. During the initial practises, we often resort to self-mediation (either verbally or internally), and then, as we become more proficient, mediation turns into, or becomes,

internalization, which develops into automization and fossilization. Automization and fossilization can be described together as the state where self-mediation is no longer consciously applied to perform the task. Afterwards, de-automization is present when we adapt our automized skill of driving to an ever changing environment.

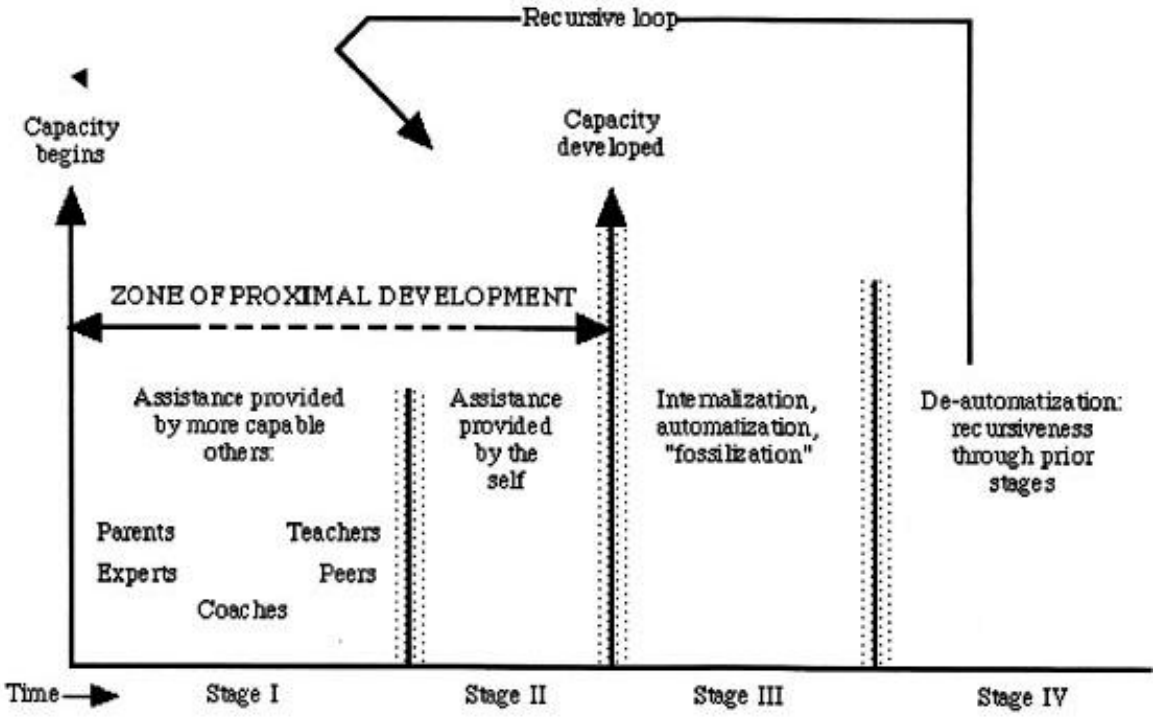

Figure 1 Model of four stages in the zone of proximal development (Gallimore & Tharp, 1990:185)

As has been mentioned, children with ADHD tend to be not only more physically active and inattentive than other children; they also have more difficulty responding appropriately and working steadily toward goals (Woolfolk, 2010:133). Vygotsky defined cognitive development as the child's ability to learn and evolve from instructions. Learning, according to Vygotsky, takes place through cultural tools, especially language (an area often impeded through ADHD), which brings us to another focal point in his theory, and one of particular relevance to ADHD children: language forms the platform from which internalisation of concepts (meaning making) stems. If a child experiences barriers during language learning, her ability to acquire other skills will be inhibited. It was in this context that Vygotsky placed emphasis on the importance of proper language learning.

All of these cultural tools cannot be accessed by the child alone; the process needs to be mediated by a more knowledgeable other. Whether this person is a parent, guardian, teacher or peer does not matter as long as there is meaningful interaction between the child and the more knowledgeable

other. The more knowledgeable other can be defined as any person who has a more complex level of understanding or capability than does the child or learning adult with regard to the task, concept or process. When we consider the more knowledgeable other, we often think that it should be an adult, an expert or an educator. For example, a child learns how to write neatly because his teacher has taught him well. Traditionally the more knowledgeable other is a teacher, adult or peer who has already mastered the concept (Vygotsky, 1978); however, more knowledgeable others could also refer to peers, younger people, and electronic devices. For example, a child can teach a skill to his or her parent by being the more knowledgeable other.). For Vygotsky, the combination of cognitive and linguistic skills appear "twice or in two planes. First it appears in the social plane, and then in the psychological plane. First it appears between people as an inter-psychological category, and then within the child as an intra-psychological category" (Vygotsky, 1978, p. 163). Learning first appears between the learner and an external stimulator (the more knowledgeable other) before the learner internalises the process, as described above, and in this way interactions lead to some form of learning.

The more knowledgeable other 'teaches' the learner through mediation within the Zone of Proximal development (ZPD). The ZPD is currently a theory of reference amongst many researchers and practitioners for both mainstream and special education teaching and learning in most subject areas (Del Rio & Alvarez, 2007). The Zone of Proximal development, as Vygotsky describes it, is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (Vygotsky, 1978a, p.86). This concept is widely used in educational settings to improve all levels of teaching and learning. Feuerstein believes that, through suitable mediation strategies, children with barriers to learning can learn to greater degrees than formerly considered possible (Feuerstein, 2000). Miller (2011) describes action in the ZPD as the key that unlocks new learning. In other words, the point of instruction is to create action, not simply to convey understanding. In a classroom, learners act by following the teacher's instructions, but ultimately the process of learning and understanding has to be gone through on their own.

Once the concept has been mediated, the learner has to internalise the concept. Internalisation can be seen as the mastery of the concept. For Vygotsky internalisation is a necessary point in the process of developing human actions; it is the point at which the learner transitions from using external aids to internal action (Miller, 2011) and the learner no longer needs the assistance of the more knowledgeable other. In the traditional (mainstream) classroom situation, the teacher acts as the

more knowledgeable other, who, through mediation, engages the learners at their individual ZPD's to ensure concept formation and internalisation. At this point in the process, the learners could further engage in the kinds of group activities which will allow for the internalisation and automization of the concepts, in this case, learned, through social interaction.

Vygotsky also studied the cultural and natural origins of human cognitive development through the lens of a sociocultural theory of development, focussing on the impact that society has on the cognitive and social development of all children. Vygotsky advocated changing the negative attitudes that society had at the time towards individuals with disabilities arguing that those attitudes influence the accessibility of joint and peer activities for the child with disabilities (Kozulin & Gindis, 2007). He believed the understanding of children with special needs to be based on two foundations: a theory that Vygotsky named the "theory of dysontogenesis" (Vygotsky 1993), and the cultural-historical theory of human development (Vygotsky, 1998). According to Vygotsky, the main problem of learners with learning disabilities is not biological in nature, referring to their neurological or sensory impairment (as is commonly assumed); it is related rather to the social implications related to the disability:

> Any physical handicap ... not only alters the child's relationship with the world, but above all affects his interaction with people. Any organic defect is revealed as a social abnormality in behaviour. It goes without saying that blindness and deafness per se are biological factors; however, teachers must deal not so much with these biological factors by themselves, but rather with their social consequences. (Vygotsky, 1983, p. 102).

Vygotsky made a clear distinction between the natural and cultural axes of development. Kozulin and Gindis (2007) explains that Vygotsky was arguing that the cause of the disability may be both cultural and natural, or a combination of both, and it is of vital importance to identify the true source of the disability so that appropriate scaffolding can be applied.

In his book "The Fundamentals of Defectology: Abnormal Psychology and Learning Disabilities" (1929, as cited in Grum2012) Vygotsky developed the concept of defectology. The theory is centred on the notion that the process of a child mastering their understandings and development within their social (or cultural) environment is the process of human development. Vygotsky's Cultural-

historical activity theory (CHAT) centralises around the notion that knowledge is the co-construction between the individual and social processes.

The view of Vygotsky (1993) was that it should be the goal of society to promote higher mental functions in all its members. Thinking is learned through cultural practices, and forms the starting point of social life for the child. Vygotsky also argued that learners who have disabilities often experience feelings of inadequacy which are the result of the deficit view (a child with a disability is a "normal" child that is lacking something; e.g. a blind child is a normal child without vision). These feelings of inadequacy result in a secondary disability which is far more devastating to the person/child as these stigmas result in continued feelings of inadequacy. Vygotsky (1993) stated that "a child whose development is impeded by a defect is not simply a child less developed than his peers but is a child who has developed differently" (Vygotsky, 1993, p.30). He also argues that these differently developed learners' impairments could be overcome by the creation of alternative, but essentially similar or equivalent, paths for cultural development.

Important for the current study is Vygotsky's view that effective remediation is only possible through the understanding of the differences between the natural and social developmental paths of the learner who is 'differently' developed. Thus teacher training in this regard is essential to effectively and sensitively manage any classroom.

Vygotsky discussed compensatory strategies to assist learners with disabilities to reach the same goals and levels of achievement as their peers, using different paths. This concept is similar to those informing curriculum adaptations suggested by the EWP6 s.

CHAPTER III. RESEARCH METHODOLOGY

The present study employs a theoretical analysis of existing ADHD and learning theory literature to uncover the underlying mechanisms generating thought processes in the field of education management. The study uses a qualitative research design. The aim of qualitative research is to discover or reveal in-depth meaning in a scenario or phenomenon. Qualitative data analysis requires the researcher to make sense of the gathered data by explaining and accounting for the interpretation of the data analysis. This can be done by, for example, describing, summarising, interpreting and discovering patterns in, or themes emerging from, the data. (Cohen, Manion & Morrison, 2007).

In order to do this, a systematic and detailed literature review is conducted as the research questions seek to provide a systematic and comprehensive understanding of how ADHD (as a psychological condition), one that has been found to be prevalent in South African primary schools today, is – or is not - generally diagnosed and managed. The review looks at what management procedures are recommended in the available literature for educators, and what the implications of this are for teachers' involvement in the management, during mainstream classroom teaching and learning, of learners, either formally diagnosed with AHDH, or manifesting the behavioural and learning problems of the disorder. The study seeks to explore the extent and quality of literature about ADHD which focuses on the phenomenon in South Africa specifically, or to discover the gaps in that literature that deals with its diagnosis and management procedure. The aim of this review is to understand the implications that the diagnosis and the management of ADHD could have for teachers who are involved in, and responsible for, the well-being of children diagnosed with ADHD in South African mainstream classrooms on the context of an inclusive education system.

Another purpose of conducting such a literature review for this study, besides attempting to discover the extent of research on the diagnosis and management of ADHD in South African schools, is to provide a theoretical background for future research which may be attempting to answer the practical question of the implications for teachers of the presence of ADHD in our mainstream classrooms (Okoli & Schabram, 2010). This systematic review, and its analysis, is intended to reveal connections and comparisons among a range of empirical findings (Baumeister & Leary, 1997).

A conceptual study is performed with the use of content analysis. The data are analysed and interpreted by means of a systematic series of analyses, which include categorisation (selecting the specific categories of ADHD diagnosis and management to be included in the study), examination,

coding, and verification of the data content to ultimately draw theoretical conclusions from the texts reviewed. In this context texts are defined as any material written with the purpose to be read, understood and interpreted by anyone other than the author (Cohen, Manion & Morrison 2007).

Cohen, Manion and Morrison (2007) provide a comprehensive eleven step process for content analysis of texts:

- Step 1: Define the research questions to be addressed by the content analysis.
  This has been achieved by ensuring that the main question regarding classroom management of ADHD in South-Africa is addressed by the content.
- Step 2: Define the population from which units of text are to be sampled.
  The research papers are focussed on pre-primary and primary school aged children as this is a crucial stage regarding the diagnosis and intervention of ADHD.
- Step 3: Define the sample to be included.
  The samples deal with ADHD and the medical and or classroom management in young children.
- Step 4: Define the context of the generation of the document.
- Step 5: Define the units of analysis.
  ADHD, ADD, classroom management, management, diagnosis, trends
- Step 6: Decide the codes to be used in the analysis.
- Step 7: Construct the categories for analysis.
- Step 8: Conduct the coding and categorising of the data.
- Step 9: Conduct the analysis.
- Step 10: Summarising. And lastly,
- Step 11: Making speculative inferences.

The data available from the formal/academic research literature with regard to the background and characteristics of ADHD are summarised and categorised, together with the 'popular' data – from popular, immediately available literature, i.e. any documents available to the general public, including, but not limited to, flyers, information sheets, newspaper articles, literature as described and listed in Chapter IV, Section C and D, as well as Chapter II, which suggest/recommend intervention methods for ADHD behaviour. By comparing and matching various documented and recommended interventions to different aspects of ADHD, a comprehensive inference is attempted to suggest practical classroom management strategies.

A sample size of no less than thirty cases(as recommended by Cohen, Manion and Morrison, 2007) per category is examined in the course of the review; this sample size merely indicates the minimum number of cases in the sample and is expected inevitably to increase, along with the subcategories expected to be discovered from the research. The main categories include those symptoms which correlate with appropriate strategies to manage these symptoms. The most common symptoms associated with, or believed to be associated with ADHD have already been described as inattentiveness, hyperactivity, and impulsivity.

A literature review of how ADHD is diagnosed, managed and what the prevailing knowledge and practices around ADHD globally, are presented. The dominant methods of diagnosis and management of ADHD prevalent in contemporary South Africa's institutional contexts of schooling and medical practice are established in order to make conclusions about how best ADHD could be managed in South Africa's schooling, specifically in primary school classrooms.

The sampling strategy is a different one for journal articles to that used to sample public domain documents. The public domain documents are included as these represent a source of information easily accessible to teachers as well as parents and is thus likely to influence (positively or negatively) the ways in which they manage ADHD in their classrooms. Even though these documents are not considered to be academic texts, as they have not been through a reviewing process, they are purposefully included on the basis of their being the most likely source to be used by teachers who are trying to improve their classroom management practices, and to manage difficult classroom discipline situations. Academic journal articles are generally accepted to be scientific and scholarly. The sample strategies are further be defined according to the age of the subjects participating in the various research studies reviewed. For the purpose of this study, the participants in a reviewed study should be of primary school age (between 7 and 13 years old).As stated in Chapter IV section B, the formal diagnosis of ADHD should ideally happen before the age of 12, thus children to be included in the study, should either already be diagnosed or should be eligible for formal diagnosis. Data collection is done via major scholarly search engines, focusing on research studies done in the last five years, with keywords, including, but not limited to, ADHD, Attention Deficit Disorder, Hyper Activity Disorder (symptoms), classroom management, and behaviour management, interventions for ADHD, education, educational interventions, and learning disabilities.

Based on the fact that the research is conducted by using documents, and documents in the public domain, the ethical considerations are limited. Since interaction with, or interviews of, participants are not included in the current research design, participants cannot be affected by the research. However, the reviewer cannot always identify the procedures that were used to ensure the ethical considerations in the studies being reviewed. When using participants' data there is always a risk, however remote, of presenting or interpreting information in ways that were not consented to by the participants (Research Ethics Guide Book, 2017).

CHAPTER IV. LITERATURE REVIEW

As was noted in Chapter II, ADHD is a disorder well-known in both the psychology/psychiatric and education fields, and one that can be significantly misinterpreted, misunderstood, and often over diagnosed worldwide. Although it has enjoyed much media attention during the 20th century and in this century, references to, and descriptions of, the disorder can be found as early as the 18th century (Vogel, 2014). In medical and pharmaceutical publications ADHD is referred to as a neurocognitive behavioural developmental disorder exemplified by a pattern of persistent hyperactivity and inattention (Schellack & Meyer, 2012; 2016).

ADHD is also often referred to as a mental disorder, pointing to the impact it has on the pre-frontal cortex of the brain (Snider, Busch & Arrowood, 2003; Johansen, Aase, Meyer & Sagvolden, 2002; Kessle, et al., 2005; CHADD, 2017).

Although there is a general or 'common sense' assumption that ADHD is an 'American' disorder due to the predominance of research based on American adolescents (Faraone, Sergeant, Gillberg & Bierdman, 2003), studies have shown that the prevalence of ADHD is spread equally across the globe, in both developing and developed countries, and within different cultures (Swanson, Sergeant, Taylor, Sonuga-Barke, Jensen,Cantwell 1998; Gomez, Harvey, Quick, Scharer & Harris, 1999; Gadow, Nolan, Litcher, Carlson, Panina, Golovakha, Sprafkin & Bromet, 2000; Faraone et al., 2003; Thomas, Sanders, Doust, Beller, & Glasziou, 2015).

For example, Bener, Qahtani, and Abdelaal (2006) report that 9.4% of children attending school in Qatar struggle with ADHD, while another study found that 3.9 % of Chinese adolescents in Hong Kong show symptoms of the disorder (Leung, Hung & Ho, 2008). An earlier study done by Leung, Luk, Ho, Taylor, Mak & Bacon-Shone (1996) showed that 8.9% of Chinese schoolboys had been diagnosed with ADHD at that time. Yet another study conducted by Timimi and Taylor, (2004) noted that if the same criteriawere used in two studies, one in London and one in Hong Kong, the rate of hyperactivity in Hong Kong would be shown to be much higher when the London rating scales were used; however, when more unbiased measures were used in Hong Kong, a lower rate of hyperactivity was found (this could possibly be explained in cultural terms by the high importance that is attached to academic success in Hong Kong). Baydala, Sherman, Rasmussen, Wikman and Janzen (2006) explored the symptoms of ADHD present in Canadian Aboriginal children and found

a surprisingly high number (16%) of children showed symptoms that could lead to an ADHD diagnosis. Although to date comparatively few studies have been done on ADHD in South Africa, Meyer, Eilertsen, Sundet, Tshifularo and Sagvolden (2004) reported 15 years ago that South Africa had roughly the same ADHD prevalence rate as the rest of the world at that time.

A. Manifestations of ADHD

Faraone et al. (2003) refer to ADHD as a behavioural disorder with three main symptoms: inattention, hyperactivity and impulsivity. Similarly, the American Psychiatric Association (2013) terms the disorder as ADHD is a neurodevelopmental disorder defined and identified by impairing levels of impulsivity, inattention, disorganisation, and/or hyperactivity. The difference between a child with ADHD and one without ADHD is that the inattention and hyperactivity of the ADHD child is measurably greater than that of their peers, and this causes distress and challenges to effectively interact at school, at home or with friends. The patterns of inattentiveness, impulsivity and hyperactivity should be observed in multiple settings and should be persistent over time (American Psychiatric Association 2013). Bener, Qahtani and Abdelaal (2006) see ADHD as a leading cause for disruptive behaviour and academic under achievement in a classroom environment.

The name Attention Deficit Hyperactivity Disorder leads one to assume that the disorder is recognised by a lack of attention (probably referring to attention span), and a tendency to be "over-active". This generally accepted "definition" has, however, been found to be not quite accurate. As Malherbe (2017) states, the problem is not so much a question of inattention or attention deficit, but rather a "frontal executive" problem, or a problem of distractibility, due to the imploding dopamine levels in the system when a child or adult is faced with tasks that are not of interest to the learner or have delayed rewards. Thus, ADHD refers specifically and primarily to a deficit in the reward and motivational system of the brain, rather than, or in addition to, hyperactivity or short attention span, which could be seen as symptoms of the disorder rather than causes.

Malherbe (2017) also explains that hyperactivity is an inaccurate description of what a learner with ADHD is exhibiting. For example, children playing can generally be described as hyperactive with their endless amounts of energy. In the same scenario, the ADHD child however, seems disorganised in the context of activities, and unable to properly plan and follow through with activities.

ADHD is seldom presented in isolation. This is due to the high comorbidity rate associated with the disorder. In 1983 Gillberg published the first population study of a broad spectrum of coexisting disorders in children with Attention Deficit Disorder (ADD). His study emphasised the tremendously high rate of associated disorders in ADD, mostly developmental coordination disorder, or DCD, anxiety disorders, depression, and autism spectrum disorder. Since the publication of the 1983 study, oppositional defiant disorder (ODD), conduct disorder (CD), anxiety disorder, bipolar disorder (BPD), tic disorders (TD) including Tourette syndrome, obsessive compulsive disorder (OCD), schizophrenia, substance use disorder, personality disorders, language disorder and various learning disorders have been added to the Gillberg's original list (Gillberg et al., 2004).

Larson et al. (2010) found that at least 33% of American children diagnosed with ADHD presented with at least one comorbid psychiatric disorder, 16% had two, and 18% had three or more comorbid psychiatric disorders. The manifestation of these comorbid disorders has been related to underperformance in educational and social domains. (Nijmeijer et al., 2008; Larson et al., 2010).

ADHD has been found to be a relatively stable disorder throughout childhood. The leading indicator of ADHD during preschool is hyperactivity. Inattention generally becomes more prominent during the primary school years, and is often permanent. Hyperactivity is less observable during adolescence, and is more commonly represented by fidgeting, restlessness or impatience (American Psychiatric Association, 2013).

B. Diagnosis of ADHD

To be able to effectively treat and manage any disorder it is important to be able to correctly diagnose the relevant disorder. As yet, ADHD cannot be conclusively proven by any diagnostic test; therefore diagnosis is based on specified criteria (Schellack, Meyer & Chigoma, 2017). Salduker (2017) reports that the high comorbidity rate associated with ADHD proves to be the biggest challenge in making a diagnosis, as the comorbid disorder(s) often conceal the core disorder. The Diagnostic and Statistical Manual of Mental Disorders (DSM), first published in 1952 by the American Association of Psychiatry, is well-known and used globally to diagnose ADHD. The DSM model is primarily used in the United States, but in South Africa it is also the leading method for diagnosis. The recently adapted DSM-5 model makes provision for the diagnosis for ADHD with comorbid disorders.

The DSM-5 distinguishes between three subtypes of ADHD. These are combined presentation, predominantly inattentive presentation, and lastly predominantly hyperactive/impulsive presentation. The necessary feature of ADHD is an ongoing pattern of impulsivity, hyperactivity and/or inattention that impedes the functioning or development of a child. ADHD inattention exhibits behaviourally as lacking persistence, wandering off task, struggling to sustain focus, and being disorganised, but is not a result of defiance or inefficient comprehension. Hyperactivity refers to extreme motor activity when it is inappropriate or excessive; tapping, talkativeness, or fidgeting. ADHD combined type is diagnosed when attributes of both inattentive and hyperactivity are highly present for longer than 6 months (American Psychiatric Association, 2013).

Diagnosis of ADHD is generally done when a child is in primary school, and the symptoms should occur across multiple social areas in the child's life (e.g. at home and in school) for longer than 6 months. For diagnosis, it is also required that several symptoms manifest before the age of 12 (American Psychiatric Association, 2013), although the symptoms are generally evident from the age of 7 and are seen to be inconsistent with the normal developmental level of the child and cause academic and social impairments (Zwi, Jones, Thorgaard, York & Dennis, 2011).

As stated earlier, teachers play a vital role in the diagnosing process. While parents play an important role, the reality is that the academic and, to some extent, the social, development of the child is largely the teachers' responsibility from pre and primary school on. It is also easy for them to compare the child's behaviour with the expected, accepted, and 'normal' developmental level as well as the developmental levels of the child's peers. Meyer (2004) based her study on the input of teachers and school-based informants as she found this to be the only feasible method of retrieving information with regard to those psychiatric disorders similar to, and including, ADHD in a South African context.

The two most common classification systems for ADHAD are the DSM and ICD (International Statistical Classification of Diseases) rating scales. In a study done in 2009, Martényi, Gau, Hong, Palaczky and Šuba, Gadow, they identified that 79.2% of the diagnoses in their study were based on the DSM classification system, 16.9% of the diagnoses were based on the ICD classification system, and 3.9 % of diagnoses were based on other classification systems. The World Health Organization's

(WHO) International Statistical Classification of Diseases and Related Health Problems Disorders (ICD-10) is the second most common system of medical classification worldwide. The ICD-10 provides a free and easily accessible classification system that can be used by practitioners in low to middle income countries, or even by non-specialist clinicians. This diagnostic tool is mostly used in Europe and the United Kingdom. The ICD-10 uses a more focussed definition to define ADHD, or Hyperkinetic disorder (HKD), and entails a more intense degree of symptom manifestation (Schellack and Meyer, 2016); however, ICD-10 HKD has shown a tendency to underdiagnose persistent ADHD symptoms, as it has been found that only 4% of children with ADHD symptoms may meet ICD-10 HKD criteria (Martényi et al., 2009). Stein, Lund and Nesse (2013) compare DSM-5 and ICD-10, and conclude that both are vital medical tools, that the DSM-5 emphasises diagnostic validity, and the ICD-10 has been found to highlight clinical efficacy.

The DSM model however, does not make provision for cultural diversity, and is a predominantly Western approach to comprehending and identifying mental disorders. The biomedical perspective considers primary syndromes as universal, regardless of cultural diversity (Kuhl & Kupfer, 2013). Meyer (2004) also highlight that the DSM model has been developed within a certain cultural group and context, and that little testing has been done to indicate the cross-cultural (and language) validity of the rating scale.

According to Meyer (2004), ADHD-specific behavioural rating scales can distinguish between the presence and absence of ADHD symptoms without a formal diagnosis. The purpose of these behavioural scales is to assist with the diagnostic process of ADHD. The scales have been designed to be completed by teachers and parents to assess the child's behaviour compared to the behaviour of the child's peers, in order to compile a conclusive overview of the child's behaviour across different settings. The scales are, however, not designed to be used to formally diagnose a child, which can only be done by a registered practitioner. A registered practitioner can, however, also use the instrument to track the effectiveness of a current treatment. The Conners Comprehensive Behavior Rating Scale and the Disruptive Behaviour Disorders (DBDs) rating scale is a behavioural scale regularly used to assist in the diagnosis of ADHD in both South Africa and America (Conners, 1998; Conners, Sitarenios, Parker & Epstein, 1998a, 1998b, Meyer 2004, CHADD, 2017).

The perception that boys are more prone to suffer from ADHD is not only prevalent amongst the general public and teachers in South Africa, but various studies done around the world (including

South Africa) also report that boys have a higher incidence rate (Schellack & Meyer, 2012; 2016; Faraone et al., 2003; Seabi, 2010). In the publication *Prescribing of methylphenidate to children and adolescents in South Africa: A pharmacoepidemiological investigation* (Truter, 2009), the author remarks that the increase of psychostimulant drugs could partly be accounted for by the increased diagnosis amongst girls. However, Du Plessis (2017) found that girls are three to five times less likely to be diagnosed with ADHD than boys. The researcher found that girls tend to present internalised behaviour, such as inattentiveness, while boys are more likely to exhibit external behaviour such as hyperactivity. Due to the fact that the majority of referrals (thus diagnosis as well) are dependent on the manifestation of external behaviour, it comes as no surprise that girls are often undiagnosed. More than 30 years ago, Berry, Shaywitz and Shaywitz (1985) found at the time that the diagnosed ratio of boys to girls ranged between 4:1 – 6:1. They concluded boys at that time to have a greater tendency to act out behaviours associated with inattention and hyperactivity than girls, which leads to a higher rate of diagnosis. The American Psychiatric Association (2017) still states that ADHD is more common amongst boys, than girls (Parekh, 2017)

C. Management of ADHD – Medicinal Methods

While primary health care practitioners can prescribe medication for ADHD, the diagnosis should be done by a qualified mental health care practitioner, for example, by an educational psychologist or a psychiatrist. However, teachers are often the first people to notice symptoms and to encourage testing as they spend long hours in the presence of the child manifesting ADHD symptoms. It has been found that teachers are often quick to recommend medication to parents (Porter, 2000 & Snider, Busch and Arrowood, 2003), and this behaviour often leads to the over and misdiagnosis of ADHD.

More than 25 years ago, Shapiro and DuPaul (1993), identified the lack of knowledge teachers at the time possessed with regard to ADHD as one of the most significant obstacles in treating children with ADHD. Traditionally doctors and psychiatrists prescribe central nervous system stimulant drugs, for instance *Amphetamine* or *Methylphenidate*, as the most recommended medication for treating or managing ADHD. Stimulant medication provides a steady release of the *dopamine* hormone which evens out the child's dopamine levels. The *dopamine* hormone is associated with movement, attention, and the pleasure that a person experiences, and is typically produced naturally (National institute of mental health, 2016). Thus the traditional treatment of ADHD temporarily

suppresses the symptoms shown by the child, but never eradicates the condition (Lee, Park & Kim, 2015) as the cause is not treated, only symptoms.

The earliest recording of prescription stimulant drugs to children was in 1937 by Charles Bradley, who reported an improvement in academic performance after taking the drug (Bradley, 1973). Truter (2009) states that *Methylphenidate* (more commonly known as *Concerta* and *Ritalin*) is the leading psychostimulant prescribed in the management of ADHD. *Atomoxetine* (*Strattera*) is a non-stimulant alternative for ADHD, but it is far less popular amongst the medical establishment. It is alarming however, that, even though diagnosis should only be done from primary school age, Truter (2009) found that 4.86% of patients (whole population was 18 years and younger) who received *Methylphenidate* in 2009 were 6 years and younger.

Stimulant drugs (*methylphenidate and amphetamine*) have the most favourable evidence for effectiveness and safety. Stimulant drugs containing amphetamines are not available in South Africa, which leaves methylphenidate as the only option and a derivative of amphetamine. The two best known stimulant drugs being prescribed for the treatment of ADHD are Ritalin and Concerta. The main difference between Ritalin and Concerta (both formulations of Methylphenidate) is that Ritalin is an immediate release formulation, and Concerta is a longer-acting formulation (Schellack & Meyer, 2012; 2016). Side effects of stimulant drugs commonly include, but are not limited to, loss of appetite, mood swings, and insomnia, as well as rebound symptoms – ADHD like symptoms - when the medication starts to wear off (Schellack, Meyer & Chigome, 2017).

Nonstimulant drugs can also be administered as treatment for ADHD. At the moment the only approved nonstimulant drug that is available in South Africa is Atomoxetine (under the name Strattera). The side-effects for these drugs are similar to those of the stimulant drugs, but this drug leaves users at a higher risk of suicide, and can also cause gastrointestinal problems, dizziness, and sedation.

Antidepressants can also be prescribed as a treatment for ADHD. However, antidepressants should be a last resort treatment, as overdosing has the highest risk of cardiovascular side effects, and normal usage has a greater risk of seizures; however, patients experience less appetite suppression.

Alpha-adrenergic agonist can be used in conjunction with other treatments to counter possible aggressive behaviour and promote sleep; however, sudden death, and serious cardiovascular side effects have been reported in children (Schellack & Meyer, 2012; 2016).

Schellack, Meyer and Chigome (2017) report that new formulations are being researched to promote compliance and to lessen stigmatisation with regard to ADHD medication. All research is currently focused on finding alternative ways of administrating medication to children who are six years and older. They mention that an oral liquid formulation used as extended-release formula (similar to Concerta) was approved by the Food and Drug Administration (FDA) in 2015. Another paediatric dosage formulation, that is unfortunately not available in South Africa, is a chewable tablet that would be ideal for children with swallowing difficulties as the drug does not need water or chewing to disintegrate.

The effectiveness of stimulants in enhancing attention, reducing impulsive behaviour, and increasing academic productivity is evident in numerous studies (Louw, Oswald, and Perold, 2009; Schellack, Meyer, and Chigome, 2017). The side effects of these stimulants range from fairly benevolent appetite reduction, headaches, insomnia, and stomach-aches to the more severe side effects including delayed growth, sudden mood changes, hypertension, arrhythmia, changes in blood pressure, heart rate, depression and nervousness. The treatment of ADHD with medication is not recommended for patients who have anxiety, tension, and agitation (or any personality disorder), as these stimulants are known to aggravate these conditions (Janssen, 2013).

D. Management of ADHD – Alternative Methods

DuPaul and White (2006) identified three treatment methods which should ideally be used in conjunction with one another. The first method is medical intervention; secondly behavioural interventions should be considered, and thirdly academic interventions should be included. Medical interventions in South Africa make use of central nervous system stimulant medication (*methylphenidate* based stimulants). These stimulants have the best proof for efficiency and safety (Schellack & Meyer, 2016). Behavioural interventions refer to two categories. The first is to alter behaviour before the specified behaviour requires change; suggestions for how this could be done include peer tutoring, modifying or scaffolding assignments, and posting rules. The second approach is known as the cognitive-behavioural approach, which involves the employment of both positive

and negative consequences to encourage a specific behaviour. The academic intervention refers to any academic support that is offered to the ADHD learner (Kern, Amod, Seabi & Voster, 2015).

South Africa implemented the use of the Curriculum and Assessment Policy Statement (CAPS) as the National Curriculum Statement in 2012. The policy states that inclusivity should develop in every school as a fundamental part of organisational planning and teaching, and refers to the Department of Basic Education's *Guidelines for inclusive Teaching and learning* (2010). The guidelines are contained in one of the few policy documents that specifically refer to ADHD and possible management strategies in an inclusive education context. While the Education White Paper 6 (2001) is the main document in which inclusive education is stipulated, like many others, the White Paper does not provide ADHD specific assistance for teachers, and yet one of the critiques of this White Paper is that teachers are expected to accommodate all learners, including those with diagnosed behavioural and learning difficulties, in mainstream education based on an inclusive model (Nel, 2014).

While the Education White Paper 6 (2001), and The Guidelines for Inclusive Learning Programs (2005), both offer recommendations for the adaptation of teaching methods, curriculum, and lesson plans to enhance inclusivity in the general sense, they have failed to focus specifically on ADHD. In addition, teachers have not been, and are not, adequately trained as INSET (In-Service Education and Training) fails to provide in-depth ADHD training (Nel, 2014).

Sciutto et al. (2000) developed a scale which is used to determine the knowledge and misperceptions around ADHD. The Knowledge of Attention Deficit Disorders Scale (KADDS) has been used in numerous studies around the world to establish the knowledge and misperceptions teachers have about ADHD. Nearly 20 years ago Scuitto (2000) concluded that teachers have a reasonable ability to recognise general information regarding ADHD. However, teachers were found at the time to have limited knowledge with regard to the course, nature, and specific treatment relating to ADHD. In a more recent study, Louw, Oswald and Perold (2009) reported that one of the most significant barriers to proper diagnosis of ADHD in children are uninformed teachers.

Teachers were and still are also limited in their knowledge about the long-term diagnosis of ADHD. Sciutto (2000) concluded at the time that misperceptions about ADHD were, and were likely to be extremely slow to change and this prediction has in fact been confirmed. KADDS has been used in

South Africa in at least two studies that have confirmed Sciutto's initial results, confirming that teachers continue to have insufficient knowledge to effectively guide learning (Topkin & Roman, 2015; Perold, Louw & Kleynhans, 2010). Sciutto's model measured teachers' knowledge and misperceptions of ADHD concerning three significant domains: symptoms/ diagnosis, treatment, and general information about the nature, outcome, and causes of ADHD (Sciutto et al., 2000).

Classroom management of ADHD and ADHD-like behaviour has been found to be often accomplished via medication as it calms the external behaviour of the child and acts as a quick fix. Fifteen years ago Snider, Busch and Arrowood (2003) reported that teachers at the time had little to no knowledge of the implications of stimulant medication, thus blindly making referrals that could have major long-term implications for the child.

Teachers have for long been responsible for the creation of an environment that welcomes learning- and social interactions (Department of Education, 1997, p. 63), but have had, and, in my view and that of many authors in the literature, continue to have, an inadequate understanding, and limited knowledge of ADHD assistance, and this often results in the child being neglected and labelled/stigmatised, and the teacher being exhausted and frustrated, all of which contribute to an unwelcoming learning environment for all learners in the class, not only for the ADHD child.

It is quite evident that one of the major classroom concerns regarding ADHD is the behavioural component. This concern stems from the fact that the hyperactive and impulsive behaviour of the ADHD learner has a direct influence on classroom discipline. However, according to Belsham (2017), this behaviour should be seen in relation to the whole child, and the underlying psychological and social causes of the behaviour, as well as its overlap with other disorder categories. The impulsivity of the learner indicates a low frustration level and a quickness to anger. Interestingly, around 40% of boys diagnosed with ADHD meet the criteria of Oppositional Defiant Disorder (Belsham, 2017). This is a disorder that is known for its frequent and persistent pattern of irritability, anger, defiance, and arguing or vindictiveness toward authority figures, such as parents or teachers (Belsham, 2017). Belsham also mentions the remarkable overlap of symptoms of ADHD and childhood bipolar disorder, as well as the strong connection ADHD has with emotional dysregulation.

However, as was described in Chapter II section B Vygotsky placed high importance on peer/co-learning, as the knowledgeable other demonstrates and mediates mostly on a one-on-one level. Krill (2013) accurately describes the role of a teacher as one in which information is not merely presented to the learner. He is of the view that a competent and well-trained teacher would take responsibility in appropriately directing the learner's attention. This can only be done through behavioural management and relationship building, especially during the early school years.

Based on Vygotsky's theory of cognitive development, it is therefore of vital importance to find the ZDP of each individual learner to effectively teach children, irrespective of their 'categorised' 'disorders' to function within society. However, it can be said to be more important to change the assumptions and attitudes of society towards these children. Kozulin and Gindis (2007) are of the view that educational scaffolding should be aimed at, and tailored to, the child's potential for achievement and not at the level of her current/diagnosed limitations. It is my view that Vygotsky's – at the time - revolutionary ideas regarding the cultural influence on disabilities should thus have an influence on how we deal with the attitudes and training of teachers.

The current inclusion model that is recommended by education and policy documents to be used in South African schools can be seen, on paper, to be in line with Vygotsky's views that society's goal should be to encourage higher mental functions in all people, irrespective of the methods used to mediate that development (Vygotsky, 1993).

However Education White Paper 6 of 2001 should be seen in its historical educational context. It was designed and written to counter the inequality and exclusivity of a previous regime (Naicker, 2006; Pather, 2011; Dalton, Mckenzie & Kahonde, 2012; Singal, 2014) and to ensure equal and inclusive education across race, gender, socio-economic status, and disability. The EWP6 was launched in July 2001 and is based on the South African Constitution (Act 108 of 1906, Section 1a), cited in Education White Paper 6) which is grounded on the "values of human dignity, the achievement of equality and the advancement of human rights and freedom" (Education White Paper 6, 2001, p.11). The purpose of the Education White Paper 6 is to provide equal quality educational opportunities for all learners. Historically, education has long been a political tool intended ideally to contribute to a democratic society (Engelbrecht, 2006). The South African Education policy on Special Needs Education (Education White Paper 6, 2001, p. 11) is no exception, being put in place to provide an outline and model for an equal and inclusive education system, describing how the "education and training system must transform itself to contribute to establishing a caring and

humane society, how it must change to accommodate the full range of learning needs and the mechanisms that should be put in place." The policy also refers to "support" for this, that "all children and youth can learn and that all children and youth need support" (Education White Paper 6, 2001, p. 16). It does not, however, give concrete explicit guidelines for this "support", as will be discussed below.

More than 50 years earlier, the 1948 Special Schools Act supported a medical model for addressing learning problems, which was problem focused. According to this model, learners who experienced learning difficulties were to be removed from mainstream lessons and placed with specialised care. There was thus, at the time, no need to train mainstream teachers to deal with special needs children; teachers were trained, and were simply expected, to teach, based on a one-size-fits-all model of learners in a 'normal' classroom. Post-apartheid, the attempt to change this model to an inclusive one, to place the responsibility for supporting learners with learning difficulties on teachers with the implementation of Education White Paper 6 has not been without challenges. According to Naicker (2006), the initial attempts to implement the policy were already flawed as teachers needed to be "retrained". In some cases, universities were unable to assist in the retraining of teachers because they did not have enough resources to support such training; other academics chose merely to criticise the model and made no attempts to provide any solutions. This resulted in teachers being "trained" by government officials and bureaucrats who had not been specifically employed, nor were qualified, to provide the appropriate training. Years later Singal (2014) highlights the fact that, amongst some educators, there is remains a high level of scepticism and a lack of confidence with regard to the implementation of inclusive education in the mainstream setting. This clearly shows that the original incapacity to retrain teachers has not yet been addressed successfully, or even adequately.

Furthermore, teaching methods are not just castles built on clouds, they are based on and informed by theories of learning which is taught by universities and other higher education institutions (HEIs). Bearing in mind that government was unable to successfully recruit trainers to retrain existing teachers at the time of the publication and attempts at implementation of the EWP6, the Department of Basic Education came to the realization that it would take years before the university and HEI curriculum was fully adapted to incorporate and educate on the new policy, and before then the national curriculum had been revised again, thus the training of teachers in methods appropriate to the inclusive education model had become outdated.

The latest national census data for the year 2011 were used in the current study and showed that a very small percentage of learners are enrolled in special needs schools, showing in turn that a substantial number of learners (based on the traditional model), who should have been in special needs schools were being educated in mainstream schools without the necessary support, due to the disproportionate of these schools: an estimate of 2 657 714 learners with various disabilities across the country, shows only 380 special needs schools (Education White Paper 6, pp.13, 14). The Education White Paper 6 was intended to solve this issue by creating an inclusive education and training system that provides a more extensive array of educational support services than was previously the case, and that are aligned with the requirements of learners with disabilities. This meant that each category of disability would receive educational assistance at different levelled schools; learners who require high-intensity educational support would be educated at special schools, moderate support learners would be educated at full-service schools, and learners with low-intensity support would be educated in ordinary mainstream schools.

The Education White Paper 6, now almost 20 years old, acknowledged at the time of its writing and publication, that some learners might need more thorough and specialised forms of support to enable them to reach their full potential, and thus the purpose of the policy was to provide a guideline that was organised in such a way as to provide various kinds and levels of support to both educators and learners. In essence, the Education White Paper 6 aims to create "a flexible curriculum and assessment policy that is accessible to all learners, irrespective of the nature of their learning needs." (Education White Paper 6, p.31).

The idea behind inclusive education is the inclusion of all learners in the learning activity and to promote understanding rather than 'remembering' by implementing a learner-centred, all-inclusive system. The inclusive education system framework is laid out in the *Education White Paper 6: Special Needs Education: Building an Inclusive Education and Training System* (Department of Education, 2001). This somewhat idealistic policy document:

> … recommended that the education and training system should promote education for all and foster the development of inclusive and supportive centres of learning that would enable all learners to participate actively in the education process so that they could develop

> and extend their potential and participate as equal members of society. (South Africa, Department of Education, 2001).

The White Paper recognises that some learners might need specialised and thorough support to fully develop their potential.

Inclusive education is intended to provide a collective belonging, equality, and comprehensive education to all learners, and not only focus on learners with disabilities and on special educational needs (Thomas & Loxley, 2001). Inclusive education, as it was/is conceived in the EWP6, aims to provide flexible levels of learning support to all learners in the classroom, with the collaboration of all parties involved. It strives to acknowledge that each learner has strengths and weaknesses and that, with support, they all learners can achieve their full potential. Vygotsky's theory can be argued to provide an ideal basis for the collaboration of learners and teachers alike. The notion of the ZPD and scaffolding is to assist and enable learners to reach their full potential by being supported on their individual level. The Operational Manual for The National Strategy on Screening, Identification, Assessment and Support (2008) is focused on establishing an inclusive education system with an emphasis on special needs education, and was released 10 years after the publication of the EWP6 as part of the implementation programme for this White Paper.

The current South African classroom context is informed by the importance of inclusion within diversity. South Africa thus follows an inclusive education model, which demands the inclusion of a wide variety of diverse learners in a single classroom. According to Sections 9 (3), (4) and (5) of our Constitution, no learner may be excluded from basic education. The subsections specifically commit the government to protect and accommodate all learners, regardless of disability. Inclusive education places high demands on teachers, particularly those with large classes and few resources, to accommodate for all levels of learning, and to effectively deal with special educational needs (Department of Education, 1997, 35) in their classrooms. One of the primary aims of inclusive education is to empower learners by developing their individual strengths and facilitating their full and active participation in the process of learning (Department of Education, 2001, 19). This can, however, not be achieved if the teacher responsible for guiding this officially specified model of learning is not adequately equipped to support all learning barriers and levels. As a significant body of research suggests, teachers are not confident in addressing and managing the learners that they face every day due to inadequate training (Snider, Busch & Arrowood, 2003; Perold, Louw &

Kleynhans, 2010; Topkin & Roman, 2015). This leads to the inadequate and incorrect implementation of inclusive education, and over-referrals of ADHD.

The maximum class size and learner teacher ratio in South Africa, according to policy, is 40 learners per teacher (DBE, 2013). The effect of this is that the average class teacher can expect to deal with at least four ADHD children, along with 36 other learners, all of whom may or may not be affected by one or more additional learning barrier. This not only impacts on discipline in the classroom, but also detracts from the effectiveness of the teacher, and the time spent teaching, regardless of the quality of teaching. To add to the already frustrating, overcrowded classroom environment Ghanizadeh (2010) reports that ADHD learners struggle to cope in large groups and in overcrowded areas.

There are a number of guidelines and resources available to teachers not specifically trained in special needs education who, since 2001, have been faced with teaching and coping with children in the low-intensity support disability category in mainstream classrooms.

Inclusive education strategies are set out in Inclusive Education South Africa, (2017) which is available online, and thus accessible to those teachers who have internet access. These include grouping desks in a 'u' shape, or a circle to simplify monitoring and supervision. The use of 'learning stations' is also encouraged along with special areas which provide quiet spots for ADHD learners. Emphasis should be placed on a positive behaviour environment in which the aim of consequences is to change unacceptable behaviour and not simply punish behaviour. Acceptance of differences amongst learners should be promoted and reinforced through Multi-level teaching. Cooperative teaching strategies are said to lighten stress associated with large diverse classrooms with the employment of peer teaching, mixed ability group activities and team teaching (Inclusive Education South Africa, 2017).

The Guidelines for Inclusive Teaching and Learning (2010) was published nine years ago, by the DBE, Directorate Inclusive Education, and made available to all teachers. This publication, besides setting out a lengthy rationale for inclusive education (repeating and reinforcing that of the EWP6), provide a basic outline for possible strategies that could be implemented in a mainstream classroom to manage and teach ADHD learners. These include, but are not limited to, reinforcing good behaviour by praise, rewarding every positive behaviour immediately after it occurs, dividing the

work into smaller steps, making the learner(s) sit where the teacher can observe her or them all the time, allowing for a range of activities that will help keep the hyperactive learner involved in educational activities, and making the lesson interesting by using diagrams, graphs, visual aids (e.g. projectors, written information, pictures, programmed instruction). These strategies are meant to allow for reinforcement and improved self-esteem. Alternative strategies to punishment are recommended, as punishment may increase the unwanted behaviours. Lastly the document recommends the adaptation of assessments and teaching strategies.

Twenty years ago Anhalt, McNeil and Bahl (1998) created a classroom "kit" for managing disruptive behaviour, the principles of which could, or might possibly, be included in some form of in-service training for teachers. The kit, based to a large extent on positive behaviour reinforcement, was created as a whole classroom approach and intended to help the teacher attempting to teach in an inclusive education context to improve general classroom behaviour as well as peer relationships. The kit is based on a positive rewards system, where children are rewarded with smiley faces when they exhibit appropriate behaviour. The group would also receive sad faces when unwanted behaviour is displayed, several times a day. When a group has more happy faces than sad faces, they would be allowed to play the reward game for a couple of minutes. The kit offers guidelines and ideas for appropriately structuring the environment in which learning takes place. Disorganisation and a disruptive environment was seen by the authors not to be conducive to satisfactory academic performance. Although some critics see this kind of behaviour reinforcement as somewhat outdated, according to Schellack et al. (2017), positive reward systems have been shown to be highly effective and, similar to low-dose stimulants, still recommended as primary management in children with ADHD.

CHAPTER V. CONCLUSION

This chapter serves as the conclusion and discussion for the research.

The current research conducted in the form of a systematic and comprehensive literature review indicates that ADHD has been, and is often exhibited and referred to as, challenging behaviour in a formal, mainstream classroom environment. The literature describes ADHD learners as inattentive, hyperactive, impulsive, and unable to properly plan or focus on tasks and activities. The basic principles and behaviours associated with performing and participating in tasks and activities taught within the classroom setting are often challenging for the ADHD learner. Behaviour manifesting as lack of attention and focus, together with disruptive behaviour, often leads to some form of exclusion of the ADHD learner from the lessons and classroom activities in a mainstream class.

What the literature review has shown is that teachers, particularly in an inclusive education system, locally and globally need to be trained more sufficiently and appropriately in dealing with behavioural challenges. ADHD is a prevalent disorder that should be comprehensively studied and understood by education policy makers and practitioners, in particular teacher trainers. It is far too easy for teachers and parents to turn to a medical model to assist and modify the behaviour of a child. While for some, this might be a plausible and practical solution, the risks involved have been found to be serious and long term. Unfortunately, our current education system and training does not provide sufficient support for teachers in mainstream classroom contexts to ensure that they can manage and support all learners effectively and fairly.

While the Education White Paper 6 of 2001 outlines the plans for teacher training in this context, and gives a detailed rationale for, and description of, inclusive education, as has been mentioned, in the document itself there are no clear or specific guidelines for teachers in mainstream classrooms to follow regarding classroom management when their classes include ADHD diagnosed learners. Classroom management is seen, in general by school management, as a “personal discretions” topic. However, if our teachers are un- or underinformed, they cannot make informed judgement calls. Based on the research in the current study, I would argue that it is therefore vital that more research is done regarding effective classroom management in the context of a mainstream class, one or more of whose members has been ‘diagnosed’, whether by a specialist or by the teacher, with ADHD. Vygotsky’s theory, which informs the central thesis of my research, clearly indicates/advocates a very interactive teaching style, where the learner, including the ADHD learner, is actively involved

in the learning process. Thus I would advocate that, in this context, the teaching theory of self-learning, in further research, be investigated in relation to Vygotsky's theory.

I believe, that if teachers are better equipped to manage different behaviours in a classroom, and are taught how to interact appropriately and sensitively with a child with ADHD, that the number of misdiagnosed and over-diagnosed learners could possibly decrease. While setting up a more conducive learning environment would be a step in the right direction, until teachers are better equipped and supported (a reduction in maximum classroom size would be an example and a first step), the child with ADHD will continue to suffer at the hands of the current education system.

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