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TEACHERS' SUPPORT OF LEARNERS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) IN MAINSTREAM GRADE 10 CLASSES: A CASE STUDY

A dissertation submitted in total fulfilment of the requirements for the degree

Of

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By

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) affects between 5 – 7 % of children in the United States and Europe, making it one of the most common child psychiatric diagnoses. ADHD currently affects approximately 3 – 5% of school-going children and adolescents in South Africa. Schools create multiple challenges for learners with ADHD who show classic symptoms of inattention, hyperactivity and impulsivity. These symptoms produce impairment across cognitive, behavioural and interpersonal domains of function. Symptoms frequently manifest in a school setting, thus teachers play a central role in reporting symptoms, advising parents to seek professional assessment and assisting children with ADHD to achieve academically and socially. In line with the Education White Paper 6 of 2001, teachers should not only support learners with ADHD, but need to help these learners to understand and accept themselves as learners. The Literature focus on teachers' knowledge of the characteristic symptoms displayed by learners with ADHD; teachers' role in identifying and referring learners with ADHD; challenges faced by teachers when teaching learners with ADHD as well as teaching strategies and classroom accommodations teachers employ to effectively support learners with ADHD. The research was undertaken as a qualitative case study with an interpretivist underpinning. Data was collected making use of open-ended questionnaires, semi structured interviews and an informal observation. Purposive sampling was used to identify 6 teachers from previously disadvantaged high schools, teaching either Mathematics or a Language. The findings of the study indicated that teachers in mainstream high schools do not possess adequate knowledge to identify and refer learners with ADHD. As assumed by the researcher, the teachers' lack of knowledge leads to unsuitable teaching strategies and classroom accommodations. Their biggest challenge to effectively support learners with ADHD was a lack of support and knowledge.

Key words: Attention Deficit Hyperactivity Disorder (ADHD), co-morbidity, Multiple Intelligences, teaching strategies, classroom accommodations

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An earnest thank you to my supervisor, Professor Emmanuel Olusola Adu. Thank you for the trust you had in me. Thank you for you guidance, patience, support and unshakable faith. You made this possible. I salute you. May the Grace of our Lord be upon you and your household**.**

DECLARATION OF ORIGINALITY

This dissertation is presented for the approval of the Senate for the fulfilment of the requirements for the Master of Education. I hereby declare that I have read and understood the regulations governing the submission of the research dissertation, including those relating to length, plagiarism, as contained in the rules of this University, and that this research paper conforms to those regulations.

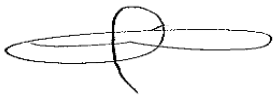
I, Ivy Johleen Hendriks hereby declare that “teachers’ support of learners with ADHD in mainstream high schools’ is my own work and that all the sources that I quoted have been indicated and acknowledged by means of complete references. This research has not been previously submitted for any degree at this university or any other university.

_____ **17 January 2018**

Ivy Johleen Hendriks **Date**

CERTIFICATION

I certify that this dissertation was carried out by Miss Ivy Johleen Hendriks under my supervision.



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Professor Emmanuel Olusola Adu

DATE: 17 /01/2018

(Supervisor)

DEDICATION

To my son, Jayson Hendriks

You will not “*fall through the cracks*”.

To my family and friends

Thank you for your support, assistance and immense patience during the time it took me to complete this study.

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ACRONYMS

AAP	American Academy of Paediatrics
ADD	Attention Deficit Disorder
ADHD	Attention Deficit Hyperactivity Disorder
ADHD-C	Attention Deficit Hyperactivity Disorder - Combined
ADHD-H/I	Attention Deficit Hyperactivity Disorder –Hyperactivity/Impulsivity
ADHD-I	Attention Deficit Hyperactivity Disorder - Inattention
CO	Conduct Disorder
DoE	Department of Education
DSM	Diagnostic and Statistical Manual of Mental Disorders
EWP6	Education White Paper 6
IEP	Individualised Education Plan
IQ	Intelligence Quotient
MI	Multiple Intelligences
ODD	Oppositional Defiant Disorder
SAOU	Suid-Afrikaanse Onderwysers Unie (South African Teachers' Union)
SIAS	Screening, Identification, Assessment and Support
TA	Thematic Analysis

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The classic symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD), i.e. inattention, hyperactivity and impulsivity make it nearly impossible for learners to sit still, listen quietly, follow instructions and concentrate for the better part of the school day. These symptoms relate to impairment across cognitive, behavioural and interpersonal domains of function. These symptoms frequently manifest in a school setting. Thus, teachers play a vital role in reporting such symptoms, advising parents to seek professional assessment and assisting children with ADHD to achieve academically and socially. Although ADHD is historically considered a childhood disorder, research has shown that the disorder often persists into late adolescence and adulthood. Moreover, ADHD is often co-morbid with other psychiatric conditions and learning disorders. The high rate of ADHD co-morbidities has a negative impact on social and academic functions of children and adolescents suffering from this distressing condition. Conduct disorder, oppositional defiance disorder and learning disorders are among the most common co-morbid disorders in learners with ADHD and they have a direct effect on learner's behaviour in the classroom setting.

1.2 BACKGROUND

1.2.1 **Attention-Deficit/Hyperactivity Disorder (ADHD)**

ADHD is a neurocognitive behavioural developmental disorder affecting both children and adults. It is characterised by a persistent pattern of inattention, hyperactivity, (motor unrest), distractibility and impulsivity (American Psychiatric Association, 2013). These core symptoms could be present beyond what would be expected to be the patient's [learner's] age, developmental level and intelligence. The condition usually presents itself in children before the age of seven years, but is also seen in adolescence and often extends into adulthood.

Learners with ADHD find it difficult to control their behaviour within their social and school environment. Normally, this interferes with their ability to live normal lives and often results into them failing to achieve their full potential academically.
To diagnose this disorder; clinically relevant functional psychosocial impairment must be present in different settings, e.g. family, school or work.

1.2.2 **ADHD Sub-types**

The Diagnostic and Statistical Manual of Mental Disorders-IV-Text Revised: DSM-IV-TR criteria in the American Psychiatric Association (2013) allows for ADHD displayed by learners to be classified in three sub-types: inattentiveness (ADHD-I), hyperactive-impulsiveness (ADHD-H/I) and a combination of the two (ADHD-C). Notably, not all learners affected by ADHD manifest all the three behavioural categories.

1.2.2.1 *ADHD INATTENTIVE* (ADHD-*I*)

ADHD-I learners tend to demonstrate symptoms of being inattentive and easily distracted. These learners have difficulty focusing and sustaining attention and, thus, they have trouble listening to and following instructions. Ben, Ben, Aucamp, Venter, & Wynchank (2012) stated that to a learner with ADHD, the teacher's instructions have equal value to that of the conversation behind him/her. This relates with Funk (2011) views, who said that it is not that children with ADHD do not attend to things, but rather these children attend to too much. This inattentiveness and distractibility often cause learners to start a task and not finish it. Interestingly Ben et al. (2012), also stated that while these students have difficulty in focusing; ever so often they tend to hyper-focus on what they do (especially if it is a task which they find interesting) and tune out on everything and everyone else. In the same vein, Volkow, Wang, Newcorn, Kollins, Wigal, Telang, Fowler, Goldstein, Klein, Logan, Wong & Swanson (2011) stated that attentional deficiencies in individuals with ADHD are most evident in tasks that are boring, repetitive and considered uninteresting – tasks and assignments for which intrinsic motivation is low. Therefore, children with inattentive characteristics are more prone to academic difficulties (Daley & Birchwood, 2010).

1.2.2.2 *ADHD HYPERACTIVE-IMPULSIVE*NESS (ADHD-H/I)

Learners displaying (ADHD-H/I) are very active and constantly in need to move. These learners become restless and cannot sit still for extended periods of time. Their impulsivity causes them to act without thinking. In this case, the teachers need to understand that these learners need to move; movement (such as tapping their fingers or chewing on the end of a pencil) help them to concentrate and to stay focused. Ben et al. (2012) believed hyperactivity is the most visible manifestation of ADHD and that together with distractibility and impulsivity, it is responsible for most of the behavioural problems and therefor it becomes the area on which treatment is focussed. However, hyperactivity declines during adolescents (Banaschewski et al., 2017; Clark, 2010; Holbrook, Cuffe, Visser, Forthofer, Bottai, Irtaglia & Mckeown, 2016), thus it may not always be apparent to the external observer, yet these condition make it difficult for the adolescent to remain in confined environments, such as a classroom for long periods of time. Clark (2010) stated that emotional impulsivity manifests as moodiness, agitation and difficulties in handling frustration.

1.2.2.3 ADHD-C (ADHD-I and ADHD-H/I) refers to a combination of ADHD-I and ADHD-H/I

ADHD symptoms affect each person in varying degrees. Therefore, depending on the severity of the symptoms, Attention Deficit Hyperactivity Disorder can be classified as either ‘mild’, ‘moderate’ or ‘severe’ under the criteria in the DSM-5:

- Mild: Few symptoms less than the required number for diagnosis are present and symptoms result in minor impairment at home, at school, at work and /or in social settings.

- Moderate: Symptoms or impairment between "mild" and "severe" are present.

- Severe: Many symptoms, beyond the number mandatory to make a diagnosis are present or multiple symptoms are particularly severe, or symptoms extremely impair an individual at home, school, work and/or in social settings (Menikdiwela, 2016).

1.2.2.4 SUMMARY AND COMPARISON OF SUB-TYPES

Table 1: Subtypes characterised and compared

The Inattentive learner often:	The Hyperactive learner often:	The Impulsive learner often:
1. Fails to give close attention to details or makes careless mistakes in schoolwork. 2. Has difficulty sustaining attention in the classroom. 3. Does not seem to listen when spoken to directly. 4. Does not follow through on instructions and fails to finish schoolwork (not due to failure to understand instructions). 5. Has difficulty organizing tasks and activities. 6. Avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort. 7. Loses things necessary for tasks or activities. 8. Is easily distracted by extraneous stimuli. 9. Is forgetful in daily activities.	1. Fidgets with hands or feet or squirms in seat, or may have a fidget toy (such as a stress ball). 2. Leaves seat in classroom situations in which remaining seated is expected. 3. Has difficulty engaging in independent activities quietly. 4. Is "on the go" or often acts as if "driven by a motor"; appears restless. 5. Talks excessively.	1. Blurts out answers before questions have been completed. 2. Has difficulty awaiting turn. 3. Interrupts or intrudes on others (e.g., butts into conversations).

Source: Adapted from (Bose, 2013)*: ADHD in the Classroom. Currents in Teaching and Learning*

The study by Efron, Bryson, Lycett & Sciberras (2016) found that of the ADHD sub-types presented by the learners, 87 % had combined (ADHD-C), 8 % predominantly inattentive (ADHD-I) and 5 % predominantly hyperactive-Impulsive (ADHD-H/I). This differ slightly with the findings of Sarwat, Memon, Bhatti & Tariq (2010) who found that for the subtypes of ADHD identified, combined (ADHD-C) subtype is the most common type of presentation, followed by hyperactive-impulsiveness (ADHD-H/I) and inattentive(ADHD-I) types.

It is interesting to note that Walker, Venter, van der Walt and Esterhuyse (2011) found, contrary to the findings of Efron et al (2016) that a higher percentage of adolescents in their study met the criteria for ADHD-I, while more than 20 % less met the criteria for ADHD-H/I and ADHD-C. This corroborates the findings by Holbrook et al. (2016) that Hyper-Impulsiveness (ADHD-H/I) tends to decrease earlier than the decline of Inattention (ADHD-I) symptoms in adolescence.

Similarly, Banaschewski et al. (2017) found that motor-unrest (hyperactivity) often lessens from adolescence onward and it is often reduced to a subjectively unpleasant inner feeling of restlessness and drive, while difficulties such as inattentiveness, deficient planning ability and impulsivity often persist. Notably, the study by Langberg, Eptein, Altaye, Molina, Arnold & Vitiello (2008) found that transition to middle school [and theoretically from middle school to high school] is associated with an interruption of the decline of ADHD symptomology.

The hyperactive-impulsive (ADHD-H/I) symptoms of ADHD appear to be associated with academic failure, but behavioural-inattentive (ADHD-I) symptoms are more strongly related to school performance (Daley & Birchwood, 2010; Willcutt, Nigg, Pennington, Solanto, Rohde & Tannock, 2013). A later study by Colomer, Berenguer, Roselló, Baixauli & Miranda (2017) confirmed these findings that ADHD-I symptoms influences learning behaviours, whereas ADHD-H/I affects learners' ability to pay attention to and be persistent in the completion of task – thus resulting in failure. The findings of Alsop, Furukawa, Sowerby, Jensen, Moffat & Tripp (2016) established that when reinforcement is discontinuous and the association between an action and its outcome is not certain, learners with ADHD-I and ADHD-C subtypes show poorer behavioural adaption to changing reinforced availability.

1.2.3 **Prevalence of ADHD in countries around the world and in South Africa**

Attention-Deficit/Hyperactivity Disorder has a worldwide prevalence of 5.3% according to Banaschewski et al. (2017). ADHD is the most common neurodevelopmental childhood disorder (Polanczyk, Willcutt, Salum, Kieling, & Rohde, 2014). Yet, the stricter research criteria of the International Classification of Diseases (ICD-10) released by the World Health Organisation which refers to ADHD as Hyperkinetic

Disorder (HKD), estimated a prevalence of only approximately 1 – 2 % (Banaschewski et al., 2017).

Appelbaum (2008) stated that ADHD diagnoses accounts for 50% of the children in child psychiatry clinics in the United States of America. A study by Funk (2011) found that the national prevalence of ADHD among school-age children in the United States has increased from 7 – 10 % since 2005. Banaschewski et al. (2017) contradicted this by stating that ADHD has not become more prevalent in the general population in recent decades, but it has however become well-recognised. With Germany currently having approximately 4 % of children and adolescent diagnosed with ADHD, they also ascribed the increase to the increase in diagnosis rather than in worldwide prevalence. The prevalence of 4 – 6 % of children and adolescents affected by ADHD in Brazil is within the bracket of the international data showing a worldwide prevalence of 5.29 % (Aguiar, Kieling, Costa, Chardosim, Dorneles, Almeida, Mazzuca, Keiling & Rohde 2014). Moreover Ghanizadeh & Zarei (2010) stated that up to 10.1% of children in Iran display symptoms of ADHD. In a review of the epidemiology and co-morbidities of ADHD in African children, Bakare (2012) found that the prevalence ranges between 5.4 % and 8.7 % among populations of school going children in Africa, with approximately 8.7 % in Nigeria, 6.0 % in the Democratic Republic of Congo, and a much lower 1.5 % in Ethiopia.

In her study, Hariparsad (2010) found that ADHD is a common disorder that is on the rise and currently affects approximately 3 – 5% of school-going children in South Africa. In concurrence with Hariparsad (2010), Vogel (2014) also found the prevalence rates of ADHD in South Africa to be 5% for children and adolescent and 2.5% for the adult population.

1.2.4 **ADHD and Co-morbid Disorders**

ADHD is often co-morbid with other psychiatric conditions and learning disorders (Sarwat et al., 2010). According to Jensen and Steinhausen (2015) co-morbidity can refer to both the co-occurrence of disorders temporally separate from ADHD (sequential co-morbidity) or can be defined as temporally concurrent with ADHD (concurrent co-morbidity). From a study by Jacob, Srinath, Girimaji, Seshadri and

Sagar (2016), it was evident that co-morbidities occur with alarming frequency in clinic-referred children and thus a careful and systematic assessment is mandatory both for the ADHD and for the other co-existing disorders.

Jensen and Steinhausen (2015) in their study found that approximately 75% of persons with ADHD had an additional mental disorder and around 60 % had multiple co-morbid mental disorders. The high rate of ADHD co-morbidities has a significant impact on social and academic functions of children and adolescents suffering from this distressing condition (Burke, Rowe, & Boylan, 2014; Pagano, Delos-Reyes, Wasilow, Svala, & Kurtz, 2016; Roy, Oldehinkel, & Hartman, 2017; Sarwat et al., 2010). A gloomy picture is painted by Murrell, Steinberg, Connally, Hulsey and Hogan (2015), who stated that ADHD prognosis is typically worsened when co-morbid symptoms are present. Jacob et al. (2016) stressed that, because co-morbidity seems to be the rule rather than the exception in clinic-referred children diagnosed with ADHD, clinicians who diagnose children with ADHD must screen them for other neurodevelopmental and psychiatric co-morbidities. To possibly counter-act the statement by Murrell et al. (2015), clinicians should take into consideration what was advised by Jacob et al. (2016) that the intervention package designed for these children must be all-inclusive and should address both the primary disorder as well as the concurrent co-morbidity.

Efron et al. (2016) stated that in children with ADHD, co-morbid disorders can contribute substantially to functional impairment and are often associated with long-term problems and these disorders may potentially compromise life chances as much as ADHD itself. Their study highlighted the importance of systematically evaluating for the presence of co-morbid conditions when assessing children for ADHD, so that interventions can be offered for the identified problems; this links directly with the recommendation given by Jacob et al. (2016).

Among the most frequently observed co-morbidities in children and adolescents with ADHD are conduct disorders and oppositional defiant disorder (Bakare, 2012; Ben et al., 2012; Dougherty, Olvera, Acheson, Hill-Kapturczak,Ryan & Mathias, 2016; Jensen & Steinhausen, 2015; Walker et al., 2011). Other observed co-morbid mental disorders are the specific disorders of development such as disorders of language, learning and

motor development and co-morbid intellectual disability. Jensen and Steinhausen (2015) also found that elimination disorders, autism spectrum disorder, intellectual disability, and attachment disorders were among the disorders diagnosed in early childhood. On the other hand, other disorders including anxiety disorders, reactions to stress, conduct disorder, tics, and the specific disorders of development are manifested only in late childhood or early adolescence.

For purpose of this study, we will briefly look at Conduct Disorder, Oppositional Defiant Disorder and Learning Disorders, since they have a direct bearing on the educational environment and the interaction between teachers and their pupils. Pardini & Fite (2011) pointed to some evidence that supports a developmental cascade of problem behaviour that partially explains the co-occurrence of ADHD, ODD and CD symptoms.

1.2.4.1 Conduct Disorder (CD)

One of the most common co-morbidities with ADHD is Conduct Disorder (CD) which involves a pattern of aggressive and antisocial behaviours (Dougherty et al., 2016). This is in accordance with Pardini and Fite (2011) who stated that there is little doubt that early CD symptoms are one of the most robust predictors of serious antisocial behaviour later in life. Banaschewski et al. (2017) emphasised that a distinction needs to be drawn between the core symptoms of ADHD (impaired concentration, impulsivity, hyperactivity) and the dissocial and aggressive symptoms characterised by conduct disorder.

While co-morbidity with CD may emerge during childhood, CD symptoms are typically most severe during adolescence (American Psychiatric Association, 2013). Co-morbidity of ADHD with CD is thought to occur through a shared underlying syndrome of impulsivity (Dougherty et al., 2016). Ben et al. (2012) also believed that learners CD are not only “naughty”, but that they also lack any remorse for what they have done. They stated that the behaviour of a learner with CD is malicious and can include lying, cheating, stealing, destruction of property and cruelty. Jensen and Steinhausen (2015) noted in their study that conduct problems are well-known risk factors for substance abuse.

1.2.4.2 Oppositional Defiant Disorder (ODD)

ODD is highly prevalent in ADHD and individuals with both ADHD and ODD show a considerably worse prognosis compared to individuals with either ADHD or ODD (Noordermeer, Luman, Weeda, Buitelaar, Richards, Hartman, Hoekstra, Franke, Heslenfeld & Oosterlaan, 2017). Jacob et al. (2016) in their study found that, ODD was the most frequent psychiatric co-morbidity and it impacts the severity of ADHD symptoms. According to Pardini and Fite (2011), learners with elevated ADHD symptoms are more likely to develop ODD symptoms.

Oppositional Defiant Disorder (ODD) is considered to be a disorder of childhood, yet evidence suggests that prevalence rates of the disorder are stable in late adolescence and that some of the symptoms persist into young adulthood.
ODD significantly interferes with functioning, particularly in social or interpersonal relationships. Functional outcomes associated with ODD through childhood and adolescence includes conflict within families, poor peer relationships, peer rejection, and academic difficulties. The persistence of impairment associated with ODD into young adulthood calls for a reconsideration of ODD as a disorder limited to childhood (Burke Rowe & Boylan 2014). The American Psychiatric Association (2013) defined ODD by a frequent and persistent pattern of irritable and angry mood, vindictiveness, and developmentally inappropriate, negativistic, defiant and disobedient behaviour towards authority figures.

1.2.4.3 Learning Disorders

Nearly half the children presenting ADHD may also have an associated learning problem. Aguiar et al. (2014) noted that learning disorders affect about 5 % to 10 % of school-age children and include several different disorders such as reading, mathematics, written expressions, expressive language and mixed receptive-expressive language disorders. These children often have normal or above average IQ's, but they have trouble with the processing of information (Benn et al., 2012). Perold, Louw and Kleynhans (2010) agreed with this and believed that, although most learners diagnosed with ADHD are of normal overall intelligence or even more astute than their counterparts, they have trouble in applying their intelligence to everyday

situations. This is supported by Banaschewski et al. (2017) who augment that diagnosing learners with ADHD, reduced intelligence must be ruled out. They stated that about half of all persons with ADHD have normal neurocognitive test findings, despite the marked core symptoms of ADHD. Contradictory to this, a study by Jensen and Steinhausen (2015) documented a high rate (7.9 %) of co-morbid intellectual disability in patients with ADHD.

Yet, the findings by Cheung, Rijdijk, McLoughlin, Faraone, Anderson and Kuntsi (2015) raised the possibility that individuals with higher IQ, particularly in the performance domain, may develop better coping strategies to deal with their ADHD symptoms or be more responsive to treatment. The unexpected finding of Zentall, Kuester and Craig (2011) to support the notion that learners with ADHD and associated learning disorders do not necessarily have a low IQ. They found that all the groups in their study with one or more member with hyperactivity and inattention achieved higher success rates than comparison groups. This led them to the conclusion that when tasks are interesting and performances do not tap into learning difficulties (e.g. mathematics), student with hyperactivity and inattention – thus at the risk of ADHD can make valid contributions.

1.2.5 **The School and Learners with ADHD**

The academic requirements of a school become compound when placed against the backdrop of ADHD symptoms as well as other co-morbid disorders; leading to individuals with ADHD experiencing life-long academic challenges (Keaveny, 2014). Schools create multiple challenges for learners with (ADHD). These learners find tasks such as sitting still, following instructions, listening quietly and concentrating most difficult, yet they are required to do that for the larger part of the school day. Rogers and Tannock (2013) stated that the very nature of most classroom settings requires children to engage in behaviours that are contrary to the core symptoms of ADHD. According to Colberg (2010) learners with ADHD tend to cause frequent distractions and exhibit disruptive behaviour that has an impact on teachers as well as other students and thus have a negative effect on the learning environment in the classroom.

Even though children are commonly referred to paediatric services for assessment of symptoms of ADHD, according to Efron et al. (2016) this may be identified as problematic in an educational setting (e.g. pre-school, school), at home, or both. This is in accordance with Banaschewski et al (2017) who stated that symptom levels of ADHD vary across different areas of life and according to the extent of external demands and that in this respect, situations that require attention, sitting still and impulse control (e.g. classroom behaviour) are often the first in which the symptoms are experienced as causing impairment. This findings links to the study by Bakare (2012), who noted that there is a possibility that symptoms of ADHD, especially in-attention, are made more noticeable and apparent by the school environment compared to the home or community environment where high levels of concentration might not be required in normal, routine tasks. This also correlated with the findings of Martin (2014) that students with ADHD are at significantly greater academic risk (Sibley, Olson, Morley, Campez and Pelham Jr, 2016), because many of the tasks presented to children and young people at school require the very functions that ADHD seems to most impair.

Langberg et al. (2008) found that even a transition in school phases leads to decreased academic confidence and grade point averages. Clark (2010) confirmed this by stating that learners diagnosed with ADHD struggle with the transition from primary to high school and experience ongoing difficulties in meeting the more complex and growing demands of the high school environment.

The characteristic symptoms of ADHD i.e. inattention, hyperactivity and impulsivity produce impairment across cognitive, behavioural and interpersonal domains of function (Colomer et al., 2017; Volkow et al., 2011). According to Sibley, Campez, Perez, Morrow, Merrill, Altszuler, Coxe and Yeguez (2016) organization, time management and planning problems are a key mechanism of academic failure for adolescents with ADHD. This links to Benner & Graham (2009) who found that organization, time management and planning (OTP) deficits become harmful in secondary school, as older youth with ADHD struggle to master increased environmental demands with decreased teacher supervision.

It is thus not astonishing that Colomer et al. (2017) stated the children diagnosed with ADHD are at risk of experiencing lower academic achievement compared with their peers without ADHD. In their study, they found the children with ADHD are less likely to engage in challenging tasks or to work independently on tasks; they have less ability to focus on tasks, resist distractions and to persist appropriately; they are less able to tolerate frustration, to cooperate and to accept help if needed.

The findings of Alsop et al. (2016) that children with ADHD do not adapt their behaviour to situational demands as well as other children, thus they will tend to persist with an unsuccessful strategy, and exacerbate the situation. They noted that the children with ADHD will persist in talking to classmates, even after lessons have begun – when listening or other 'on task' behaviours become the target for reinforcement. Due to their reduced sensitivity to changing reinforcement availability, they experience difficulties in adjusting to changing situational demands. ADHD symptoms cause learners to be experienced among other things as disruptive, bored, impatient annoying, demotivated and unable to handle frustration (Clark, 2010). Coupled with this, research by Rogers and Tannock (2013) found that children with ADHD perceive their classrooms as more controlling, reported more feelings of incompetence and reported more negative relationships with their teachers. They stated that it is possible that children with symptoms of ADHD feel disconnected or rejected by their teachers. Unless teachers know how to appropriately deal with the characteristic symptoms of ADHD i.e. inattention, hyperactivity and impulsivity, these can become a source of great frustration for teachers (Segal & Smith, 2015).

1.2.6 **Adverse Effects of ADHD on the adolescents**

Clark (2010) postulated that adolescents with ADHD experience tremendous difficulty in the complex high school environment as the core and secondary symptoms set them up for academic failure as well as behavioural and social adjustment problems. These behavioural and social adjustment problems may also be the reason students with ADHD experience difficulties in being socially included in general secondary education as found by a study by De Boer & Pijl, (2016). They also found that secondary school learners have the least positive attitude towards learners with ADHD

and that they are rejected by their peers. This may be due to the fact that they frequently display classroom behaviours that are not conducive to learning and that they have difficulty in meeting the academic and social demands of the classroom, as stated in a research brief by Rogers & Tannock (2013).

Since, underachievers are often marginalised and negatively judged in society, they develop a low self-efficacy which seriously impedes their well-being, personal health and ultimate self-actualisation. in addition to this, Holbrook et al. (2016) found that persistent ADHD (into adolescence) is associated with negative outcomes, including academic underachievement, driving violations and motor vehicle collisions, sexual risk behaviours and unemployment. This is in accordance with Banaschewski et al. (2017) who claimed that adolescents presenting symptoms of ADHD are accident-prone, particularly regarding road traffic accidents.

These findings are also supported by Kent, Pelham Jr, Molina, Sibley, Waschbusch, Yu, Gnagy, Biswas, Babinski & Karch (2012) who found that adolescents with ADHD are significantly more often absent from school; they are more likely to fail and drop out of school and they are tardier than learners without ADHD – possibly due to their difficulty with time management. They further stated that learners with ADHD are four times less likely than their peers to obtain a college degree and on average they attain a lower socio-economic status.

Adolescents who were diagnosed with ADHD during childhood appear to be at particular risk for interpersonal problems, poor behaviour regulation and thoughts of self-harm. This leads to difficulty in effectively relating to their social environment as well as an inability to effectively deal with frustration (Walker et al., 2011). These learners are often involved in disciplinary incidents because of their impulsive and socially inappropriate behaviour (Clark, 2010). The fact that adolescents with ADHD reports lower scores of secured attachments to parents as well as their peers, according to the study by Al-Yagon (2016) dramatically increases their likelihood of maladjustment.

They further stated that, this lower level of attachment to the parents, especially mothers, may be due to their impulsive, disruptive and non-focussed behaviours which

can challenge and frustrate parents and can lead to children's experience of parents as under-responsive, inconsistent or intrusive, criticizing caregivers. Adolescents with ADHD are also more prone to victimization which leads to the increased risk of low self-esteem, anxiety and depression (Becker, Mehari, Langberg, & Evans, 2017). They also found that it is likely that, a lack of social support exasperates the effects of victimization, since social support serves as a buffer for victimization.

Pagano Delos-Reyes, Wasilow, Svala & Kurtz, (2016) found that ADHD significantly increased the likelihood of continuing to smoke and it clearly decreased the chances of smoking cessation and was associated with worse functioning. This perhaps would be due to lower performance in classrooms, poor executive functioning, and impulsive symptoms associated with this disorder. They also found that during their study, ADHD symptoms of impaired attention and lack of task persistence may hinder step-work, whereas irritability, aggression, and low social skills may interfere with getting along with peers in mutual-help activities.

With all the challenges faced by adolescents with ADHD, one can understand why the study by Roy et al. (2017) found that both boys and girls with ADHD, across a wide age range (from 4 to 18 years), are likely to develop depression. They speculated that the development of depression may have increased the cognitive burden associated with ADHD or that alternately, poor cognitive functioning may have led to the development of depression in adolescents with ADHD. Therefore, Banaschewski et al. (2017) concluded that ADHD leads to functional impairment in multiple areas of life, and is often associated with co-morbid mental disorders and can have lifelong adverse consequences.

1.2.7 **Treatment of ADHD**

While there is no cure for ADHD, there are many kinds of treatments. However, for the treatment to be successful, the correct diagnosis is imperative (Edington and Boone, 2008). The American Acadamy of Paediatrics (2011) strongly held that evidence continues to be clear with regard to the legitimacy of the diagnosis of ADHD and the appropriate diagnostic criteria and procedures required to establish a diagnosis, identify co-occurring conditions, and treat effectively with both behavioural and

pharmacologic interventions. In accordance, Funk (2011) postulated that ADHD should be viewed like any other chronic medical condition that requires ongoing treatment for its effective management, but whose treatments do not rid the individual of the disorder. ADHD requires early, need and age-adapted treatment consisting of psychoeducation, behavioural therapy and treatment with psychoactive drugs (Banaschewski et al., 2017). This supported findings of Aguiar et al. (2014) that psychoeducation intervention might significantly impact teacher knowledge on ADHD and other Learning Disorders.

According to (Lopez, 2008) treatment should include:

- Pharmacology: The use of medication to improve ADHD symptoms

- Parent-involvement: Parents have a key role in providing information to the health professional in order for the correct diagnoses to be made and that the treatment plan to be correctly implemented. The parent is also the link between home, school and health professional.

- The educator: The behaviour and classroom management of the learner with ADHD relies on the educator's belief system, the educator's relationship with the learner as well as classroom management strategies implemented by the educator.

1.2.8 **ADHD and Inclusive Education**

Inclusive education is a reality and is embraced as the primary approach to education in South Africa. In 2001, Education *White Paper 6* (EWP6): *Special Needs Education, Building an Inclusive Education and Training System*, was introduced as policy to guide the implementation of inclusive education practices (Nel & Grosser, 2016). According to the Policy of Inclusive Education in South Africa, learners with barriers to learning [of which ADHD is prominent] are now accommodated within the mainstream schools (Department Of Education, 2001).Donald, Lazarus & Lolwana (2007, p.263) supported this by stating that '... *students with specific learning needs should, wherever possible and with appropriate support, be educated along with others through the regular school and curriculum*'.

To elaborate on this, Okeke, Van Wyk & Phasha (2015, p. 219) stated that:

> "… *the inclusive education classroom is designed to achieve two things, i.e. to offer easy physical access to all learners, regardless of individual physical abilities or disabilities and to gear every method, every means of instruction and every learning strategy toward ensuring that every learner, regardless of disability, is able to acquire as much knowledge as possible and to experience educational success, friendship, and a genuine sense of belonging to the leaning community*."

Inclusive education is defined by Education *White Paper 6*, as follows:

Acknowledging that all children and youth can learn and that all children and youth need support through:

- Enabling education structures, systems and learning methodologies to meet the needs of all learners.

- Acknowledging and respecting differences in learners, whether due to age, gender, ethnicity, language, class, disability, HIV or other infectious diseases.
- Broader than formal schooling and acknowledging that learning also occurs in the home and community, and within formal and informal settings and structures.
- Changing attitudes, behaviour, teaching methods, curricula and environment to meet the needs of all learners.

- Maximising the participation of all learners in the culture and the curriculum of educational institutions and uncovering and minimising barriers to learning (Department of Education, 2001, White Paper 6, p. 6-7).

The purpose of Education *White Paper 6* was to move away from the categorization of learners as a result of their disability (medical model) to acknowledging that there are various factors (intrinsic and extrinsic) causing barriers to learning and development for learners (socio-ecological model) (Nel & Grosser, 2016). Mulaudzi & Kutame (2011) stated that in line with the Education *White Paper 6* of 2001, which

emphasises that Inclusive Education and Training are about acknowledging that all children and youth can learn and that all children and youth need support, teachers should not only support learners with ADHD, but need to help these learners to understand and accept themselves as learners. Lessing and De Witt (2010) argued that the well-known and well-used 'one-size-fits-all' approach to teaching and learning is no longer effective in the inclusive classroom. They stated that for teachers to effectively support learners with ADHD, they need knowledge about the specific problems with which learners with ADHD are faced. In support Geng (2011) went further by asserting that there is no 'one size fits all' effective behaviour management strategy when working with learners with ADHD. He further claimed that every ADHD student is different, and strategies must be adjusted to the needs of the child.

Afore-mentioned notwithstanding, De Jager (2013) found that in most of the sampled schools in her study, inclusive education was considered to be an extra burden for teachers and was not seen as essential in the classroom. She stated that despite previous research and recommendations in South Africa, secondary-school teachers still encounter economic, social and cultural challenges in implementing differentiated learning activities in the classroom.
She also found that the diversity of learners with learning barriers inevitably leads to an increase in workload for the teachers.

In their report Aziz, McKenzie, Watermeyer, Beere, Japtha, Fish, Khumalo & Swift (2016) stated that after 14 years, the progress on inclusive education has been exceedingly slow. They believed ordinary schools are reluctant to even attempt to deal with children's medium to high support needs even when there is no alternative available. Yet the article by Du Plessis (2013) stated that the inclusion of learners with special education needs or learning barriers, into mainstream classes, is part of a universal human rights movement. This was resonated in the Progress Report of the Department of Education (2015) which elucidated that the development of ordinary schools to accommodate an increasingly wider range of learning needs (this includes children with barriers to learning such as ADHD and dyslexia) is at the foundation of an inclusive education system.

De Jager (2013) upheld that the teacher is central to the implementation of successful differentiated learning activities in an inclusive class. This was echoed by BRIDGE Education Network (2014) which stressed that classroom educators are the primary resource for achieving inclusive education. Yet according to the policy custodians as stated by BRIDGE Education Network (2014), the literature makes consistent reference to resistance to inclusive education from teachers as one of the reasons for slow implementation. In her study, Brown (2015) stated that *White Paper 6* is controversial in nature, because of the social and cultural context, and that there appears to be resistance to change, especially by teachers. She found that many negative attitudes towards disability and inclusive education exist in South African society.

Table 2: Common Barriers to Inclusive Education in South Africa

BARRIER	NUMBER OF DATA SOURCES BARRIER WAS IDENTIFIED	DATA SOURCES
Lack of teacher capability and confidence in the classroom	8	Engelbrecht et al. (2003), DBE (2008c, 2009), Greyling (2009), Helldin et al. (2011), Kalenga & Fourie (2012), Malinen et al. (2013), Ntombela (2011)
Lack of teacher training	5	Bornman & Donohue (2013), Forlin (1997), Greyling (2009), Ntobela (2011), Yssel et al. (2007)
Lack of financial and material resources	4	Engelbrecht et al. (2003), DBE (2008c, 2009), Greyling (2009)
Lack of direction and scope in school management	4	DBE (2008c, 2009), Dreyer (2013), Kalenga & Fourie (2012)

Source: Brown (2015)

Teaching learners whose circumstances are disadvantaged, whose beliefs and values differ from others in the class and who feel socially excluded [typically the ADHD adolescent] makes the design of differentiated learning activities, i.e. inclusive education more complicated (De Jager, 2013). In their study, Bruggink, Meijer, Goei, & Koot (2014) found that teachers perceived learners with learning difficulties [ADHD included] in need of instructional, on-task behavioural, emotional and peer support difficult to teach. Given the general problems relating to teacher competence and confidence in the context of a limited supply of skilled and qualified educators in schooling, this is understandable (BRIDGE Education Network, 2014). Brown (2015) painted a bleaker picture; claiming that if these negative attitudes are shaping the institutional norms and practices in local schools, it is unlikely that the inclusive education policy initiative will ever move forward.

Du Plessis (2013) suggested that inclusive education can be a success if we recognize that education is the joint responsibility of parents, teachers, curriculum advisors and the community. In addition, Aziz et al. (2016) advanced that the starting point for transforming South Africa's education system to an inclusive one is taking into consideration the best interests of each child; stronger and more decisive political leadership; improved governance systems and allocation of funds.

1.3 STATEMENT OF THE RESEARCH PROBLEM

Research (The American Psychiatric Association, 2013; Banaschewski et al., 2017; Cheung et al., 2015; Holbrook et al., 2016; Langberg et al., 2008; Mahomedy, Van der Westhuizen, Van der Linde, & Coetsee, 2007; Simon, Czobor, Balint, Meszaros, & Bitter, 2009; Walker et al., 2011) concluded that ADHD is reconceptualised as a lifespan disorder, rather than merely a childhood condition. The findings of Weyandt, Fulton, Verdi & Wilson (2009) claimed that most general education (mainstream) teachers generally lack knowledge of ADHD. They also suggested that it is highly plausible that problems associated with students with ADHD will be compounded when they are placed in a classroom with teachers who possess a low level of knowledge of effective management or insufficient understanding of the possible causes of ADHD. Against this background, it is a matter of concern that according to Clark (2010), teachers in mainstream high schools are not equipped for the education of adolescent learners with ADHD.

With the rise in the number of learners being diagnosed with ADHD (Banaschewski et al., 2017) and with approximately 1 in 20 learners diagnosed with ADHD (Colberg, 2010; Polanczyk, De Lima, Horta, Biederman & Rohde, 2007), it is highly probable that in a class with 30 – 45 learners, at least 1 learner would be diagnosed with ADHD. It is imperative that mainstream high school teachers need to take initiative in becoming more knowledgeable regarding ADHD. DuPaul, Weyandt & Janusis (2011) stated that school-based interventions are a critical component to a comprehensive treatment plan for students with ADHD, but they stressed that more research is needed particularly with respect to the functioning of secondary school students with this disorder. Sibley et al. (2016) stated that there is almost no research evaluating the school-based interventions for high-school adolescents with ADHD, indicating a need to develop realistic and effective strategies to match typical school contexts.

1.4 MOTIVATION FOR RESEARCH

The report on the implantation of EWP6 (Department of Education, 2015) indicated that the Word Health Organisation states that close to 20 % of learners in any schooling system could be experiencing some barrier to leaning or another.

Table 3: Learners with disabilities enrolled in ordinary schools in 2013

PROVINCE	INDEPENDENT		PUBLIC		Independent & Public	
	Learners	Schools	Learners	Schools	Learners	Schools
EC	821	56	27 467	1 252	28 288	1 308
FS	95	11	21 235	404	21 330	415
GT	1 186	84	3 802	150	4 988	234
KZ	554	32	8 675	464	9 229	496
LP	143	25	2 465	368	2 608	393
MP	65	11	2 368	162	2 433	173
NC	59	10	2 267	179	2 326	189
NW	203	15	2 006	152	2 209	167
WC	583	94	6 708	753	7 291	847
South Africa	3 709	338	76 993	3 884	80 702	4 222

Source: Report on the Implementation of Education *White Paper 6* on Inclusive Education – An Overview for the Period: 2013 - 2015 (Department of Education, 2015)

Statistics showed that in 2012, learners with ADHD accounted for the second largest number of leaners with disabilities catered for in ordinary (mainstream) schools (Department of Education, 2014). With the increase of learners diagnosed with ADHD, it is probable that the number has increased significantly since 2012.

Table 4: Enrolment of learner with disabilities in mainstream schools in order of prevalence

Category barriers to learning in Mainstream	Number
Specific Learning Disability	26 029
Attention Deficit Disorder	23 981
Mild or Moderate Intellectual Disability	19 704
Partially Sighted	19 658
Behavioural Disorder	7 026
Hard of Hearing	6 890
Epilepsy	4 702
Physical Disability	4 616
Severe Intellectual Disability	3 085
Autistic Spectrum Disorder	1 209
Psychiatric disorder	967
Deaf	769
Blind	433
Cerebral Palsy	421
Deaf/Blind	233
Multiple Disability	138

Source: Adapted from the Report on the Implementation of Education White Paper 6 on Inclusive Education – An Overview for the Period: 2013 – 2015 (Department of Education, 2015)

According to *White Paper 6*, learners who require low-intensive support (thus including learners with ADHD) were to receive it in ordinary schools in the inclusive education and training system (Department of Education, 2001). In a country like South Africa, mainstream teachers must deal with barriers to education, such as contextual disadvantages, (e.g. poverty and its effects; learning through a second language) and social problems (e.g. alcohol and drug abuse; teenage pregnancy; violence; race,

gender and other forms of discrimination) (Donald et al., 2007). Having to teach learners with ADHD might be viewed by many teachers as an extra work burden on an already heavy load. Due to curricular demands, insufficient training, time constraints and a lack of knowledge regarding ADHD, most teachers do not identify these kids and ultimately they 'fall through the cracks'.

Most South African mainstream schools do not have the necessary resources like in-house psychologists, adequate workshops, etc. to effectively assist these learners, (Mulaudzi & Kutame, 2011), thus the onus falls on the teacher to help these learners. According to Rush & Harrison (2008), the classroom environment can make an enormous difference regarding the academic and personal outcomes of adolescents, particularly those with ADHD. In addition to implementing the needed classroom approaches, educators should become advocates for high-quality services to these youngsters outside the school domain. These services include early assessment, training for parents, and the provision of additional therapies when needed.

As a previous mainstream teacher, presently teaching at a special school, I know, from personal experience how learners with ADHD have been marginalized in many mainstream schools. If this study influences teachers to look more closely at the 'blasé, lazy, disruptive and disturbing trouble-makers', and hopefully identify the underlying reasons (possibly ADHD) for their behaviour, it would have succeeded in its purpose. For educators to effectively identify learners with ADHD, they should have a basic understanding of ADHD. Only then can they effectively support learners with ADHD. According to Appelbaum (2008), the first step to working with and supporting students with ADHD is to understand that, although this disorder is often invisible – buried beneath what appears to be misbehaviour, sloppiness, laziness and even stubbornness – it is a real disability.

Both teachers as well as the learners with ADHD may profit from this study. The teachers will have an opportunity to examine their own knowledge and perceptions of ADHD. This will hopefully encourage them to acquire more knowledge, which in turn might lead to a better understanding and interaction between teachers and learners with ADHD. Learners with ADHD can only reach their full academic potential if their

teachers are knowledgeable about their (students) disorder, understanding and willing to walk the extra mile with them.

1.5 RESEARCH QUESTIONS

1.5.1 Main Question

How do teachers support learners with Attention-Deficit/Hyperactivity Disorder (ADHD) in mainstream Grade 10 classes?

1.5.2 Sub-Questions

(i) What knowledge do teachers have of the characteristic symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) in mainstream Grade 10 learners?

(ii) What are the challenges and strengths of Grade 10 teachers when teaching learners with Attention-Deficit/Hyperactivity Disorder in mainstream classes?

(iii) What teaching strategies do teachers employ to support learners with Attention-Deficit/Hyperactivity Disorder in Grade 10 mainstream classes?

(iv) What would be a workable framework for implementing classroom accommodations for teachers to effectively support learners with Attention-Deficit/Hyperactivity Disorder in Grade 10 mainstream classes?

1.6 RESEARCH OBJECTIVES

(i) To identify how teachers support learners with Attention-Deficit/Hyperactivity Disorder in mainstream Grade 10 classes.

(ii) To establish what knowledge mainstream teachers have of the characteristic symptoms of Attention-Deficit/Hyperactivity Disorder in mainstream Grade 10 learners.

(iii) To discover challenges and strengths of mainstream teachers when teaching learners with Attention-Deficit/Hyperactivity Disorder.

(iv) To identify teaching strategies employed by teachers to support learners with Attention-Deficit/Hyperactivity Disorder in mainstream Grade 10 classes.

(v) To identify a workable framework for implementing classroom accommodations for teachers to effectively support learners with Attention-Deficit/Hyperactivity Disorder.

1.7 ASSUMPTIONS

Considering previous studies as well as personal experience, it is expected that mainstream grade 10 teachers have insufficient knowledge of the characteristics of ADHD, thus they will find teaching learners with ADHD challenging. A further assumption is that, due to their lack of knowledge, lack of training, time constraints, a rigid curriculum and lack of support, teachers rarely employ teaching strategies to support these learners. Thus, they make use of the easiest and not often most effective classroom accommodations, when they are aware of learners with ADHD or learners at risk of ADHD in their classrooms.

1.8 PURPOSE OF THE STUDY

The aim of this study was to determine whether teachers in two previously disadvantaged mainstream high schools in East London have the necessary knowledge of the characteristic symptoms of ADHD; to be able to identify learners who present symptoms of ADHD as well as to establish what teaching strategies and classroom accommodations they implement to effectively support these learners.

1.9 SIGNIFICANCE OF THE STUDY

Education in South Africa is entering a new phase. For instance, Inclusive Education with the focus shifting to creating Full-Service Schools as opposed to learners with Special Needs being catered for in Special schools is topical. The question is whether mainstream teachers are prepared to accommodate learners with special needs. This study focused on learners with ADHD in their classroom environment.

Numerous studies in South Africa (Hariparsad, 2010; Lopez, 2008b; Mahomedy et al., 2007; Perold et al., 2010; Seabi, 2010; Vogel, 2014) and the rest of the world (Al-Omari, Al-Motlaq & Al-Modallal, 2015; Anderson, Watt, Noble & Shanley, 2012; Appelbaum, 2008; Bradshaw & Kamal, 2013; DuPaul et al., 2011; Elik, Corkum, Blotnicky-Gallant & McGonnell, 2015; Funk, 2011; Rush & Harrison, 2008) have been done regarding various aspects of ADHD. However, since the symptoms of ADHD are initially identified by teachers in primary schools, studies are more focused on teachers' knowledge, classroom accommodations and support of learners in primary schools. This study aimed to get a better perspective on teacher knowledge, classroom accommodations and support of learners in mainstream high schools in previously disadvantaged schools. Holbrook et al. (2016) duly stated that although ADHD is no longer recognized as sorely a childhood disorder, there is very little research on ADHD persistence among adolescents and young adults. With inclusive education and the implementation of Full-Service Schools becoming a reality in South Africa, findings of this study can contribute to preparing mainstream high school teachers for an inclusive education system.

The study ultimately endeavoured to motivate teachers to acknowledge their role in identifying learners presenting symptoms of ADHD and amending their teaching

strategies to successfully accommodate these learners. Although the results obtained from this study may have limited generalisation, the knowledge acquired by the educators who participate in the study could be passed on to other educators. Hopefully, the study will stimulate further research into ADHD among high school learners.

1.10 SCOPE OF STUDY

The study focused on Grade 10 teachers in two mainstream high schools in the East London District. This grade was chosen because it is the beginning of the senior phase where learners are expected to be more “matured” and self-regulatory, thus learners displaying ADHD symptoms would be easier to identify.

1.11 DEFINITION OF KEY TERMS

Attention-Deficit/Hyperactivity Disorder (ADHD): Attention deficit hyperactivity disorder (abbreviated throughout as ADHD) is a neurocognitive behavioural developmental disorder affecting both children and adults that is characterised by a persistent pattern of in-attention or hyperactivity-impulsivity (The American Psychiatric Association, 2013). Usually, the condition presents in childhood before the age of seven, but is also seen in adolescence and often extends to the adult age. Children with ADHD find it difficult to control their behaviour within their social and school environment. Normally, this interferes with their ability to live normal lives and often results in them failing to achieve their full potential academically. There are three types of ADHD: Inattentive (ADHD-I), Hyperactive-impulsive (ADHD-H/I) and Combined Inattentive & Hyperactive-Impulsive (ADHD-C).

Co-morbidity: This refer to both the co-occurrence of disorders, e.g. Conduct disorder and Oppositional Defiance Disorder, temporally separate from ADHD (sequential co-morbidity) or can be defined as temporally concurrent with ADHD (concurrent co-morbidity) with (Jensen & Steinhausen, 2015).

Mainstream High School: This type of school as used in this dissertation is best described in the report by Christie, Butler & Potterton, (2007, p. 95) as:

> "the majority of South African schools – the mainstream – are black schools in relatively poor socio-economic circumstances. The language of teaching and learning in most of these schools is English, which is not the home language of most of their teachers or learners. Schools are often under-resourced in terms of laboratories, computers, sports fields and opportunities for extra-curricular activities."

Mainstreaming: Mainstreaming in the dissertation is commonly used to "refer to the placement of a child with 'special needs' in the mainstream or regular school setting," (Donald et al., 2007, p18).

Inclusive Education: According to *White Paper 6* inclusive education is defined as "enabling education structures, systems and learning methodologies to meet the needs of all learners" (Department of Education, 2001). Inclusion in the *White Paper* stated in its most basic definition means that students with disabilities are supported in chronologically age-appropriate general education classes in their home schools and receive the specialised instruction delineated by their Individualized Education Programs (IEP's) within the context of the core curriculum and general class activities (F.S.U. Centre for Prevention & Early Intervention Policy, 2002).

Multiple Intelligences Theory: This theory was developed by Gardner following his research in human intellectual competencies with prodigies, gifted, brain damaged, and developmentally delayed individuals, normal children and adults, culturally diverse individuals, and experts in various occupations. He asserts that there are eight intellectual competencies he has found to be relatively autonomous among a wide range of individuals which include linguistic, logical-mathematical, musical, bodily-kinaesthetic, spatial, interpersonal, intrapersonal, and naturalist (Mettler, 2015).

Teacher/Educator: A teacher is a learning mediator who should have practical competence to adjust teaching strategies to cater for different learning styles and preferences. The description of a teacher (also referred to as educator) as it is used in the National Education Policy of the Department of Education (1996) is applicable in this study; it means any person who teaches, educates or trains other persons at

an education institution or assists in rendering education services or education auxiliary or support services provided by or in an education department.

Adolescence: Adolescence is a separate developmental stage that may be regarded as a period of transition between childhood and adulthood, and which begins between 11 and 13 years and ends between 17 to 21 years. The learners in grade 10 classes are between the ages of 15 – 17.

Barriers to learning/learning disabilities: In the study, barriers to learning refers to difficulties that arise within the education system as a whole, the learning site [classroom] and/or within the learner [learning disability] which prevent access to learning and development for learners (SIAS policy document Department of Basic Education, 2014).

Differentiated learning: In the study, this term refers to activities that are designed to address the needs of all learners by modifying and changing the content, assessment approaches and learning and teaching strategies in the classroom (De Jager, 2013).

Teaching Strategies: Teaching strategies include all approaches that a teacher may take to actively engage students in learning. These strategies drive a teacher's instruction as they work to meet specific learning objectives. Effective teaching strategies meet all learning styles and development needs of the learners (Meador, 2015).

Classroom Accommodation: Accommodations are changes in course content, teaching strategies, standards, test presentation, location, timing, scheduling, expectations, student responses, environmental structuring, and/or other attributes which provide access for a student with a disability to participate in a course/standard/test, which DO NOT fundamentally alter or lower the standard or expectations of the course/standard/test. The Policy on Screening, Identification and Assessment (SIAS) Document also refers to reasonable accommodations as necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure persons with disabilities the enjoyment or exercise an equal basis with others all

human rights and fundamental freedoms. In this study, classroom accommodations, do not only refer to the environment structuring *per se*, but to the full range of accommodations, though emphasis might be placed on the environmental structuring (Department of Basic Education, 2014).

Accommodations as opposed to Modifications:

Accommodations are changes in course content, teaching strategies, standards, test presentation, location, timing, scheduling, expectations, student responses, environmental structuring, and/or other attributes which provide access for a student with a disability to participate in a course/standard/test, which DO NOT fundamentally alter or lower the standard or expectations of the course/standard/test.

Modifications are changes in course content, teaching strategies, standards, test presentation, location, timing, scheduling, expectations, student responses, environmental structuring, and/or other attributes which provide access for a student with a disability to participate in a course/standard/test, which DO fundamentally alter or lower the standard or expectations of the course/standard/test (Browning, 2003).

1.12 CHAPTER LAYOUT

Chapter one covers the introduction and overview of the study. It lays the foundation for the research project and it includes the introduction and background to the study, the statement of the research problem, motivation for the research, the research questions, research objectives, assumptions, purpose of the study, significance and scope of the study, as well as the definition of key terms. This chapter especially sheds light on the prevalence, symptomology, co-morbidity and effects of ADHD on learners. It also posits the need for inclusion and support of these learners in mainstream high schools. The chapter is concluded with a brief summary.

Chapter two focuses on the literature review and theoretical framework (Multiple Intelligences Theory) that underpins the study. The researcher reviews the literature, exploring what other researchers, both locally and internationally published regarding

the topic. The literature review is a critical, factual overview of what has been done before and thus serves to ground the proposed research in previous literature, to show the significance of the proposed study. The chapter is concluded with a brief summary.

Chapter three gives an overview of the methodology and describes the research design and data gathering instruments. A case study was conducted within the framework of a qualitative research approach, which was focused in the interpretive paradigm. Research protocol is discussed in detail and the chapter is concluded with a brief summary.

Chapter four explores the analyses and interpretation of empirical data collected through interviews, open-ended questionnaires and observation, making use of Thematic Analysis. The chapter is concluded with a brief summary.

Chapter five presents a summary of the main key areas of the research, a discussion of findings, conclusions of the research, and recommendations.

1.13 CONCLUSION

The aim of this study was to determine how educators in Grade 10 mainstream schools support learners with ADHD. The many adverse effects of ADHD and its co-morbidities have grave impacts on the adolescent, the teacher, peers and the classroom environment as a whole.

Therefore, if teachers are not knowledgeable about the effect of ADHD and its co-morbid disorders; they cannot effectively support these learners. In line with the inclusive education policy, it is of vital importance that teachers are able to identify learners at risk of ADHD, so as to assist medical professionals with assessment, liaise with parents to assist their children and provide the learners with a classroom environment that is beneficial to the learners' academic improvement and ultimate success.

The next chapter is on literature review in order to put the research in context and within scientific knowledge on students with ADHD and support receive from their teachers in high schools.

CHAPTER TWO
LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 INTRODUCTION

The literature review helps to determine whether the topic is worth studying; and it provides insight into ways in which the researcher can limit the scope to an area of inquiry (Creswell, 2014). Okeke & Van Wyk (2015) described the literature review as the foundation on which a research project is built. They stated that it is through the reviewing of literature that the researcher can identify in their field of knowledge that may warrant investigation.

According to Creswell (2014), the literature review serves various purposes, i.e.:

- It shares with the reader results of other studies that are closely related to the one being undertaken.
- It relates the study to a larger, ongoing dialogue in the literature
- It provides a framework for establishing the importance of the study as well as a benchmark for comparing the results with other findings.

By reviewing literature on the topic of teacher support of learners with ADHD, the researcher noticed that not much research has been done on the support of mainstream high school learners with ADHD. The literature has mainly been focused on primary school learners with ADHD. This gap in the research made studying teacher's support of high school learners with ADHD a feasible research topic. From the literature, it is clear that learners with ADHD have been marginalised, yet, Dale-Jones (2014) stated in an article on education that, the United Nations Educational Scientific and Cultural Organisation's 1994 Salamanca Statement, described the fundamental principle of inclusive schools as being that all children should learn together while their individual differences and learning needs are accommodated and given appropriate support. Naidoo (2012) was of the opinion that inclusion deals with and focuses on how educators will accommodate diversities in the classroom, and accepting that learners with diversities are welcome in the mainstream.

2.2 THEORETICAL FRAMEWORK

Marshall and Rossman (1999, p. 29) stated that:

> "…People develop theories about events as ways of reducing ambiguity and explaining paradox. When they decide to conduct inquiry however, they should be guided by systematic considerations, such as existing theory and empirical research. Tacit theory (one's own personal understanding) and formal theory (from a literature review) can help to bring the questions, the curious phenomenon, or the problematic issue into focus and raise it to a more general level…"

In a manual developed by the SAOU (2015) for a workshop on *Barriers to Learning*, they stated that no two learners are alike. Every learner has different ways of knowing and expressing knowledge. According to the SAOU, Howard Gardner's theory of Multiple Intelligence (MI) assists in the creation of an inclusive classroom by eliminating the "one-size-fits-all" approach – an approach that was also criticised in the report by Christie et al. (2007). The MI Theory allows learners to experiment in a range of styles and "sizes". Sulaiman, Abdurahman & Rahim (2010) agreed, by stating that the MI Theory provides a platform and guidance to teachers to use integrated strategies and instructional activities to cater for the different needs of students in terms of intelligence profiles, learning styles and learning preferences.

According to Kern (2008), ADHD is usually approached from the medical model, which is also known as a deficit model; as the medical model proposes that the problem a child experiences is inherent, within the child. Inclusive Education aims to move away from the medical model as it tends to focus largely on the child with the "problem". Mettler (2015) posited that children with ADHD have been treated with a deficits-based response of interventions, focusing on what makes them unsuccessful in school, in relationships, and in social situations, rather than identifying and teaching on their strengths. As a possible solution, she stated that by examining each subtype of ADHD for patterns of Multiple Intelligences (MI) an opportunity exists to look at this set of challenges with a different perspective; one based on strengths.

According to Mettler (2015) the use of MI as an assessment and application tool in the classroom could add to the repertoire of interventions available to assist students who struggle with ADHD through MI curriculum development geared toward a student's identified top two or three predominant intelligences.

Lunenburg & Lunenburg (2014) was of the opinion that our educational system is heavily biased toward linguistic and to a somewhat lesser extent, logical-mathematical modes of instruction and assessment. This is in agreement with Wilson (2012) who stated that Linguistic/ Logical-Mathematical are traditionally valued in schools and that these intelligences are prized most by traditional education systems, which is to the detriment of learners with or at the risk of ADHD, since they usually struggle with Mathematics and language. Lunenburg & Lunenburg (2014) went further to state that while these two intelligences are important to our ability to learn, they are not all inclusive. They stated that, some scientists and educators believe that people possess a single intelligence (often called a "g factor"); whereas cognitive pluralists advocate that students should be able to learn and express themselves through a variety of forms of representation, e.g. narratives, poetry, film, pictures, etc.

2.2.1 **The Multiple Intelligences Theory (MI)**

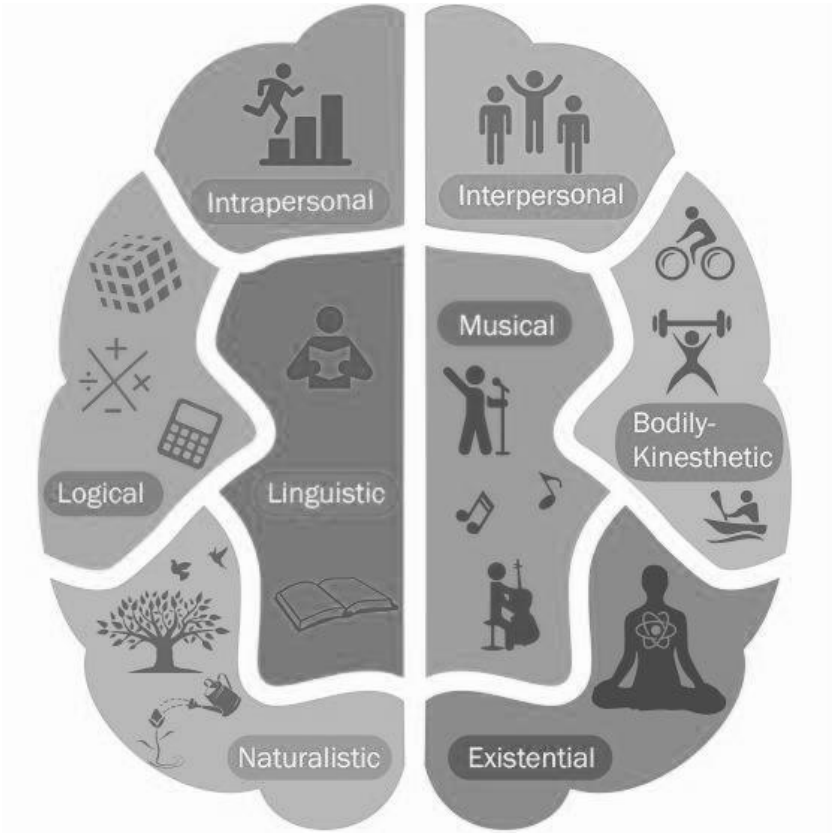
Gardner introduced multiple intelligences (MI) theory in the book, *Frames of Mind*, published in 1983 (Gardner & Moran, 2006). In arriving at his theory, Gardner encompassed cognitive and developmental psychology, differential psychology, neuroscience, anthropology, and cultural studies (Gardner & Moran, 2006). This is corroborated by Mettler (2015) who noted that Gardner had spent over 30 years examining intelligence and cognition, defining and refining his theory through the systematic exploration of neuropsychology, biology, sociology, anthropology, and the arts and humanities, looking for relationships or connections of human faculties along the way. Gardner's major claim is;

> "… that a description of individuals in terms of a small number of relatively independent computational capacities is more useful to cognitive scientists, psychologists, and educators than a description in terms of an innumerable collection of sensory-perceptual modules, on the one hand, or a single, all-purpose intelligence, on the other" (Gardner & Moran, 2006, p. 227).

Lunenburg & Lunenburg (2014) simplified this claim by summarising that the theory of multiple intelligences is a theory of intelligence that differentiates it into specific modalities, rather than seeing intelligence as dominated by a single general ability, often called a "g factor." They stated that according to Gardner, each person has a different intellectual profile. These intelligences are located in different parts (figure 1)

of the brain and can either work independently or together. The intelligences can be nurtured and strengthened, or ignored and weakened.

Figure 1: Location of intelligences in different parts of the brain



Source: Braincorp, retrieved from: http://www.braincorp.in/images/intelligence/multiple/Intelligence.jpg

Gardner & Moran (2006) posited that intelligence as IQ or sensory-perceptual ability [predominantly used in standard assessments] is easy to test; thus many educators and psychologists justifiably prefer these approaches.

The MI approach demands a change of mind among researchers and educators. It requires an interdisciplinary perspective, cultural sensitivity, and an interactionist dynamic research methodology. According to Hyland (2011), definitions of intelligence vary substantially, but in Western societies, intelligence is generally regarded as a capability to understand abstract concepts and solve problems logically. For these purposes, the intelligent person is commonly assumed to have highly-developed skills of literacy and numeracy, and to have succeeded in linguistic and logical learning. Generally, intelligence is believed to reside in the head of the individual. Intelligence when manifested as 'practical' ability is often termed a ‘talent’, a ‘gift’ or a ‘skill’, but not an ‘intelligence’.

In his article, Armstrong (1999) stated that Howard Gardner’s theory of Multiple Intelligences (MI) provides a rich framework for designing learning experiences that mesh with the special “proclivities” (intelligence areas of greater interest or competence) of kids labelled ADD/ADHD. He went on to explain that, the child whose attention flags and behaviour flares when learning about the Civil War through books and lectures, may become absorbed in the material if it is presented through images, music or role-play. This supports researchers like Tucha et al. (2006) and Perold et al. (2010) who argued that learners with ADHD have IQ values within normal rage or are sometimes even brighter. It also supports Ben et al. (2012) who pointed that learners with ADHD often tend to hyper-focus on tasks which they find interesting, as well as the findings of Volkow et al. (2011) in that learners normally display inattentiveness when they find task and assignments boring, repetitive and uninteresting.

Gardner’s Seven Intelligences (the 8th Intelligence was added later) adapted by Wilson (2012) are:

1. Linguistic intelligence: This involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals. This intelligence includes the ability to effectively use language to express oneself rhetorically or poetically; and language as a means to remember information.

2. Logical-mathematical intelligence consists of the capacity to analyse problems logically, carry out mathematical operations, and investigate issues scientifically. It entails the ability to detect patterns, reason deductively and think logically. This intelligence is most often associated with scientific and mathematical thinking.

3. Musical intelligence involves skill in the performance, composition, and appreciation of musical patterns. It encompasses the capacity to recognize and compose musical pitches, tones, and rhythms. According to Howard Gardner, musical intelligence runs in an almost parallel structural to linguistic intelligence.

4. Bodily-kinaesthetic intelligence entails the potential of using one's whole body or parts of the body to solve problems. It is the ability to use mental abilities to coordinate bodily movements. Howard Gardner sees mental and physical activity as related.

5. Spatial intelligence involves the potential to recognize and use the patterns of wide space and more confined areas.

6. Interpersonal intelligence is concerned with the capacity to understand the intentions, motivations and desires of other people. It allows people to work effectively with others. Educators, salespeople, religious and political leaders and counsellors all need a well-developed interpersonal intelligence.

7. Intrapersonal intelligence involves the capacity to understand oneself, to appreciate one's feelings, fears and motivations. In Howard Gardner's view, it involves having an effective working model of ourselves, and to be able to use such information to regulate our lives.

8. Naturalist intelligence enables human beings to recognize, categorize and draw upon certain features of the environment. It combines a description of the core ability with a characterization of the role that many cultures value.

According to Wilson (2012) the first two intelligences (Linguistic/ Logical-Mathematical) are traditionally valued in schools.

The next three (Musical/ Bodily-kinaesthetic/ Spatial) are associated with the arts; and finally, the last two (Interpersonal/ Intrapersonal) are considered personal intelligences. Wilson stated that learners with ADHD often struggle with the two intelligences associated with 'Academic Ability'. To the detriment of learners, these intelligences are prized most by traditional education systems. Chastised under their methodology, some learners with ADHD receive blows to their self-esteem before they even enter elementary school.

Armstrong (2009) asserted that beyond the descriptions of the eight intelligences and their theoretical underpinnings, certain key points of the MI model that are important to remember are as follows:

- Each person possesses all eight intelligences: MI theory is not a "type theory" for determining the one intelligence that fits. It is a theory of cognitive functioning, and it proposes that each person has capacities in all eight intelligences. The eight intelligences function together in ways unique to each person. Most of us fall somewhere in between two poles –being highly developed in some intelligences, modestly developed in others, and relatively underdeveloped in the rest.

- Most people can develop each element of intelligence to an adequate level of competency. Gardner suggests that virtually everyone has the capacity to develop all eight intelligences to a reasonably high level of performance if given the appropriate encouragement, enrichment, and instruction.

- Intelligences usually work together in complex ways. Gardner points out that each intelligence as described above is actually a "fiction"; that is, no intelligence exists by itself in life (except perhaps in very rare instances in savants and brain-injured individuals). Intelligences are always interacting with each other. The intelligences have been taken out of context in MI theory only for the purpose of examining their essential features and learning how to use them effectively.

We must always remember to put them back into their specific culturally valued contexts when we are finished with their formal study.

Hyland (2011) elaborated on this idea by stating that the eight areas represent the range of intelligent human functioning. She posited that, while each area is identified as a distinct intelligence, each interacts with others in complex ways to produce the richness of human behaviour and achievement. Many people will display a highly-developed intelligence, not perhaps in their occupation, but in pastimes, interests, hobbies in personal projects, or in social and personal relationships. Therefore, there are many ways to be intelligent within each category. There is no standard set of attributes that one must have to be considered intelligent in a specific area. Consequently, a person may not be able to read, yet he or she might be highly intelligent in linguistic, because he can tell a terrific story or has a large oral vocabulary. Similarly, a person may be quite awkward on the playing field, yet possess superior bodily-kinaesthetic intelligence when she weaves a carpet or creates an inlaid chess table. Thus, MI theory emphasizes the rich diversity of ways in which people show their gifts within intelligences as well as between intelligences. Adapted from (Armstrong, 2009 & Hyland, 2011).

McGuire (2008) stated that Gardner's model can be especially helpful in giving a positive definition and teaching methods, for the active, hands-on learning style of children with ADHD. She added that in a "multiple intelligences" classroom, students are exposed to learning opportunities through all the different "intelligences." Different stations in the classroom, approach a topic through the various modalities. Students learn through movement, music, artistic creation, interpersonal teamwork, as well as language and Mathematics. They are graded on skits, portfolios, peer ratings as well as traditional test scores. They are stretched to develop all of Gardner's 'intelligences' as well as being allowed to develop their natural propensities toward certain 'intelligences'.

2.2.2 **Benefits of Using MI Approaches in Teaching**

- *MI provides a way to naming and thinking about practice and greater access to Learning* – Teachers become more aware of their own intelligence profiles and that of their learners and attempted to match their teaching styles accordingly. This means the opening up of more avenues to learning than would previously have been the case.

- *Greater Learner participation* – Teachers have pointed that student participation is enhanced by MI approaches. This is mainly as a result of group work approaches and project work. Allowing children to take responsibility for their learning also appears to have been a contributing factor.

- *More contributions from students* – Literature indicates greater levels of interaction amongst learners than had previously been the case. Teachers reported that some students expressed themselves a lot more within the context of a smaller learning group.

- *Greater Student Interaction* – Teachers reported greater participation in the form of increased interaction between peers. Focussing particularly on interpersonal strategies helped the class to develop interpersonal relationships and communication between pupils who wouldn't normally interact.

- *Increased Responsibility on the Part of Students* – Teachers reported that the use of MI strategies increased pupils' sense of responsibility, as they increasingly took responsibility for various tasks.

- *Lack of alienation* – Using MI approaches, where attempts are made to match teaching and learning styles, enabled students to participate much more, and avoids the boredom they may otherwise have experienced.

- *Improved Learning Outcomes* – Teachers reported a number of improved academic and affective outcomes as a result of MI approaches in their classrooms. Enhanced academic outcomes ranged from improved attention, concentration and memory to greater understanding and ownership of lesson content.

- *Interest in Subject* – Teachers in general reported that their students were more interested in subjects as a result of new approaches.

In addition to the above aspects, teachers found that pupils demonstrated greater ownership of the lessons to which they had been introduced; they reported greater

enjoyment of lessons and seemed to have gained greater autonomy and a sense of empowerment from their learning. Adapted from (Hyland, 2011, p. 233-235).

The study by Mettler (2015) indicated that students with ADHD have many challenges. However, they had a success in the areas of self-efficacy, academic achievement and social interactions with the use of MI in the classroom. The use of MI in the classroom has shown to improve achievement in a variety of subject matters and students with ADHD should be given an opportunity to rise above their deficits by using their strengths to access standards based curriculum – currently offered in mainstream schools. Moreover, Van Niekerk (2009) added that, Ml theory offers a model that can help teachers to gain a better understanding of the unique range of intellectual abilities and potential of their learners. Furthermore, she stated that, Ml theory opens the gate to a broad range of didactic activities that can assist teachers in developing neglected intelligences, activating underdeveloped intelligences and elevating well-developed intelligences to even higher levels of proficiency.

2.2.3 **Criticism of MI and response to the criticism**

Table 5: Criticism of MI Theory and the response to those criticisms

CRITICISM # 1: MI Theory Lacks Empirical Support	
Elaboration of Criticism	Response to Criticism
Some researches argue that the literature on intelligence testing offers virtually no support for the idea of eight autonomous intelligences, but overwhelming support for the concept of an overarching single intelligence, frequently attributed to Spearman (1927) and often referred to as "Spearman's g" or simply "the g factor." Researchers argued that what Gardner calls intelligences are actually capacities that are secondary or even tertiary to the g factor. In other words, they exist but are subservient to "g".	MI theory agrees that the 'g' factor exists. What it disputes, however, is that "g" is superior to other forms of human cognition. In MI theory, "g" has its place (primarily in logical-mathematical intelligence) as an equal alongside of the other seven intelligences. Most critics in the psychometric community agree that the intelligences in Gardner's model exist and are supported by testing. What they disagree about is whether or not they should be called "intelligences." They want to reserve the word "intelligence" for the "g" factor, while regarding the other seven intelligences as talents, abilities, capacities, or faculties.
CRITICISM # 2: No Solid Research Support for MI Exists in the Classroom	
Elaboration of Criticism	Response to Criticism
This criticism parallels the first one in suggesting that MI has no empirical support, or – to put it in a more current context – "MI is not research based"	The challenge with the argument that MI is not research based is that it is founded upon a very narrow conception of what constitutes authentic research. MI does not represent a specific program, it represents a wide range of techniques, programs, attitudes, tools, strategies, and methods, and each teacher is encouraged to develop his/her own approach to implementing them. To demand a certain level of statistical significance from a study is to risk rejecting an educational intervention simply for "missing the cut". To reduce the success/failure of a study to mere numbers is to reject other valid sources of a program's effectiveness.

CRITICISM # 3: MI Theory Dumbs Down the Curriculum to Make All Students Mistakenly Believe They Are Smart	
Elaboration of Criticism	Response to Criticism
Some critics have accused MI practitioners of using superficial applications of MI theory—strategies of which even Gardner himself would not approve. Similarly, critics have suggested that MI theory propagates an artificial "feel-good" attitude where every child is told that he or she is smart. Researchers indicate that "the focus must be on displaying meaningful skills and competencies; not simply on feeling that one is smart"	The critics focused only on a small section and made it representative of the whole of Multiple Intelligences in the Classroom. Obviously, some teachers will take the easy way out—believing, e.g. believing that "rapping math facts" meant they were doing MI, but many wonderful, original ideas related to MI theory are also used by experienced teachers. It is also true that it is not enough to merely tell students that they are smart in eight different ways and expect them to blossom. It has to be followed up with solid academic effort leading to tangible improvements in knowledge. The argument of MI theory is that it is not enough to produce this kind of understanding of the disciplines through textbooks, lectures, and standardized tests, but that something more is required. Students need to investigate ideas in world history, chemistry, ecology, literature, economics, algebra, and other domains by involving their whole selves (and whole brains), and this includes using their bodies, imagination, social sensibilities, emotions, and naturalistic inclinations, as well as their verbal and reasoning skills. It is interesting to note that most of the criticisms of MI theory come from academics and journalists, people who are usually far away from the classroom. Few criticisms actually come from those who have applied MI in their classrooms and seen it make a difference in their students' lives.

Source: Adapted from Multiple Intelligences in the Classroom (Armstrong, 2009)

2.3 TEACHER KNOWLEDGE ABOUT ADHD

Because school psychologists rely on teachers for student referrals for services, the identification of effective treatments of ADHD is largely dependent on teacher knowledge of this disorder (Weyandt et al., 2009). Ohan, Cormier, Hepp, Visser & Strain (2008) was of the opinion that teachers with a higher knowledge of ADHD are significantly more likely to report on children with ADHD to benefit from professional assessment services, and that they would further seek or encourage the parents to seek professional assessment services. Al-Omari et al. (2015) pointed that, in order to understand how teachers manage children with ADHD, it is important to assess the teachers' level of ADHD knowledge. This correlates with Lessing & Wulfsohn (2015) who found that, to change the classroom atmosphere and enhance the learning environment necessitates knowledge on the side of the teacher to support these learners in the classroom setting. Furthermore, Al-Omari et al. (2015) emphasized that for teachers to recognise children with potential ADHD and provide appropriate care, it is important that they have a sound knowledge of this disorder. Their findings correlate with those of Bradshaw & Kamal (2013) in that without adequate knowledge of ADHD, teachers may not be able to accurately complete the teacher rating scales needed by medical professionals to assist in confirming a diagnoses of ADHD.

In the same vein, Ohan et al. (2008) warned that teachers who lack knowledge about ADHD may overlook behaviours signifying a child in need of assistance. On the other hand, Anderson, Watt & Shanley (2014) noted that teachers are exposed to numerous sources of inconsistent information about ADHD during their training and classroom experience and thus lack of knowledge also influences their attitudes towards learners with ADHD. In a paper presented to the European Conference on Educational research, Dr Kos stated: "*Considering that teachers are often the first to notice behavioural difficulties in children, it's surprising that relatively little research has been undertaken with teachers. Only limited research has been conducted on teacher's knowledge of ADHD*," (Kos, 2008).

Arguably, Canu & Mancil (2012) postulated that even though one can argue that only certain deficits in ADHD knowledge can be problematic for teachers, general

measures of ADHD knowledge have been shown to predict important teacher attitudes and behavioural intentions regarding the intervention for ADHD. According to Funk (2011) studies time to time supported the fact that teachers lack adequate knowledge of ADHD. This is in agreement with Lopez (2008) who stated that educators lack knowledge of ADHD; including the treatment and intervention thereof. In addition to this, Lessing &De Witt (2010) found that most teachers did not know enough about the various barriers causing learning disability (ADHD included), thus, they lack the confidence to support these learners. Although Anderson et al. (2012) stated that sound knowledge of ADHD is important, Al-Omari et al. (2015) concluded in their findings that there is a gap in teachers' knowledge of ADHD. This might be due to the fact that teacher training programs appear not to prepare teachers sufficiently to manage learners with ADHD (Al-Omari et al., 2015; Bradshaw & Kamal, 2013; Lessing & De Witt, 2010; Lopez, 2008; Topkin et al., 2015).

The *White Paper* on Inclusive Education, in line with the Department of Education (2001) declared that one of the key strategies for establishing an inclusive education and training system is to orientate and introduce management, governing bodies and professional staff within mainstream education to the inclusion model and to target early identification of range of diverse leaning needs [ADHD] and intervention in the Foundation Phase. This poses a question: Is identification and intervention only the task of Foundation Phase teachers? Ideally, this should be the case, but what happens to learners who have not been identified in primary school? The logical solution is thus that mainstream high school teachers should be knowledgeable about ADHD, because the identification and referral of learners with this disorder is ultimately also their responsibility. In agreement, Burns (2009) stated that it is important to understand exactly what ADHD is; the potential problems that it might cause in the class; modifications in the classroom to ease difficulties of ADHD children; when individual learning plans should be developed and the appropriate teacher response. It is critical for teachers to have up-to-date and accurate information due to the increasing number of diagnosed students coming into the classroom each year (Funk, 2011).

According to *White Paper 6*:

> "…Classroom educators will be our primary resource for achieving our goal of an inclusive education and training system. This means that educators will need

> to improve their skills and knowledge, and develop new ones. Staff development at the school and district level will be critical to putting in place successful integrated educational practices…" *White Paper* 6, page 18 (Department of Education, 2001).

The authors of BRIDGE Education Network (2014) recommend that capacity building and training interventions for teachers in mainstream education should include multi-level classroom instruction, co-operative learning, curriculum enrichment and dealing with behavioural problems.

Studies by Rush & Harrison (2008), found that communication from ADHD experts regarding ADHD knowledge and interventions appears to be a key element to teachers' perception of adolescents with ADHD. Wheeler (2007) postulated that the perceptions and knowledge of teachers and their attitudes towards ADHD could have implications for the delivery of suitable educational provision for pupils with the disorder. Further, Rush & Harrison (2008) also found that teachers feel if they had more training regarding ADHD, they would be more willing to work with learners with ADHD. This is in agreement with Wheeler (2007) who argued that if multi-professional approaches to identification and management of ADHD are to be effective, it is essential for educational professionals to be given opportunities to increase their knowledge and expertise in managing all types of SEN (including ADHD) in the school environment. Apparently, effective training for teachers and teaching assistants in SEN, and ADHD in particular, is needed. According to Wheeler (2007), teachers would welcome training in the identification and management of ADHD.

The study by Gaskell (2011) concluded that, it is important that teachers have adequate knowledge regarding ADHD due to the cognitive and behavioural demands of the classroom which may make ADHD symptoms more evident to teachers. However, she warned that without adequate and correct information, teachers will not be able to accurately observe symptoms, provide referrals for assessment, provide information and support to parents, and most crucially, will not be able to provide adequate support to children with or at risk of ADHD within their classroom.

2.4 TEACHERS' ROLE IN IDENTIFYING AND REFERRING LEARNERS WITH ADHD

ADHD is recognised as a mental/behavioural condition with diagnostic criteria listed in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) – mainly used in the USA and South Africa (Schellack & Meyer, 2012). The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSMV-V) now classifies ADHD as a neurodevelopmental; thus, it should be diagnosed by a qualified professional disorder (Vogel, 2014). However, because symptoms frequently manifest in a school setting, teachers (according to Anderson, Watt, Noble & Shanley, 2012), play a central role in reporting symptoms, advising parents to seek professional assessment and assisting children with ADHD to achieve academically and socially. This is supported by Efron et al. (2016) who stated that children are commonly referred to paediatric services for assessment of symptoms of ADHD, yet these may be first identified as problematic in an educational setting (e.g. pre-school, school), at home, or both. Unfortunately, literature review found that among children with ADHD symptoms, poor children and minorities are less likely to be diagnosed for this disorder and less likely to receive consistent pharmacotherapy. Having untreated ADHD, poorer children are often disadvantaged in their schools which possibly adds to the cycle of poverty(Boyles, 2007; Froehlich et al., 2007; Saloner, 2011).

According to Evans, Brady, Harrison & Bunforth (2013) gathering rating scale data from teachers is an important part of best practice for diagnosing youth with ADHD and measuring change in response to treatments. As stated by Damons (2013), adolescent mental health issues are an important public health problem which are often manifested in classrooms. As a result, schools should be the place for early identification and prevention. Wheeler (2007) is of the opinion that even [those] teachers, who do not acknowledge the existence of ADHD, as diagnosed using DSM-IV criteria can be in no doubt, in order to provide effective inclusive education. It is necessary for pupils who experience specific difficulties with learning and behaviour to be identified so that their needs may be met.

Damons (2013) expounded on this by emphasising that, lack of skill in identifying these needs could result in teachers labelling students instead of addressing their needs.

The American Acadamy of Paediatrics (2011) stated that before the primary care, a clinician can make a diagnosis of ADHD, where information must be obtained from parents and teachers through the use of validated DSM-IV– based ADHD rating scales to determine that the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria have been met (including documentation of impairment in more than 1 major setting). They also stated, however, that obtaining teacher reports for adolescents might be more challenging, because many adolescents will have multiple teachers. In her study, Wheeler (2007) found indications that not all schools had accurate information regarding the diagnosis of the disorder. She suggested that this could be because ADHD is a medical disorder and there is a lack of effective inter-disciplinary communication between health and education services. She warned that lack of effective multi-disciplinary approaches to identification and treatment could lead to underdiagnoses or under treatment of ADHD.

To emphasize the importance of the teachers' role in diagnosing ADHD, Banaschewski et al. (2017) stated that the diagnosis of ADHD cannot be made or excluded solely on the basis of psychological testing; the lack of essential information, e.g. prohibition of contact with the school, weakens the validity of the diagnosis. One of the key messages from the research done by Efron et al. (2016) was that direct report from teachers is essential to assessment for ADHD and related developmental disorders. They concluded that the school-based symptoms and impairments are crucial to supporting an ADHD diagnosis as consistent with international best-practice guidelines which all emphasize that evidence of cross-situational impairment (i.e. home and school) is required to make the diagnosis.

Since the South African education system does not see the importance of hiring school counsellors and/or psychologists (according to Mulaudzi & Kutame, 2011), educators and parents will continue to play significant roles in identifying and referring learners with ADHD within schools for professional assessment. Sarwat et al. (2010) believed that early assessment and management can be preventive especially on the effect of co-morbid disorders.

The Policy on Screening, Identification and Assessment (SIAS) document by the Department of Basic Education (2014) stated that the role of the teacher is:

(i) to gather information and identify learners at risk of learning breakdown and/or school dropout and
(ii) to provide teacher-developed classroom-based interventions to address the support needs of identified learners.

According to Weyandt et al. (2009), teachers have more one-on-one contact with students and they are at a unique advantage to both identify possible occurrences of ADHD prior to diagnosis and to implement strategic interventions with students once a diagnosis has been made. In accordance, Anderson et al. (2012) stated that teachers play central role in reporting symptoms, advising parents to seek assessment and assisting children with ADHD to achieve academically and socially. Aguiar et al. (2014) supported this by stressing that teachers play a fundamental role in early detection and should be able to recognise the typical clinical characteristics of the disorder[s]. Al-Omari et al. (2015) agreed, stating that the school teacher is the key element in the diagnosis and management of school children with ADHD. In their current overview of Attention-Deficit/Hyperactivity Disorder, Banaschewski et al. (2017) went further and stated that discrepancies in the assessment of student patient may be resolved with the aid of further information obtained over the telephone or face-to-face conversations with teachers, caregivers and parents.

Most initial referrals to medical professionals for an ADHD assessment are made by the student's teacher (Bradshaw & Kamal, 2013). This is because the structured school environment means that children with problems of inattention, hyperactivity and impulsivity exhibits behaviours with which other children and teachers cannot cope, and then teachers are able to identify and refer learners with ADHD (Topkin, Roman, & Mwaba, 2015). In the inclusive classroom, teachers should focus on their professional task of education and identifying what could help a student in his or her learning process to achieve set educational goals and organizing the needed support within the classroom (Bruggink et al., 2014).

2.5 CHALLENGES FACED BY TEACHERS

According to Colberg (2010) the impact of children being diagnoses with ADHD means a great challenges for the teachers for teaching at least one student with ADHD each year. It should be noted that ADHD affects all domains of life, including cognitive, academic, emotional and social functioning; thus making it challenging for teachers to give the necessary help to learners with ADHD. Categorically, Burns (2009) stated that ADHD causes numerous problems within the classroom, including classroom management and jeopardizing the education of all children in the class.

This is exasperated by the teachers' poor understanding of the needs of children and youth diagnosed with ADHD (Toplak, 2015). Hamilton & Astramovich (2013) highlighted that many general education teachers report employing behavioural interventions in their classrooms, but they are of the opinion that mainstream teachers are not trained at the pre-service level on how to teach to special needs students, and thus are less likely to utilize behavioural interventions than special education teachers. De Jager (2013) acknowledged that the teacher is central to the implementation of successful differentiated learning activities in an inclusive class. To implement differentiated learning activities, the challenges that secondary teachers face in the classroom should be identified.

2.5.1 **Lack of training and knowledge**

In his study Mkhuma (2012) found that training provided by the District Based Support Team was not effective in addressing challenges teachers face with regard to the implementation of the inclusive policy or the identification of learners who experience barriers to learning. These teachers become frustrated because of the lack of quality training and the pressures that the Department put on them in terms of forms to be completed without proper guidance. Teachers working in lower socio-economic schools face numerous challenges on a daily basis as they lack the skills, knowledge and attitudes to support these learners (Black-Hawkins, 2012; Damons, 2013; Lopes, Eloff, Howie, & Maree, 2009).

The authors of BRIDGE Education Network (2014) stated that the limited supply of skilled and qualified educators leads to general problems relating to teacher competence and confidence. This leads to resistance to inclusion which is one of the reasons for the slow implementation thereof. The majority of respondents from a study conducted by De Jager (2013) reported that teachers are never or seldom well trained at higher education institutions in how to teach learners with barriers. This possibly stems from the fact that before 1994 as stated by Walton (2011), teachers were trained separately either to teach in *ordinary* or in *special* schools; and according to a study by Kendall (2008) the nature of their tertiary teaching qualifications does not include sufficient training on the subject of learning difficulties. Topkin et al. (2015) and Bradshaw & Kamal (2013) were in agreement by stating that, training of teachers to manage the behaviour of the learner diagnosed with ADHD must be an important first step for classroom management. They went further to say that such training should include knowledge of symptoms and treatment of diagnosing ADHD, as well as managing the behaviour of the child in the classroom.

Anderson et al. (2014) believed that teachers are exposed to ADHD information that is structurally inconsistent. They argued that teacher trainers need to ensure that education student and educators have access to comprehensive, empirically sound information about ADHD. Studies by both Coles, Owens, Serrano, Slavec & Evans (2015) and Elik et al (2015) supported this, as they found that due to teachers' limited knowledge of implementation of classroom based intervention and programs for managing the negative impact of ADHD on children's school functioning, teachers find it difficult to deal with the challenges they face with teaching learners with ADHD. Damons (2013) found that many of the respondents from her study related their lack of skill and knowledge to inadequate training at teacher training institutions.

Ohan et al. (2008) surprisingly found that teachers with average to higher knowledge of ADHD reported less confidence in managing a child with ADHD in their classroom. This relates to the study of Lessing & De Witt (2010) who found that teachers lack confidence to teach learners with learning disabilities, including ADHD. To the contrary, Anderson et al. (2012) found that with increase in teacher experience, there is an increase in ADHD knowledge which alarmingly leads to an increase in ambivalence towards learners with ADHD.

In the same vein, Bradshaw & Kamal (2013) stated that teachers who are unprepared to teach a student with ADHD experience more stress than teachers without a student with ADHD. This correlates with the findings by Ohan, Visser, Strain & Allen (2011) who found that teachers report increased stress and decreased confidence when managing the behaviour of students with ADHD. Thus, Ohan et al. (2008) established that teachers who lacks confidence may give up or give in, resulting into them referring the leaners to professional services rather than pursuing changes within their environment (the classroom) to effectively accommodate these learners.

These findings by Bradshaw &Kamal (2013) and Ohan et al. (2008;2011) are an impetus for the statement by researches that knowledge and skills of behaviour management strategies are crucial for teachers in the support of learners suffering from ADHD (Lessing & Wulfsohn, 2015; Weyandt et al., 2009). Moreover, Weyandt et al. (2009) highlighted that, if educators want to effectively serve these learners, they must build and maintain a knowledge base of causes, effects and effective interventions associated with ADHD. In connection to this, Topkin et al. (2015) agreed with Weyandt et al. (2009) in stressing that, teacher training should include knowledge of symptoms and treatment of diagnosing ADHD as well as managing the behaviour of the child in class. Rush & Harrison (2008) found that teachers with training in teaching students with ADHD are more confident in their ability to work with students with this disorder. Based on these findings, one can conclude that teachers are willing to be trained to assist these learners.

2.5.2 **Rigid curriculum**

According to Education *White Paper 6* Department of Education (2001, p. 19), one of the most significant barriers to learning is the curriculum. Barriers to learning arise from the different aspects of the curriculum such as the content, the language, classroom organisation, teaching methodologies, pace of teaching, time available to complete the curriculum, teaching and learning support materials and assessment. With teachers' misperceptions and misunderstanding of ADHD, students are not likely to receive appropriate teaching strategies

2.5.3 **Lack of ongoing support**

Nowacek & Mamlin (2007) found that despite knowing the characteristics and needs of students with ADHD, majority of teachers in their study made few individual modifications for students with special needs. This can be attributed to the fact that mainstream teacher may not have ongoing support to implement changes and refine their practice. Emphatically, Wevers (2012) elaborated that Institutional Level Support Teams (ILSTs) are important structures at school to aid with the implementation of the SIAS strategy and to ensure that appropriate support plans are designed and implemented to render effective support to learners who experience barriers to learning. They should also aid in the initiating of training and support for educators. Despite the role, he found that most of the established ILSTs in participating schools in his study were dysfunctional. In all the cases he studied, educators and principals stated that the members of the ILSTs were not trained and therefore they were not effective in their support of the schools.

2.5.4 **Lack of parental involvement**

As stated by Walton (2011), one aspect of necessary transformation has been the involvement of parents in schools. Parent involvement of children with disabilities included in mainstream South African schools, is characterised by extra dedication and commitment from parents, support for homework, advocacy (particularly from mothers), and interactions with teachers. The lack of parental involvement in the effective education of their children, since they play a crucial role in assisting learners with ADHD with the homework, is a huge concern for teachers (Damons, 2013; Lopes et al., 2009; Mkhuma, 2012). Kendall (2008) stated that, teachers who do not receive support from parents of children with ADHD feel as if they are fighting a losing battle. To the contrary, teachers feel supported when they receive support from parents which helps them to cope better in class as this as parents share responsibility in following through on routine and structure at home.

Wevers (2012) speculated that the following factors are the cause for lack of parental involvement:

- The socio-economic circumstances of the school community.
- The lack of effective collaboration between parents and the school.
- The relevance of the school work and the literacy level of parents.

2.5.5 **Teacher workload, overcrowded classrooms and lack of resources**

South Africa is a developing country with a numerous competing demands on its financial resources. The reality is that many South African schools are overcrowded and under resourced, with some lacking even basic necessities such as electricity, water, and sufficient toilets. To some people, the idea of including learners who may have additional support needs in classrooms signifies further competition for what is perceived to be scarce resources (Walton, 2011). According to Wevers (2012), the class sizes in South African schools are considerably higher than in European countries, making it more difficult to provide effective support to the diverse learner population in schools. As a result, educators experience difficulties in providing individual attention to learners with slower work tempos while managing their classrooms.

Moreover, Wevers (2012) found that many of the participants in his study mentioned workload as one of the reasons they were unable to give intensive attention to learners with barriers to learning [of which ADHD is one] in the mainstream classes.
Educators are not only expected to teach, they must also contribute towards the extra-curricular activities of the school. This leaves educators with little or no time to give extra attention to learners who experience learning barriers. This is in line with De Jager (2013) who posited that inclusive education is considered to be an extra burden for teachers and is definitely not always seen as essential in the classroom. Teachers feel that learners with learning barriers can create an additional need for attention, a greater workload and an increased demand for funding and resources.

2.6 INTERVENTIONS

Clark (2010) described ADHD as a heterogeneous disorder with multiple causes, which much still to be learned. She stated that, it is thus logical that the management of such a complex disorder necessitates a multimodal intervention approach which takes into account the unique needs, circumstances and developmental stage of each individual.

To elucidate on Clark's opinion, DuPaul, Weyandt & Janusis (2011, p. 40) stated that:

> "…School-based interventions are a critical component to a comprehensive treatment plan for students with ADHD. These strategies are useful adjuncts to psychotropic medication and/or home-based behavioural interventions particularly in terms of directly addressing academic and behavioural functioning in classroom settings".

Clark (2010) was of the opinion that that school-based support for adolescents with ADHD has the potential to be an effective and accessible treatment model. According to a report on teaching children with ADHD by the U.S. Department of Education Office of Special Education and Rehabilitative Services (2008), teachers who were successful in educating children with ADHD used a three-pronged strategy, i.e.:

- Evaluate the child's individual needs and strengths. Assess the unique educational needs and strengths of a learner with ADHD in the class.
    - The teacher's role was to determine how, when and why the learner was inattentive, impulsive and hyperactive – example taken from: (Olusakin, Osarenren, & Obi, 2008)
- Select appropriate instructional practices. Determine which instructional practices will meet the academic and behavioural needs identified for the learner.
    - The teacher then selects different educational practices associated with physical classroom accommodations, academic instructions and behavioural interventions that are appropriate to meet the learner's needs (Olusakin et al., 2008).

- For children receiving special education services, integrate appropriate practices within an Individualised Educational Program (IEP). In consultation with other educators and parents, an IEP should be created to reflect annual goals and the special education-related services, along with supplementary aids and services necessary for attaining those goals.

    - The teacher combine accommodations, instructions and interventions into an IEP or other individualised plan and integrates this program with educational activities provided to other learners in the class (Olusakin et al., 2008).

The U.S. Department of Education Office of Special Education and Rehabilitative Services (2008) stated that, due to differences among the learners with ADHD, an opinion shared by Clark (2010), DuPaul et al. (2011) and Geng (2011), it is important to keep in mind that no single educational program, practice, or setting will be best for all learners. They also corroborates Clark (2010), Funk (2011), Geng (2011), Lessing & Wulfsohn (2015), Mulaudzi & Kutame (2011), Olusakin et al. (2008), Rostain & Ramsay (2006), Sibley et al. (2014) and Topkin et al.(2015), that successful programs for children with ADHD integrate the following components:

- Behavioural Interventions: Behaviour management
  Cognitive-behavioural modifications

- Educational Interventions: Academic Instruction (teaching strategies)
  Classroom Accommodations

- Pharmacological Interventions
- Parental involvement
- Peer mediation

For the purpose of this study, we will only briefly look at Pharmacological and Behavioural Interventions; which will incorporate parental involvement and peer mediation. Educational interventions will be discussed in more detail under the headings: teaching strategies and classroom accommodations.

2.6.1 **Pharmacological Interventions**

According to the U.S. Department of Education, Office of Special Education and Rehabilitative Services - Office of Special Education Programs (2008), pharmacological treatment remains one of the most common, yet most contentious forms of ADHD treatment. They adamantly stated that, the decision to prescribe any medicine is the responsibility of medical professionals and not educational professionals, after consultation with the family. Moreover, as cited by Geng (2011) they posited that the use of medication combined with a multimodal treatment is very effective. The department further advised that when medication is administered at school, educators should:

- develop a plan to ensure that medication is administered in accordance with the doctor's recommendation;
- include this plan in the learner's IEP; and
- maintain child and parent rights to medical confidentiality;

2.6.2 **Behavioural Intervention**

As described by the American Acadamy of Paediatrics (2011), behavioural interventions/treatment are a broad set of specific interventions that aim to modify the physical and social environment to alter behaviour. Lessing & Wulfsohn (2015) expressed that the use of interventions include both the principles of reinforcement and punishment with the aim of increasing desirable behaviour and decreasing problematic behaviour. It is implemented by training parents [and teachers] in specific techniques that improve their abilities to modify and shape the child's [learner's] behaviour and to improve the child's [learner's] ability to regulate his or her own

behaviour. Olusakin et al. (2008) stated that the purpose of behavioural interventions is to assist students in displaying the behaviour that is most conducive to their own learning and that of classmates.

As stated by Lessing & Wulfsohn (2015), three specific approaches with regard to behaviour management strategies are distinguished from the literature. These are: behaviour management, cognitive-behavioural modifications (targeting partly within-child variables) and educational interventions (targeting within-school variables). Sadly, Nowacek & Mamlin (2007) as well as Coles et al. (2015) claimed that even though behavioural management interventions are well established, there is significant concern about the integrity with which teachers implement these strategies. Wevers (2012) found that when probed about how they made adaptations to the school programme to meet the needs of learners who experience barriers to learning, participating educators responded that they did not know how to make these adaptations.

On the other hand, Geng (2011) found that although each ADHD student is different, their behaviours were similar and could be classified as distractibility, impulsivity and hyperactivity. She therefore, warned that, though there is no 'one size fits all' effective behaviour management strategy; behaviour management strategies depend on each child and it must be tailored to the individual needs of each student. She stated that in order to create a positive learning environment for all members of a class, it is necessary to develop behaviour management strategies that are appropriate and adapted to suit individual students' needs. Geng (2011) was also of the opinion that behaviour management strategies that are implemented together with medication were more effective.

Table 6: Evidence-Based Behavioural Treatments for ADHD

INTERVENTION TYPE	DESCRIPTION	TYPICAL OUTCOME(S)
Behavioural parent training (BPT)	Behaviour-modification principles provided to parents for implementation in home settings	Improved compliance with parental commands; improved parental understanding of behavioural principles; high levels of parental satisfaction with treatment
Behavioural classroom management	Behaviour-modification principles provided to teachers for implementation in classroom settings	Improved attention to instruction; improved compliance with classroom rules; decreased disruptive behaviour; improved work productivity
Behavioural peer interventions (BPI)	Interventions focused on peer interactions/relationships; these are often group based interventions provided weekly and include clinic-based social-skills training used either alone or concurrently with behavioural parent training and/or medication	Office-based interventions have produced minimal effects; interventions have been of questionable social validity; some studies of BPI combined with clinic-based BPT found positive effects on parent ratings of ADHD symptoms; no differences on social functioning or parent ratings of social behaviour have been revealed

Source: American Academy of Paediatrics (2011) as adapted from Pelham W, Fabiano (2008)

2.7 EDUCATIONAL INTERVENTIONS

2.7.1 **Teaching Strategies**

Meador (2015) described teaching strategies as strategies that include all approaches that a teacher may take to actively engage students in learning. These strategies drive a teacher's instruction as they work to meet specific learning objectives. Effective teaching strategies meet all learning styles and development needs of the learners. De Jager (2013, p. 85) stated that:

> "… A supportive learning environment can be provided by means of curriculum modifications, differentiated assessment procedures, differentiated teaching strategies, differentiated assignments, a variety of equipment, an adjusted timetable to allocate extra time to learners with barriers and physical modifications to the classroom".

Lessing & De Witt (2010) warned that, to effectively support learners with learning disabilities in the inclusive classroom, teachers should have knowledge of learning disabilities and have the underlying developmental skills necessary to achieve the expected outcomes. Blotnicky-Gallant et al. (2015) initially assumed that teachers are in the good position to provide evidence-based interventions to help ensure optimal adjustment of their students, yet their study concurred with Bradshaw & Kamal (2013) that teachers had less knowledge about general ADHD facts and evidence-based treatments. The study by Blotnicky-Gallant et al. (2015) unpredictably found that there was no significant correlation between specific ADHD knowledge and classroom practice. They stated that despite the fact that evidence-based school/classroom interventions for ADHD exists, very little is known about what interventions are implemented and what factors are related to teachers' use of these intervention strategies.

The Guidelines for Inclusive Learning Programmes state that:

> "Diversity of learners dictates the manner of implementing the curriculum. Recognition of the fact that learners possess different or multiple intelligences is crucial for the inclusive classroom. The learners' intelligence and accompanying learning styles, therefore, should be taken as a starting point in determining the teaching methodologies and assessment procedures to be applied" (Department of Education: Directorate Inclusive Education, 2005).

Armstrong (2009) advocated that a teacher in MI classroom contrasts sharply with a teacher in a traditional linguistic/logical-mathematical classroom. He posited that in the traditional classroom, the teacher talks while standing at the front of the classroom, writes on the blackboard, asks students questions about the assigned reading or handouts, and waits while students finish their written work. In contrast to the traditional class, in the MI classroom, while keeping his/her educational objective firmly in mind, the teacher continually shifts his/her method of presentation from linguistic to spatial to musical and so on, often combining intelligences in creative ways. Armstrong was of the opinion that the best way to approach curriculum development using the theory of multiple intelligences is by thinking about how one can *translate* the material to be taught from one intelligence to another.

Armstrong suggested that when in creating a MI lesson plan, teachers should implement the following steps:

- Focus on a specific objective or topic. The teacher might want to develop curricula on a large scale (e.g., for a year-long theme) or create a program for reaching a specific instructional objective (e.g., for a student's individualized education plan). Whether is chosen as the focus; the objective must clearly and concisely be stated.

- Ask key MI questions when developing a curriculum for a specific objective or topic. These questions can help prime the creative pump for the next steps.

- Consider the possibilities. Look at the different MI techniques, materials and specific strategies at your disposal. Decide which of the methods and materials seem most appropriate and consider other possibilities.

- Brainstorm. Begin listing as many teaching approaches as possible for each intelligence. Be specific about the topic you want to address (e.g., "video clip of rain forest" rather than simply "video clip"). Brainstorming with colleagues may help stimulate your thinking.

- Select appropriate activities. From the ideas you came up with; circle the approaches that seem most workable in your educational setting.

- Set up a sequential plan. Using the approaches you've selected, design a lesson plan or unit around the specific topic or objective chosen.

- Implement the plan. Gather the materials needed, select an appropriate time frame, and then carry out the lesson plan. Modify the lesson as needed to incorporate changes that occur during implementation (e.g., based on feedback from students).

Clark (2010) was of the opinion that instructional adaptations can contribute to the success of managing the learner with ADHD in the classroom. The following techniques [strategies] can decrease ADHD behaviour by targeting the learner's short attention span, memory problems and impulsivity.

Table 7: Teaching strategies to help ADHD learners to overcome barriers

DIFFICULTIES FACED BY LEARNERS WITH ADHD	POSSIBLE STRATEGIES TO HELP THEM OVERCOME THEIR BARRIERS
Learners with ADHD cannot easily follow multiple instructions or remember information if too much is said at one time.	<u>Verbal instructions</u>: • Ask for eye contact – proceed only when learners are focused • Speak less and more concisely • Use clear and concrete instructions and repeat it (several times) if necessary • Used combined written and verbal instructions. <u>Written instructions:</u> • Make use of an overhead projector as this provides a strong visual impact • Use colour and other novel qualities to highlight important features of a task. • Encourage learners to underline, circle or highlight key words in the written instructions before beginning the task.
Learners quickly loose interest and become bored	• Use short bursts of instruction, interwoven with other activities. • Allow for active responding • Alternate between high and low interest activities • When complex tasks are given the educator may need to break down the assignment into smaller units • Use a colourful, dramatic presentation style • Use multimodal presentation methods to access the multitude of learning styles as well as improve interest. Alternate between visual, auditory and kinaesthetic stimuli, allow for opportunities to work individually as well as in groups

ADHD learners have a tendency to start tasks without a clear understanding of what is to be done	• Use cues or signals to alert learners to vital information or key concepts. For example say "listen", "ready", "wait for it", "this next point is very important". • Teach the learners to repeat and review instructions silently • Make sure that learners understand what is required of them for a particular task.
Learners find it difficult to work independently and to stay on task	• To assist move close to the ADHD learner • provide guidance to get the learner started and • Use private cues to keep the learner on task.
Learners' work tend to be incomplete work and sloppy.	• Provide transitional warnings between classes and activities e.g. "In 5 minutes it will be time to pack up for the next class". • Emphasise accuracy rather than speed or volume of work. • Give learners realistic goals, by teaching them to completion of one small section of work done well. • Allow for more time to complete tasks and assignments. • Get the ADHD learners into the habit of checking their work after completion.
Learners tend to be impulsive, disruptive and easily distracted	• To avoid impulsive responses to questions, call on the learners only when their hands are raised • Provide opportunities for seat breaks • Earplugs may be useful for the learner to use during tests or classwork to block out distractions when appropriate. • Provide background music. Some learners benefit from rhythmic background music or even white noise.

Source: Adapted from (Clark, 2010)

2.7.2 **Classroom Accommodation**

Understanding the nature and causes of ADHD is essential for teachers if they are to accommodate all children in their classes (Bradshaw & Kamal, 2013). Vogel (2014) reinforced this by saying that working with teachers to help them understand ADHD, to provide support and to modify the classroom environment is helpful. In their study (Topkin et al., 2015) stated that teachers play a key role in creating an environment that is beneficial to academic, social and emotional success of children with ADHD. Lessing & Wulfsohn (2015) warned however, that to change the classroom atmosphere and enhance the learning environment necessitates knowledge on the side of the teacher to support these learners in the classroom setting. Gureasko-Moore, Dupaul & White (2006) stated that teaching during the secondary years was invaluable, though limited, particularly when teachers are attempting to educate students while implementing effective classroom-based interventions.

Unfortunately, their findings also revealed that teachers in high schools expect students to behave appropriately during instructional time and that they are often not inclined to make classroom modifications or specifically teach classroom preparation skills for those who require assistance, i.e. students with ADHD. This is understandable if one takes into account that in secondary schools, learners do not stay in one classroom as they do in primary schools. The organizational demands imposed by secondary school environments require students to assume more autonomy and responsibility with respect to their own academic management. Expecting learners with ADHD to assume more autonomy and responsibility may create a problem, because research by Volkow et al. (2012) proved that leaners with ADHD often lack intrinsic motivation.

In line with modification, Lessing & Wulfsohn (2015) found that teachers made educational modifications by:

- changing the classroom environment, e.g., to seat learners with ADHD away from potentially distracting areas;
- setting up classroom rules to provide structure to the learning environment;
- making use of peer mediation strategies where each learner with ADHD was paired with a non-ADHD learner;

- decreasing teacher-led classroom instruction time, while increasing small group work time and peer collaboration;
- having a classroom management system in place prior to the student entering the classroom;
- modifying lessons or assignments to maximize the learning experience since learners with ADHD can only concentrate for 15 – 20 minutes; and
- by having a supportive, flexible and creative learning environment based on the principle of inclusion.

Unfortunately Lopes et al. (2009) stated that due to a lack of knowledge, teachers tend to keep learners busy, often assigning task to them that are not necessarily learning related. Nowacek & Mamlin (2007) elaborated this by pointing out that even in cases where teachers attempted to make use of modification, they seemed to select modifications that could be performed without advanced planning, that did not require differentiated instruction or behavioural intervention, or could be addressed by another professional or support person. They further found that teachers in higher grades tended to make more academic than behavioural modifications.

Against the discussion presented above, Jacobson & Reid (2010) concluded that, academic interventions for students with ADHD in general, and for high school students with ADHD in particular, have received little attention from researchers.

2.8 CONCLUSION

According to De Jager (2013), teaching learners whose circumstances are disadvantaged, whose beliefs and values differ from others in the class and who feel socially excluded makes the design of differentiated learning activities more complicated. Therefore, she suggested that, the best practice for classroom instruction is created by having a supportive, flexible and creative learning environment [school, classroom] based on the principle of inclusive education. In order to provide a supportive learning environment teachers should make use of curriculum modifications, differentiated teaching strategies, differentiated assignments, differentiated assessment procedures, a variety of equipment, an adjusted timetable

to allocate extra time to learners with barriers and physical modifications to the classroom.

The importance of an educator's knowledge and attitudes towards inclusive education plays a fundamental role in effectively teaching and supporting learners with ADHD. Van Niekerk (2009) was of the opinion that just because a learner has ADHD; it does not mean that he/she cannot learn or unable to be successful at school. Learners with ADHD only need more understanding and support from their teachers. She posited that, there is too much emphasis on the limitations of learners with problems (departing from the illness or pathological model) without recognizing their potential and strengths.

From the review of the literature, it is clear that inclusion of learners with mild intellectual disabilities, such as ADHD in mainstream high school leaves much to be desired. Due to a lack of knowledge, insufficient support, an inflexible curriculum, time constraints, lack of resources and overcrowded classroom, teachers cannot adequately support learners with ADHD in their classes.

The next chapter covers research methods and methodology that was used to establish how teachers support learners with or at risk of ADHD in mainstream Grade 10 classes.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter presents an overview of the research design, research paradigm and methods used to explore this topic and it highlights the theoretical underpinnings of the research design and method employed to generate data for this study.

According to Silverman (2000), in the methodology chapter the researcher informs the reader how data were gathered, what data the researcher ended up with and how the data was analysed. Later, Silverman (2013) also stated that one's methodology chapter should aim to document the rationale behind the research design and data analysis. In similar manner, Corbin & Strauss (2015) defined research methodology as a way of thinking about and studying social phenomena.

A qualitative research approach was selected and a case study was conducted within the framework of a qualitative research approach. The aim of this qualitative case study was to investigate the lived experiences of 6 Grade 10 teachers in two previously disadvantaged (one historically coloured and one historically black) mainstream high schools in East London; to determine whether teachers have the necessary knowledge of the characteristic symptoms of ADHD, to be able to identify learners who present symptoms of ADHD. It also aimed to establish what teaching strategies and classroom accommodations teachers implement to effectively support learners with ADHD.

The research questions that this study tried to answer include:

- How do teachers support learners with ADHD?

- What knowledge does teachers have of the characteristic ADHD) symptoms?

- What are the challenges and strengths do teachers have when teaching learners with ADHD? What teaching strategies do teachers employ to support learners with ADHD?

- What would be a workable framework for implementing classroom accommodations for teachers to effectively support learners with ADHD?

3.2 RESEARCH APPROACH

Qualitative Research

The reason for any research is to generate knowledge. Research approach refers to the system of acquiring knowledge and the activity of considering, reflecting upon and justifying the best methods. Approach is the specific technique for obtaining the data that will provide the evidence base for the construction of that knowledge. Thus, approach is concerned with the theoretical and overall process to a research project rather than with the characteristics and practical application of particular method (Wellington, Bathmaker, Hunt, McCulloch, & Sikes, 2005, p. 97).

The qualitative research approach was employed in this study. McGuirk & O'Neill (2016) stated that qualitative research pursues to understand the ways people experience events, places, and processes differently as part of a fluid reality, a reality created through numerous interpretations and filtered through multiple frames of reference and systems of meaning making.

Because qualitative research can reveal the nature of certain situations, setting, processes, relationships, systems or people (Leedy & Ormrod, 2005), it was suitable to investigate teacher's knowledge of ADHD as well as the teaching strategies and classroom accommodations they use to effectively support learners with ADHD. Corbin & Strauss (2008) stated that: "…qualitative research allow researchers to get at the inner experience of participants, to determine how meanings are formed through and in culture, and to discover rather than test variables" (Corbin & Strauss, 2008, p.12). This is in alignment with Bricki & Green (2007) who stated that qualitative methods generally aim to understand the experiences and attitudes; these methods aim to answer questions about the *what*, *how* or *why* of a phenomenon.

This approach is therefore considered suitable because it answered the questions to *what* teachers know about ADHD, *how* they implement teaching strategies and accommodations [and the *why*] to support learners. The researcher focussed on 6 Grade 10 teachers in previously disadvantaged mainstream high schools.

Bryman (2012) contrasted qualitative research to quantitative research and stated that "…qualitative research can be construed as a research strategy that usually emphasis words rather than quantification in the collection and analysis of data and that:

- predominantly emphasizes an inductive approach to the relationship between theory and research, in which the emphasis is placed on the generation of theories;

- has rejected the practices and norms of the natural scientific module and of positivism in particular in preference for an emphasis on the ways in which individuals interpret their social world; and

- embodies a view of social reality as a constant shifting emergent property of individuals' creation," (Bryman, 2012, p.36).

3.2.1 **Critique of qualitative research**:

Qualitative research has been criticized by quantitative researchers as:

- too subjective – findings rely too much on the researcher's views about what is significant and important and upon the close personal relationships the researcher frequently form with participants.

- too difficult to replicate – because it is unstructured and often rely on the qualitative researcher's ingenuity, it is almost impossible to conduct a true replication, since there are hardly any standard procedures to follow.

- too problematic to generalise – scope of findings are restricted and since population sample is normally small; it is impossible to know how findings can be generalised to other settings.

- lacking transparency – it is sometimes difficult to establish from qualitative research what the researcher actually did and how he/she arrived at the study's conclusions, *adapted from (Bryman, 2012, p. 406).*

3.2.2 **Strengths of qualitative research**

Despite the weaknesses reported above, qualitative research also has its strength as described by Johnson and Christensen (2008, p. 442):

- Data is based on the participants' own categories of meaning.
- Qualitative method is useful for studying a limited number of cases in depth and it provides individual case information.
- It provides understanding and description of people's personal experiences of phenomena (that is, the emic or insider's viewpoint).
- It can describe in rich detail phenomena as they are situated and embedded in local contexts.
- Qualitative researchers are especially responsive to changes that occur during the conducting of a study and may shift the focus of their studies as a result.

3.2.3 **Differences between qualitative and quantitative research**

Table 8: Some broad differences between quantitative and qualitative research

Quantitative	Qualitative
Numbers are used as data	Words – written and spoken language – (and images) used as data
Seeks to identity relationships between variables, to explain or predict – with the aim of generalizing the findings to a wider population	Seeks to understand and interpret more local meanings; recognizes data as gathered in a context, sometimes produces knowledge that can contribute to more general understandings
Generates 'shallow' but broad data – not a lot of complex details obtained from each participant, but lots of participants take part (to generate the necessary statistical power)	Generates 'narrow' but rich data, 'thick descriptions' – detailed and complex account from each participant; not many take part.
Seeks consensus, norms, or general patterns; often aims to reduce diversity of responses to an average response	Tends to seek patterns, but accommodates and explores difference and divergence within data
Tends to be theory- testing, and deductive	Tends to be theory gathering, and inductive (working up from data)
Values detachment and impartiality (objective)	Values personal involvement and partiality Subjectivity, reflexivity
Has a fixed method (harder to change focus once data collection has begun)	Method is less fixed (can accommodate a shift in focus in the same study)
Can be completed quickly	Tends to take longer to complete because it is interpretive and there is no formula

Source: (Braun & Clarke, 2013, p.4)

Figure 2: Research design and methodology

3.3 RESEARCH PARADIGM

In describing a research paradigm, Poni (2014, p. 407) stated that:

> "…research paradigms represent a crucial element in the research project as they influence both the strategy and the way the researchers construct and interpret the meaning of the reality. The research paradigm has a philosophical underpinning and orients the researchers' point of view on the reality as given by nature or constructed by human agency".

In addition, Maree (2013) went further to describe a paradigm as a set of assumptions / beliefs about fundamental aspects of reality, which propagates a particular world-view. He posited that, paradigms denote what we think (but cannot prove) about the world. In essence, the research paradigm is the view or belief the researcher has in terms of his/her assumptions, propositions, thinking and approach to research.

This description is in agreement with Lichtman (2013, p.10) who stated that "…traditional research paradigms are ways of seeing the world and making certain assumptions about the world. They assumed that there is an objective reality that researchers should try to uncover as they conduct their research". In view of the above said, it is clear to understand why Okeke & Van Wyk (2015) stressed the importance of research paradigms, as they are the philosophical bases for researchers that inform their choices about which research questions to address and what methodology to employ.

From Bryman's description, it is clear that the term paradigm originates form scientific research. Bryman described a paradigm as:

> "…A term deriving from the history of science, where it was used to describe a cluster of beliefs and dictates that for scientists in a particular discipline influence what should be studied, how research should be done and how results should be interpreted" (Bryman, 2012, p. 714).

In Taylor & Medina's (2013) opinion, no research paradigm is superior. Instead, according to them, each has a specific purpose in providing a distinct means of producing unique knowledge. They further stated that from a philosophical perspective, a paradigm comprises of *ontological, epistemological* and *methodological*

assumptions. Yilmaz (2013) elaborated on this by adding two more assumptions from Creswell (2007), i.e. *axiological* and *rhetorical* assumptions.

3.3.1 ASSUMPTIONS OF PARADIGMS

3.3.1.1 **Ontology**

Ontology is concerned with the nature of reality and what there is to know about the world. Key ontological questions concerns with whether there is or not a social reality that exist independently of human conceptions and interpretations, and closely related to this, whether there is a shared social reality or only multiple, context-specific ones.

3.3.1.2 **Epistemology**

Epistemology is concerned with ways of knowing and learning about the world and focusses on issues such as how we can learn about reality and what forms the basis of our knowledge.

Epistemological positions:

- *Inductive logic* – building knowledge from the bottom up through observation of the world, which in turn provide the basis for developing theories or laws.

- *Deductive logic* – a top-down approach to knowledge which starts with a theory from which a hypothesis is derived and applied to observations about the world.

- *Retroductive logic* – the researcher identifies the structures or mechanisms that may have produced patterns in the data, trying different models.

- *Abductive logic* – involves 'abducting' a technical account, using the researcher's categories, from participants' own accounts of everyday activities, ideas or beliefs.

3.3.1.3 **Methodology**

Methodology refers to a disciplined approach to generating knowledge.

3.3.1.4 **Axiological**

Refer to the idea that no research endeavour is value-free. It holds that researchers bring their values to what is researched.

3.3.1.5 **Rhetorical**

Refers to the language of research being subjective in the form of first person account (Summarised from Ritchie, Lewis, Nicholls & Ormston (2014) *and* Yilmaz (2013).

Table 9: Basic Set of Beliefs or Philosophical Assumptions about Characteristics of Qualitative Research

Assumptions	Questions	Characteristics	Implications for Practice (Examples)
Ontological	What is the nature of reality?	Reality is subjective and multiple, as seen by participants in the study	Researcher uses quotes and themes in words of participants and provides evidence of different perspectives
Epistemological	What is the relationship between the researcher and that being researched?	Researcher attempts to lessen distance between him or her and that being researched.	Researcher collaborates, spends time in field with participants, and becomes an 'insider'.
Axiological	What is the role of values?	Researcher acknowledges that research is value laden and that biases are present.	Researcher openly discusses values that shape the narrative and includes his or her own interpretation in conjunction with the interpretations of participants.
Rhetorical	What is the language of research?	Researcher writes in a literary, informal style using the personal voice and uses qualitative terms and limited definitions.	Researcher uses an engaging style of narrative, may use first-person pronoun, and employs the language of qualitative research.
Methodological	What is the process of research?	Researcher uses inductive logic, studies the topic within its context, and uses an emerging design,	Researcher works with particulars (details) before generalizations, describes in detail the context of the study, and continually revises questions from experiences in the field.

Source: Yilmaz (2013) as adapted from Creswell (2007)

3.3.2 THE MAJOR RESEARCH PARADIGMS

3.3.2.1 **Positivist Paradigm**

As indicated earlier, there are a number of world views that guide research. One of these is positivist. Ritchie et al. (2014) was of the opinion that positivism had a major influence on the way social enquiry developed over the last century. They argued that it provides the wider backdrop against which qualitative research evolved and matured. According to the researchers, early examples of positivist thinking in research can be traced back to the philosopher Rene Descartes, who in 1637 wrote Discourse on Methodology in which he focused on the importance of objectivity and evidence in the search for truth. Auguste Comte (1798-1857) who is considered the founding father of sociology according to Ritchie et al. (2014), proclaimed that the social world could and should be studied in much the same way as the natural world, based on direct observation from which universal and invariant laws of human behaviour could be identified.

Positivism is a research paradigm that is very well known and well established in universities worldwide. This 'scientific' research paradigm strives to investigate, confirm and predict law-like patterns of behaviour, and is commonly used in graduate research to test theories or hypotheses. The positivist paradigm mostly involves quantitative methodology, utilizing experimental methods, involving experimental (or treatment) and control groups and administration of pre-and post-tests to measure gain scores. Here, the researcher is external to the research site and is the controller of the research process (Taylor & Medina, 2013). According to Maree (2013), in positivism, only objective observable facts can be the basis for science. He further explained that theological (the supernatural) or metaphysical (the abstract) claims must yield to the positive – that which can be explained in scientific laws. Knoetze (2015) précised by stating that the main features of a positivist research paradigm is a logical-deductive and scientific approach to verifiable data and it assumes that the researcher needs to concentrate on external, objective and observable facts to ensure quantifiable research findings.

Ritchie et al. (2014) summarised positivism as paradigm where:

- Knowledge is produced through the senses based on careful observation;
- Regularities and ‘constant conjunctions are identified;
- Inductive reasoning is used after data has been collected to generalised from empirical instances to general laws;
- Reality is unaffected by the research process, facts and values are separate objective, value-free inquiry is possible;
- The methods used in the natural sciences are appropriate for studying the social world; and
- Reality can be known accurately (knowledge is foundational, correspondence theory of truth) (Ritchie et al., 2014, p. 10)

As was stated by Ritchie et al. (2014), positivist assumptions have been refined and questioned by those working within both the natural sciences and quantitative social research. They stated that during the 1930’s and 1940’s Popper criticised the idea that general laws could be derived from observations on the grounds and that it was always possible that a future observation might prove an exception to the rule. According to them, Popper argued for a deductive approach in which hypotheses were first derived from theory and then tested empirically. This approach gave birth to Post-positivism.

3.3.2.2 **Post-Positivist Paradigm**

Taylor & Medina (2013) stated that this paradigm is the modified scientific method for the social sciences. It aims to produce objective and generalizable knowledge about social patterns, seeking to affirm the presence of universal properties/laws in relationships amongst pre-defined variables.

Post-positivists approaches assume that reality is multiple, subjective and mentally constructed by individuals (Maree, 2013, p.65). Maree further says that, for the post-

positivist researcher, reality is not a fixed entity and it is to a certain degree accepted. Reality is created by the individuals involved in the research. Post-positivist thinkers focus on establishing and searching for evidence valid and reliable in terms of the existence of phenomena rather than generalization.

Ritchie et al. (2014) summarised Post-positivism as paradigm where:

- Knowledge of the world is produced through testing propositions: hypotheses about causal relationships are derived from scientific theories and then evaluated empirically against observations;

- Deductive reasoning is used to postulate possible relationships and models before data are collected;

- Reality is unaffected by research process, facts and values are separate, objective value-free inquiry is possible;

- The methods used in the natural sciences are appropriate for studying the social world; and

- Reality can be known approximately, hypothesis can be rejected or tentatively confirmed, but not definitively proved to be true (knowledge is provisional and fallibility, and coherence theory of truth (Ritchie *et al*., 2014, p.10).

The quality standards of the post-positivism paradigm are *objectivity, validity* and *reliability*, which can be modified with the use of *triangulation* of data, methods and theories (Taylor & Medina, 2013).

3.3.2.3 **Interpretivism**

According to Taylor & Medina (2013) the Interpretive, Critical, Postmodern and Multi-Paradigmatic research paradigm are relatively new paradigms. The aims of these paradigms are shown in table 10:

Table 10: Aims of different "newer" research paradigms

PARADIGM	AIM OF THE PARADIGM
Interpretive	*… to understand the culturally different 'other' by learning to 'stand in their shoes', 'look through their eyes' and 'feel their pleasure or pain'*
Critical	*… to identify, contest and help resolve 'gross power imbalances' in society which fuel ethically questionable profit making activities that contribute to systemic inequalities and injustices.*
Postmodern	*… to 'represent' our thoughts and feelings through various means of communication (e.g., language, art, dance, gesture). This paradigm celebrates pluralism and difference, and opens the door to other disciplines such as The Arts.*
Multi-Paradigmatic Research	*… to combine methods and standards from the interpretive and critical paradigms to create a 'critical auto/ethnography' and to add new literary genres, modes of thinking and quality standards from Arts-based research in order for studies to become very powerful means of transformative professional development.*

Source: Adapted from Taylor & Medina (2013)

The Interpretive Paradigm

The current research is focused on the interpretive paradigm. Taylor & Medina (2013) proposed that application of interpretive paradigm to educational research, empowers researchers to build rich local understandings of the life-world experiences of teachers and students and of the cultures of classrooms, schools and the communities they serve. This paradigm is suitable for this study because it is consistent with the assumption that experience of the world is subjective and best understood in terms of individuals' subjective meanings rather than the researcher's objective definitions (Rowlands, 2005). Cohen & Crabtree (2006) stated that the interpretivist paradigm suggests that the researchers' values are inherent in all phases of the research process. According to them, truth is negotiated through dialogue and findings or knowledge claims are created as an investigation proceeds. That is, findings emerge through dialogue in which conflicting interpretations are negotiated among members of a community.

Berger & Luckman as cited by Rowlands (2005) indicated that an interpretive paradigm is based on the idea that people socially and symbolically construct their own organisational realities. Maree (2013) simplified this by stating that interpretive studies generally attempt to understand phenomena through the meanings that people assign to them. He postulated that the ultimate aim of interpretivist research is to offer a perspective of a situation as well as to analyse the situation under study in order provide insight into the way in which a specific group of people make sense of their situation or the phenomena they encounter. In interpretivism, as stated by Blaikie (2010, p. 99)

> "…social reality is regarded as the product of its inhabitants; it is a world that is interpreted by the meanings participants produce and reproduce as a necessary part of their everyday activities together." Walsham stated that "…he [I] sees critical realism as one possible philosophical position underpinning interpretive research, along with others such as phenomenology and hermeneutics" (Walsham, 2006, p.320).

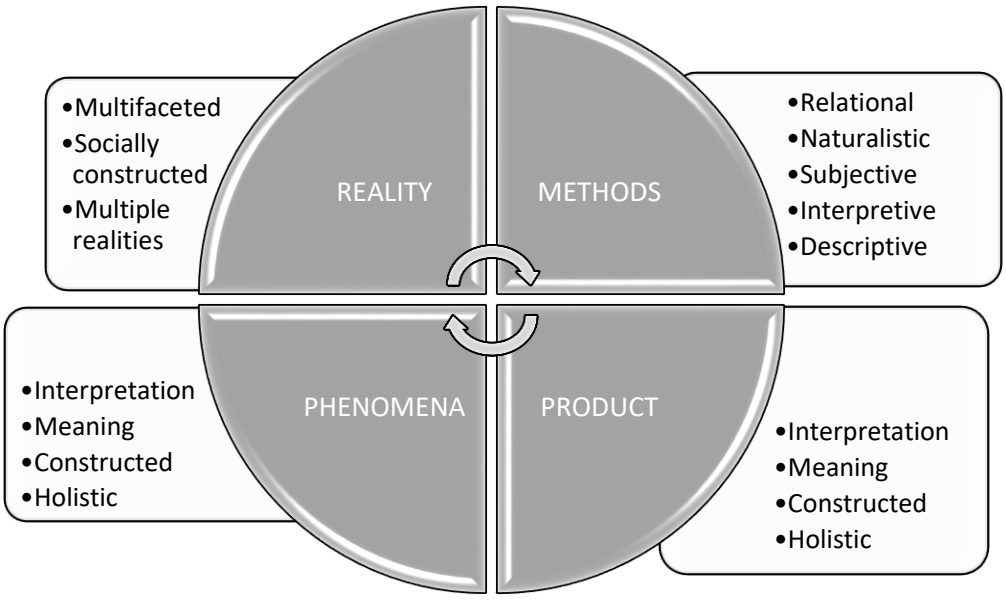
According to both Blaikie (2010) and Maree (2013), Interpretivism finds its roots in the classic Hermeneutics, the study of theory and interpretation.

Maree (2013, p. 59) stated that the interpretivist perspective is based on the following assumptions:

- Human life can only be understood from within;
- Social life is a distinctively human product;
- The human mind is the purposive source or origin of meaning;
- Human behaviour is affected by knowledge of the social world;
- The social world does not exist independently of human knowledge;

Because of these above-mentioned assumptions, the Interpretive Paradigm was ideal for this study. It allowed the educators to get involved into the question engage their own knowledge of ADHD, and hopefully through this process enable them to question, understand and except their behaviour towards learners with ADHD to change. This ultimate expansion of knowledge will hopefully lead to a change in behaviour which should naturally lead to re-evaluating teaching strategies and classroom accommodations; thus resulting in the improvement of classroom practices to optimally support learners with ADHD.

Figure 3: Representation of Interpretivism:



Source: Adapted from (Maree, 2013, p. 61)

According to Taylor & Medina (2013) the humanistic paradigm (Interpretivism) became part of educational research during the later 1970s and that it was strongly influenced by anthropology which aims to understand other cultures, from the inside. It aimed to understand the culturally different 'other' by learning to 'stand in their shoes', 'look through their eyes' and 'feel their pleasure or pain'. Thus, according to Taylor & Medina (2013), the epistemology of Interpretivism is inter-subjective knowledge construction.

The essential aim of the interpretive paradigm is to understand the subjective meanings of persons in studied domains (Goldkuhl, 2012). Further, the social world of people is full of meaning and that it is built upon subjective and shared meanings. Moreover, he postulated that the core idea of Interpretivism is to work with these subjective meanings already there in the social world; i.e. to acknowledge their existence, to reconstruct them, to understand them, to avoid distorting them, and to use them as building blocks in theorizing.

Taylor & Medina (2013, p. 4) stated that:

> "…recent developments in the interpretive paradigm have highlighted the importance of the researcher's own subjectivity in the (hermeneutic) process of interpretation, and have emphasised its progressive development as a key part of the inquiry process, thereby adding to the emergent and reflective quality of interpretive research".

It is thus obvious why they stated that the interpretive researcher would constantly ask him/herself: What is the influence of my own (past and present) values and beliefs in interpreting the thoughts and feelings of the other? What hidden assumptions are constraining (distorting) the way I make sense of the other?

3.4 RESEARCH DESIGN: CASE STUDY

In this study, the researcher made use of a case study, because as stated by Crowe, Cresswell, Robertson, Huby, Avery & Sheikh (2011), case study is particularly useful to employ when there is a need to obtain an in-depth appreciation of an issue, event or phenomenon of interest, in its natural setting. Leedy & Ormrod (2005) elaborated on this by stating that:

> "…in a case study, a particular individual, programme or event is studied in depth for a defined period of time" (Leedy & Ormrod, 2005, p. 135).

Yin (2014) elaborated even further by stating that "a case study is an empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (Yin, 2014, p.16). In this study, the researcher wanted to have and in-depth look at how grade 10 learners with ADHD are supported by their teachers (phenomenon) in the classroom in previously disadvantaged schools (setting).

Maree (2013) posited that;

> "from an interpretivist perspective, the typical characteristic of case studies is that they strive towards comprehensive (holistic) understanding of how participants relate and interact with each other in a specific situation and how they make meaning of a phenomenon under study"(Maree, 2013, p.75).

As this research aimed to study how teachers support learners with ADHD within the school (classroom) setting, making use of the case study approach yielded the best results. The use of a case study also has a distinctive advantage because of the following as described by (Yin, 2014, p.14):

A "how" or "why" question is being asked about;

- a contemporary set of events; and
- over which a researcher has little or no control.

According to Maree (2013) the use of multiple sources and techniques of data gathering, is a key strength of the case study method. Since the researcher made use of interviews, open-ended questionnaires and observation to collect data, the case study was the appropriate choice as a research design. As stated by Crowe et al. (2011) the central principle of a case study is the need to explore an event or phenomenon in depth and in its natural context. They further stated that it is for this reason the case study is sometimes referred to as a "naturalistic" design; this is in contrast to an "experimental" design in which the investigator seeks to exert control over and manipulate the variable(s) of interest. Baxter & Jack (2008) suggested that once the researcher has decided to make use of a case study, he or she must consider what *type* of case study will be conducted. According to these researchers, the

selection of the type of case study design will be guided by the overall purpose of the study.

3.4.1 **Different types of case studies**

Table 11: Definitions and Examples of Three Types of Case Studies

Case Study Type	Definition: This type of case study…
Explanatory	*…it seeks to explain the presumed causal links in real-life interventions that are too complex for the survey of experimental methods. A case study whose purpose is to explain the how or why some condition came to be.*
Exploratory	*… it is used to explore those situations in which the intervention being evaluated has no clear, single set of outcomes. A case study whose purpose is to identify the research questions or procedures to be used in a subsequent research study.*
Descriptive	*…it is used to describe an intervention or phenomenon and the real-life context in which it occurs. A case study whose purpose is to describe a phenomenon (the "case") in its real world context.*

Source: Adapted from Baxter & Jack (2008) and Yin (2014)

Because the study aimed to investigate how teacher support learners with or at risk of ADHD, by looking at what teacher know about ADHD and how this knowledge or lack of knowledge affects the teaching strategies and classroom accommodations they use to support these learners, the researcher adopted the explanatory as well as descriptive research designs.

3.4.2 **Advantages of the Case Study**

The following are the advantages of using case studies.

- data collection and analysis within the context of phenomenon;

- allow for integration of qualitative and quantitative data in data analysis; and

- the ability to capture complexities of real-life situations so that the phenomenon. can be studied in greater levels of depth

3.4.3 **Disadvantages of the Case Study**

Table 12: Disadvantages and solutions of case studies

DISADVANTAGES	SOLUTION TO DISADVANTAGE
• lack of rigor	No sloppy research, followed systematic procedure, did not allow equivocal evidence to influence findings and conclusions
• challenges associated with data analysis • unmanageable level of effort	Avoided a study that took too long and resulted in massive, unreadable documents. Unlike ethnographies, case studies do not require long periods in the field and emphasize detailed observational and interview evidence.
• very little basis for generalizations of findings and conclusions.	For the researcher the case study was generalizable in theoretical propositions and not to populations or universes.

Source: Adapted from Yin (2014)

3.5 POPULATION, SAMPLE AND SAMPLING TECHNIQUES

The entities researchers select, comprise their sample and the process of selecting them is called sampling Leedy & Ormrod (2005, p. 144). According to Dudovskiy (2016), the process of sampling in primary data collection involves the following stages:

- *Defining target population*. Target population represent specific segment within wider population that are best positioned to serve as a primary data source for the research.

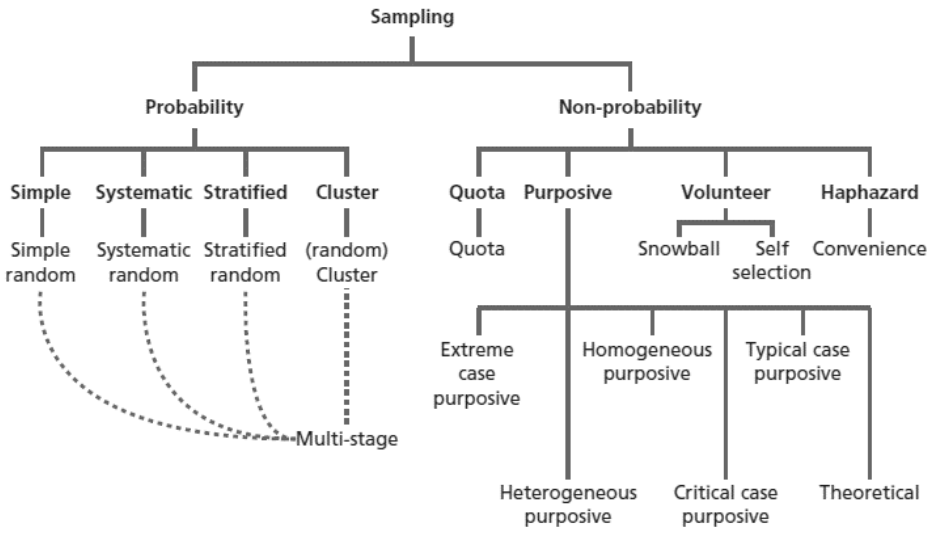
- *Choosing sampling frame*. Sampling frame can be explained as a list of people within the target population who can contribute to the research.

- *Determining sampling size*. This is the number of individuals from the sampling frame who will participate in the primary data collection process.

- *Selecting a sampling method*.

According to Dudovskiy (2016), sampling methods are generally divided into two categories, i.e. probability and non-probability sampling. In probability sampling, every member of population has a known chance of participating in the study. Probability sampling methods include simple, stratified systematic, multistage, and cluster sampling methods. This sampling method is used in quantitative research. In non-probability sampling, sampling group members are selected on non-random manner, thus not each population member has a chance to participate in the study. Non-probability sampling methods include purposive, quota, convenience and snowball sampling methods. This type of sampling method is used when doing qualitative research, thus the researcher made use of non-probability sampling.

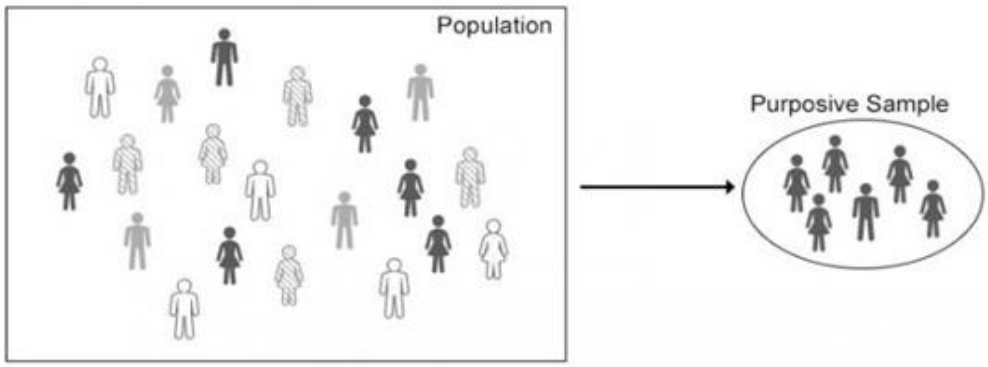
Figure 4: Categorization of sampling techniques



Source: Dudovskiy (2016)

In this case-study, the researcher made use of purposive sampling technique. Silverman stresses that "… purposive sampling demands that we think critically about the parameters of the population we are interested in and choose our sample case carefully on this basis" (Silverman, 2011, p. 388).

Figure 5: Illustration of purposive sampling



Source: Dudovskiy (2016)

Dudovskiy (2016) described purposive sampling as essentially having to do with the selection of units – whether it is people, organizations, documents, departments, etc. – with direct reference to the research questions being asked. This links directly to Bryman (2012) who stated that purposive sampling places the investigation's research questions at the forefront of sampling considerations. The use of purposive sampling meant that participants were selected because they were likely to generate useful data for the research, since the researcher needed to use individuals who yielded the most information regarding teachers' knowledge of ADHD as well as the teaching strategies and classroom accommodations they use to effectively support learners with ADHD in grade 10 mainstream classrooms.

Sample sizes are typically small in qualitative research, thus the participants in this study comprised of 6 (3 from each school) mainstream Grade 10 teachers at two schools in the East London District: one school from a historically coloured community and the other from a black community. These schools were selected because their classrooms are not always adequate for optimum classroom accommodations, due to a lack of resources and large numbers of pupils in the class. Both schools are in the same district, close to each other and managed by the same district manager.

The reason for selecting these schools as research sites was to reduce paperwork in terms of obtaining permission for the study from the Department of Education and to avoid traveling long distances to gather information.

Three of the 6 participants teach Mathematics /mathematic literacy and three are language teachers, one Afrikaans First Additional Language, one English Home Language and one English First Additional Language. These subjects were selected because according to Gardner's Theory of Multiple Intelligences, schools tend to focus on Mathematics and Languages, which learners with ADHD normally struggle with. Four of the chosen participants were female teachers and two male teachers and their ages ranged from 23 to 53 years. The researcher was not particularly concerned with the gender of the participants, but the ages and years of experience was an important factor as it would influence teachers' knowledge about ADHD as argued by Anderson et al. (2012).

3.6 DATA COLLECTION INSTRUMENTS

3.6.1 **Open-Ended Questionnaires**

A questionnaire is a way of capturing what respondents want to say rather than to promote researchers' own agenda (Cohen, Manion, & Morrison, 2002, p. 246). According to Dudovskiy (2016), questionnaires can be classified as quantitative or qualitative, depending on the nature of questions. Gill, Stewart, Treasure & Chadwick (2008) were of the opinion that in qualitative research, the researcher should make use of open-ended questions that require more than a simple yes/no response, but which are neutral, sensitive and understandable. McGuirk & O'Neill (2016) elaborated on this when they stated that open questions have greater potential to yield the in-depth responses and because open questions offer less structured response, they invite respondents to recount understandings, experiences, and opinions in their own style. Maree (2007, p. 161) argued that open-ended questions have both advantages as well as disadvantages.

Advantages of Open-ended Questions:

- Respondents can give honest answers and detail.
- The respondent' thinking process is revealed.
- Complex questions can be adequately answered.
- Thematic analysis of responses will yield extremely interesting information, categories and subcategories.

Disadvantages of Open-ended Questions:

- The amount of detail may differ among respondents.
- Coding of answers may be difficult.
- Respondents may need time to think and write their responses.

By making use of open-ended questionnaires, the researcher was able to gauge teachers' knowledge of ADHD, as well as the teaching strategies and classroom accommodations they use to effectively support learners with ADHD. Respondents initially seemed nervous to complete the open-ended questionnaire. However, to facilitate the process, the researcher started with a short introduction, explaining what the questionnaire was all about. Researcher also asked participants to answer questions as honestly as possible, stating facts as they are and not as how they thought it should be. Questions followed in a logical order, in line with the research questions and objectives of the research. To give the participants the opportunity to answer questions as honestly and detailed as possible, the researcher asked that participants should complete the open-ended questionnaires at leisure and return it the following day.

3.6.2 **Interviews**

According to Gill et al. (2008), and Braun & Clarke (2013) there are three fundamental types of research interviews. These are: structured, semi-structured and unstructured.

- *Structured*: The questions and the response categories are predetermined by the researcher

- *Semi structured*: The researcher has a list of questions but there is scope for the participants to raise issues that the researcher has not anticipated.

- *Unstructured:* The researcher has, at most, a list of themes or topics to discuss with the participant, but the interview is strongly participant-led

Braun & Clarke (2013, p. 78) stated that "The semi-structured interview … is the dominant form of qualitative interviews. In this approach, the researcher has prepared an interview guide before the interview, but does not rigidly adhere to it…" The researcher made use of semi-structured interviews that consisted of several key questions, but also allowed the interviewer or interviewee to diverge in order to pursue an idea or response in more detail (Gill et al., 2008).

The flexibility of semi-structured interviews allowed for the discovery or elaboration of information that is important to participants, but was not previously thought of as pertinent by the researcher. The semi-structured interviews were particularly useful because it allowed the researcher to clarify certain questions when needed. Semi-structured, one-on-one interviews were conducted with all the participants. Interviews aim basically at collecting rich descriptive data that helps the researcher to understand the participant's construction of knowledge and social reality. The researcher chose to use semi-structured interviews because it allowed for probing which can be a problem area for structured interview. On the other hand, participants may not understand the question, thus might be unable to answer it or might have received insufficient information to answer the question. In such case one-on-one interviews becomes appropriate.

Bryman (2012) stated that before the interview, the researcher should attend to some practical details. This are:

- Be familiar with the setting in which the interviewee lives or works so that you understand what he/she is saying in his/her own terms.

- Make sure that you have a good quality recording machine and microphone, and that you are familiar with how to operate the equipment, because qualitative researchers nearly always record then transcribe their interviews.

- Make sure that as far as possible the interview takes place in a quiet, relaxed and private setting.

- Prepare yourself for the interview by cultivating the following criteria: be a good listener be active and alert during the interview, be flexible when it is appropriate, be non-judgemental as much as possible

- If you are inexperienced with doing interviews, conduct some pilot interviews to gain some experience.

Before the interviews commenced, the researcher asked the participants' permission to record the interviews, as it would help yield more detailed information. The researcher reassured the participants that the interviews were purely voluntary and that they could withdraw at any time they felt uncomfortable.

Participants were also assured that whatever they say would be kept in strict confidence and would only be used for the purpose of the research. To ensure anonymity, the researcher informed the participants that their names will not be used in any of the data collected; but they will only be referred to as the respondent. The researcher started with non-threatening questions, i.e. the respondents' demographic information, to make them feel more comfortable. Once the respondents were more relaxed the researcher started asking questions relevant to the topic.

To facilitate the interview, the researcher used:

- ✓ Introducing questions: How long have you been teaching…?
- ✓ Follow-up questions: What do you mean by…?
- ✓ Probing questions: You said earlier that… could you tell me why…?
- ✓ Direct questions: Do you find it difficult to …?

- ✓ Indirect questions: What is the feeling of other staff members regarding…?
- ✓ Interpreting questions: Would it be fair to say that …?

The researcher also allowed for pauses to give the interviewee the opportunity to reflect on and elaborate on the answers as advised by Bosley et al. (2009) as cited by (Bryman, 2012, p 478).

3.6.3 **Observation**

In additional to interviews, observational data is very useful in overcoming discrepancies between what people say and what they actually do. It is important because it help to uncover behaviour of which the participants themselves may not be aware (Bricki & Green, 2007). Observations of the phenomenon of interest also help to fully understand the complexity of the situation. Corbin & Strauss (2015) argue that observations are important, because it is not uncommon for people to say they are doing one thing, but the truth they are doing something else. Thus, observation becomes appropriate to capture that truth because persons are not always aware of, or able to communicate the subtleties of what go on during interactions between themselves and others. Maree (2013) had the following argument.

> "…Observation is the systematic process of recording the behavioural patterns of participants, objects and occurrences without necessarily questioning or communicating with them" (Maree, 2013, p. 83-84). "…It is an everyday activity whereby we use our senses (seeing, hearing, touching, smelling, and tasting) but also our intuition to gather bits of data qualitative data gathering technique where the researcher uses senses to gather bits of data" (Maree, 2013, p. 84).

In this study, it was used to enable the researcher to gain a deeper insight and understanding of a phenomenon being observed.

Table 13: Potential drawbacks of observations

DRAWBACK	POSSIBLE SOLUTIONS
A researcher may give meaning to a witnessed action-interaction, but unless that meaning is checked out with participants, the researcher's interpretation may or may not be correct	• Combine observations with interviews • leave open the possibility to verify interpretations with participants
It is difficult to know where to begin when doing observations, because there is so much going on in any social scene	• Make use of observational guide, but not rigidly, since it is not advised in grounded theory studies, because they structure the observations too much. • Know how to proceed in a grounded theory, by beginning by standing back and letting the scene before you unfold
It is impossible to capture every bit of what is going on in a setting	• Start by jotting down a few general notes describing the area under observation • Be watchful for incidents or happenings that seem to be particularly interesting and might bear some closer inspection.

Source: Adapted from (Corbin & Strauss, 2015, p 41)

Doing an observation was essentially to find out what teaching strategies and classroom accommodations teachers employ to effectively support learners who have or are at risk of ADHD. Since, observations are time-consuming and can be intrusive, the researcher only intended to video record the lessons of 2 teachers, one from each school (with the consent from the Eastern Cape Department of Education, the principal and teachers concerned).

3.7 DATA ANALYSIS

Qualitative data consist of words and observations, and not numbers. In research data analysis and interpretation is mandatory to bring order and meaning of raw data. This resonate with Hofstee (2015) who stated that evidence to support your argument usually takes the form of data. He further points out that without analysis; data has no meaning. He is of the opinion that, it is only when the data is analysed and used to substantiate a point, then that data becomes evidence. As stated by Corbin & Strauss (2015, p88), "…Analysis is the act of taking data, thinking about it, and denoting concepts to stand for the analyst's interpretation of the meaning intended by the participant." A qualitative study usually relies on inductive reasoning processes to interpret and construct the meanings that can be developed from data. Inductive reasoning uses the data to generate ideas, hypothesis generating, as opposed to deductive reasoning which begins with the idea and uses the data to confirm or refute the idea – hypothesis testing (Thorne, 2000).

Unlike in the case of quantitative data analysis, there are no clear-cut rules about how qualitative data analysis should be carried out (Bryman, 2012; Ritchie et al., 2014). However, both Maree (2013) and Silverman (2011b) stated that ample literature is available on qualitative data analysis. Maree gave a detailed definition of qualitative data analysis in the following:

> "…that it [qualitative analysis] tries to establish how participants make meaning of a specific phenomenon by analysing their perceptions, attitudes, understanding, knowledge, values, feelings and experiences in an attempt to approximate their construction of the phenomenon (Maree, 2013, p. 99).

According to Sunday (2012) qualitative data analysis is usually based on an interpretative philosophy. According to (Thorne, 2000) the processes of collecting and analysing data tend to be concurrent in qualitative approach. This is because new analytic steps informs how additional data is collected and vice versa. It is important to realise that the processes of qualitative data analysis is not entirely disconnected from the actual data as Thorne puts it.

> "…The theoretical lens from which the researcher approaches the phenomenon, the strategies that the researcher uses to collect or construct data, and the understandings that the researcher has about what might count

as relevant or important data in answering the research question are all analytic processes that influence the data…" (Thorne, 2000, p. 68).

Henderson, Palić, Vignali, Hallier, Stanton & Radder (2016) described qualitative data analysis as a process of description, classification and interconnection of phenomena with the researcher's concepts. Moreover, Sunday (2012, p. 19) defines qualitative data analysis as:

"…the range of processes and procedures whereby we move from the qualitative data that have been collected, into some form of explanation, understanding or interpretation of the people and situations we are investigating…"

Schutt & Chambliss (2013) stated that the analysis of qualitative research notes begins in the field, at the time of observation, interviewing, or both, as the researcher identifies problems and concepts that appear likely to help in understanding the situation. This is in agreement with Maree (2013) who posited that qualitative data analysis tends to be a continuous and non-linear process, suggesting that data collection, processing, analysis and reporting are intertwined, and not merely a number of sequential steps.

Table 14: Three of the most prominent qualitative data analysis approaches

ANALYTIC APPROACH	WHAT IT IS	KEY ACTIONS RELATED TO METHOD
Thematic Analysis	A Method for identifying themes and patterns of meaning across a dataset in relation to a research question; possibly the most widely used qualitative method of data analysis, but not "branded" as a specific method to date	▪ Familiarize yourself with data ▪ Generate initial codes ▪ Search for themes ▪ Review themes ▪ Refine themes
Interpretative Phenomenological Analysis	Focuses on how people make sense of their lived experience; can be used to analyse individual cases or to generate themes across a small group of participants	▪ Read single transcript ▪ Generate initial themes ▪ Create initial list of themes ▪ Cluster themes ▪ Create a list/table with subordinate themes and sub-themes ▪ Go to new transcript ▪ Create final list/table with subordinate themes and sub themes
Grounded Theory	Focuses on building theory from data and there is an emphasis on understanding social processes; analysis is organized round key categories	▪ Initial coding and memo writing ▪ Focused coding and memo writing ▪ Collect new data via theoretical sampling ▪ Continue to code, memo and use theoretical sampling ▪ Sort and integrate memos

Source: Adapted from (Virginia Braun & Clarke, 2013; Silverman, 2011b)

3.7.1 **Thematic Analysis**

In this study thematic analysis (TA) of data was used. Bricki & Green (2007) stated that, a thematic analysis is one that looks across all the data to identify the common issues that recur, and identify the main themes that summarise all the views you have collected. According to Braun and Clarke (2013) thematic analysis is relatively unique among qualitative analytic methods, because it only provides a method for data analysis and it does not prescribe methods of data collection, theoretical positions, epistemological or ontological frameworks. It is under such background that, Ritchie et al., (2014) argued that thematic analysis is not tied to any discipline or set of theoretical construct, but it is a widely used approach. Therefore, the process of thematic coding can be used in different analytic traditions such as grounded theory and content analysis. According to Maguire & Delahunt (2017, p. 3353) the goal of thematic analysis is:

> "…to identify themes, i.e. patterns in the data that are important or interesting, and use these themes to address the research or to do something about an issue. This is much more than simply summarising the data; a good thematic analysis interprets and makes sense of it…".

3.7.2 **Six phases of thematic analysis**

In undertaking thematic analysis, Braun & Clark (2006) outlined the following steps. However, this should not be viewed as a linear model, where one cannot proceed to the next phase without completing the prior phase (correctly); rather analysis is a recursive process.

- *Familiarisation with the data*: The researcher must immerse themselves in, and become intimately familiar with, their data; reading and re-reading the data (and listening to audio-recorded data at least once, if relevant) and noting any initial analytic observations.

- *Coding*: This involves generating pithy labels for important features of the data of relevance to the (broad) research question guiding the analysis. Coding is not simply a method of data reduction; it is also an analytic process, so codes capture both a semantic and conceptual reading of the data. The researcher codes every

data item and ends this phase by collating all their codes and relevant data extracts.

- *Searching for themes*: A theme is a coherent and meaningful pattern in the data; relevant to the research question. If codes are the bricks and tiles of the house, then themes are the walls and roof panels. Searching for themes is more like coding your codes to identify similarity in the data.
  This 'searching' is an active process; themes are not hidden in the data waiting to be discovered by the intrepid researcher, rather the researcher constructs themes. The researcher ends this phase by collating all the coded data relevant to each theme.

- *Reviewing themes*: Involves checking that the themes 'work' in relation to both the coded extracts and the full data-set. The researcher should reflect on whether the themes tell a convincing and compelling story about the data, and begin to define the nature of each individual theme, and the relationship between the themes. It may be necessary to collapse two themes together or to split a theme into two or more themes, or to discard the candidate themes altogether and begin again the process of theme development

- *Defining and naming themes*: Requires the researcher to conduct and write a detailed analysis of each theme (the researcher should ask 'what story does this theme tell?' and 'how does this theme fit into the overall story about the data?'), identifying the 'essence' of each theme and constructing a concise, punchy and informative name for each theme.

- *Writing up*: Writing is an integral element of the analytic process in thematic analysis. It involves weaving together the analytic narrative and (vivid) data extracts to tell the reader a coherent and persuasive story about the data, and contextualising it in relation to existing literature.

In this study, data was gathered through the use of questionnaires, interviews and observations. The data was scrutinized to identify similarities, differences and to get a

holistic view. Themes were identified from the data and the initial themes were gathered together to develop coding schemes (a list of all the themes and the 'codes' that applied to the data). All data that provided answers to the research questions were grouped together.

The data collected were divided under the following categories:

- Mainstream high school teachers knowledge of ADHD.
- Challenges faced by teachers when teaching learners with ADHD
- Teaching strategies used to effectively support learners with ADHD.
- Classroom accommodations to effectively support learners with ADHD.

All the data was summarised, analysed, evaluated and finally concluded her findings.

3.7.3 **Strengths and weaknesses of Thematic Analysis**

Table 15: Evaluating thematic analysis

STRENGTHS	WEAKNESSES
Flexibility in terms of theoretical frameworks	Perceived by some qualitative researchers as 'something and nothing', as lacking in substance of other 'branded and theoretically driven approaches
Accessible to researcher with little or no (qualitative) research experience	Has limited interpretive power if not used within an existing theoretical framework, in practice analyses often consist simply of (realist) descriptions of participants' concerns
Relatively easy and quick to learn, and to do	Lack of concrete guidance for higher level, more interpretive analysis
Results of TA ca be accessible to an educated wider audience	Because of the focus on patterns across datasets, it cannot provide any sense of continuity and contradictions within individual accounts

Source: Adapted from (Virginia Braun & Clarke, 2013)

3.8 CREDIBILITY AND TRUSTWORTHINESS

Credibility tests whether the researcher assumes the presence of multiple realities and attempts to represent these multiple realities adequately. Credibility can be enhanced through triangulation of data sources (Hoepfl, 1997). In line with what was stated in Leedy & Ormrod (2005, p.100), triangulation; comparing multiple data sources (questionnaires, interviews and observations) to support credibility of findings was used. To ensure trustworthiness and credibility, the researcher made use of 3 forms data collection methods. The researcher both tape-recorded and took down notes of the interviews (with consent from the interviewees). The researcher spent quite some time in the field (visited each school on three occasions) and checked her interpretations with her participants to verify whether her interpretations of what they have shared were correct.

According to Suter (2012) validity is considered to be the most important quality of a measured dependent variable or a test score, because it has to do with whether the instrument used truly measures what it is supposed to measure. Validity is a primary concern of all researchers who gather research data. One impending threat to validity is in qualitative research is the 'researchers' bias, which refers to obtaining results consistent with what the researcher wants to find (Johnson & Christensen, 2008). Furthermore, researcher bias inclines to result from selective observation and selective recording of information and also allowing the researcher's personal views and perspectives to affect how data are interpreted and how the research is conducted. Validity is concerned with just how accurately the observable measures actually represent the concept in question or whether, in fact, represent something else. In considering the issue of validity, the researcher took the necessary steps with the development of instrument to ensure validity. All the interviewees were asked the same questions and were given enough time to respond. Follow up questions were asked. The researcher paraphrased the interviewee's responses after some questions. This served to increase validity by checking whether what the interviewer had heard was actually what the interviewee intended to say. A detailed description of the interviews was given to allow readers to make their own inferences.
Colleagues were approached to confirm interpretation of data and the conclusions researcher came to.

3.9 ETHICAL CONSIDERATIONS

In the process of undertaking this study the following research ethical issues were considered.

3.9.1 **Informed consent**

Informed consent was obtained from all participants. Drew, Hardman & Hosp (2008) stated that consent involves the procedure by which an individual may choose whether or not to participate in a study. Informed consent according to Silverman (2000) refers to giving information about the research that is relevant to the participant's decision about whether to participate; it means that the participant understands the information given and it includes the assurance that participation is voluntary. The research topic, purpose of the study and the data gathering methods were explained to all involved. Although the research proposal and the data gathering tools were submitted to the district manager and principals for inspection, and permission asked from them, direct consent (agreement obtained directly from the person to be involved in the study) was sought from the participants.

3.9.2 **Harm**

Drew et al. (2008) stated that in the context of research, harm may be broadly defined to include physical pain or death, but also involves factors such as psychological stress, personal embarrassment or humiliation, or numerous influences that may adversely affect the participants in a significant way. All participants were guaranteed that there will be no risks involved in partaking in the research and that they were free to withdraw at any point in time when and if they feel uncomfortable.

3.9.3 **Privacy and Confidentiality**

It is important to ensure that all participants feel comfortable to share their experiences with the researcher. Participants must be ensured that data collected will be held in strict confidence to protect anonymity.

According to Drew et al. (2008) researches should invade the privacy of participants as minimally as possible. To avoid discrimination against certain teachers, all the Grade 10 teachers teaching a language, Mathematics or mathematical literacy at the selected schools were approached to participate in the research. Participants were

given the assurance that participation is voluntary and that they have the right to withdraw from the study at any time and that they would not be penalised for doing so.

3.9.4 **Objectivity (Confirmability)**

The fact that, qualitative research relies on interpretations, it is value-bound and. according to Hoepfl (1997) it tends to be subjective. Thus, researches can only strive for neutrality and objectivity, though this aspiration can never be attained fully (Ritchie & Lewis, 2003). They further stated that the researcher should strive to be as objective and natural as possible in the collection, interpretation and presentation of qualitative data. The researcher did this by minimizing the extent to which the views of the research participants were influenced during the course of interviews. The researcher also used open, non-leading questioning techniques. According to Ritchie & Lewis (2003) researchers should also make use of reflexivity. The researcher reflected on ways in which bias might creep into the research and acknowledge that the researcher's background and beliefs are also relevant in this study. The researcher made her assumptions transparent and also recognised the shortcomings in the study.

Patten (1990) and Lincoln & Guba (1985) were cited by both Hoepfl (1997) and Shenton (2004) as preferring to use the term *confirmability* rather than *objectivity* in qualitative research. Shenton (2004) stated that to ensure confirmability, steps must be taken to ensure that the research findings are the result of the experiences and ideas of the informants; rather than the characteristics and partialities of the researcher. To ensure objectivity or confirmability, the researcher made use of triangulation to reduce the effect of investigators bias. Objectivity (free of bias) refers to reliable knowledge, checked and controlled, undistorted by personal bias and prejudice, neutral, factual and confirmable knowledge (Kvale, 1992).

Wolcott (1994) as cited by Leedy & Ormrod (2005) suggested that to ensure objectivity the researcher should aim for balance, fairness, completeness and sensitivity in the final analysis and interpretation of data. The researcher honestly reported what the data revealed, without allowing her own assumptions and biases to influence the report.

3.9.5 **Deception**

Deception in research involves an intentional misrepresentation of facts related to the purpose, nature, or consequence of an investigation. In this context deception refers to either an omission or a commission on the part of the researcher in terms of interactions with participants (Drew et al., 2008). To avoid omission, deception, the researcher informed participants fully about all aspects of the research. She honestly and truthfully answered all questions and concerns regarding the research. Commission deception was avoided by not partially or fully giving any false information to the participants regarding the research.

3.10 CONCLUSION

This study was designed to contribute to the existing body of work regarding high school teachers' support of leaners with ADHD. Through a qualitative case study, the researcher sought to explore the lived experiences of teachers of Grade 10 learners in mainstream high schools within leaners suffering from ADHD. This chapter has outlined the design, research questions, and category of participants, data collection and analysis procedures that were used to investigate the phenomena. The researcher used a case study, because it was the most advantageous approach for learning about the lived experiences of the teachers. Participants were selected using a purposive sampling method, because the researcher wanted participants who could give an account of their lived experiences pointed by Creswell (2007). The chapter has also covered the validity and credibility of data as well as ethical considerations.

The next chapter, covered data analysis and presentation of findings.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

In the previous chapter, the methodology used to gather the data for the study was discussed in detail. The aim of this chapter is to present, analyse and interpret the findings that emerged from the data. The main question for this study was: How do teachers support learners with Attention-Deficit/Hyperactivity Disorder (ADHD) in mainstream Grade 10 classes? The data presented in this chapter was gathered through qualitative open-ended questionnaires (See, Annexure F), semi-structured individual interviews (list of questions asked, Annexure G) and the observations of the lessons. Demographic data is presented first and thereafter, presentation of identified themes.

Table 16: Demographic information of participants/respondents

RESPONDENT	SCHOOL	GENDER	AGE	YEARS EXPERIENCE *	CURRENT POSITION	SUBJECT *	NUMBER OF LEARNERS IN Gr 10 CLASS *
R 1	SCH 2	Male	53	27	Deputy Principal	Mathematics	43
R 2	SCH 1	Male	52	30	Educator	Mathematics & Math's Lit	48
R 3	SCH 1	Female	N/A	24	Educator	Afrikaans 1st Add. Lang.	50
R 4	SCH 1	Female	24	2	Educator	English Home Lang.	46
R 5	SCH 2	Female	43	23	Educator	Mathematics & Math's Lit	41
R 6	SCH 2	Female	52	25	Educator	English First Add Lang.	44

Source: This information is summarised from the questionnaires completed by respondents

** Information having greater influence on the teacher's ability to support learners with ADHD*

4.2 DATA ANALYSIS AND INTERPRETATION

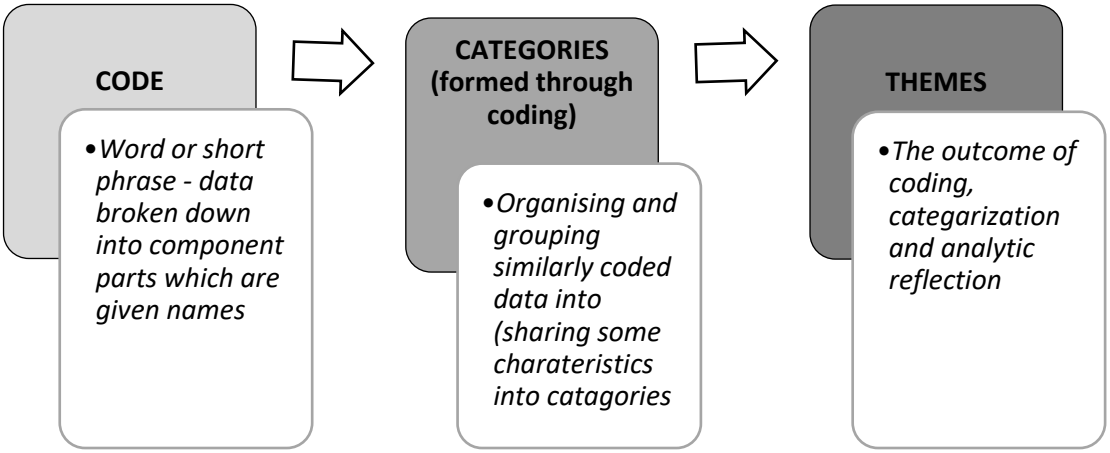
4.2.1 **Thematic Analysis (TA)**

By using the Thematic Analysis (TA) to analyse data, the researcher was able to look across all the data to identify the common issues that recur, and to identify the main themes that summarise all the views collected (Brikci & Green, 2007). The TA also assisted the researcher in identifying and analysing patterns in qualitative data.

To effectively make use of TA, the researcher had to have a good understanding of the differences between codes, coding, categories and theses. The researcher also needed a clear understanding of the different terms used when referring to data, themes, TA and coding.

4.2.1.1 **Differentiation between codes, coding, categories and themes**

Figure 6: Summarising and contextualising codes, categories and themes



Source: Adapted from Saldana (2009)

4.2.1.2 **Clarification of data terms, themes, thematic analysis and coding**

Table 17: Defining different terms relating to data and themes

DATA	
Data corpus	Refers to all data collected for a particular research project
Data set	Refers to all the data from the corpus that is being used for a particular analysis
Data item	Refers to each individual piece of data collected, which together make up the data set or corpus
Data extract	Refers to an individual coded chunk of data, which has been identified within, and extracted from a data item.
THEMES	
Sematic themes	Refers to themes within the obvious meanings of the data – where the analyst is not looking for anything beyond what the participant said or what was written.
Latent themes	Refers to themes that looks beyond what has been said or written – it is when the analyst starts to identify or examine underlying ideas, assumptions and conceptualizations and ideologies – that are theorised as shaping or informing the semantic content of the data.
THEMATIC ANALYSIS (TA)	
Top-down (theoretical TA)	Analysis that is driven by the specific research question(s) and/or the analyst's focus.
Bottom-up (inductive TA)	An analysis that is more driven by the data
CODING	
Line-by-line Coding	This means to code every piece of text; every single line – usually used when making use of inductive TA
Open Coding	This is when the researcher does not have pre-set codes, but when codes are developed and modified as the researcher works through the coding process

Source: Adapted from (Braun & Clarke, 2006; Maguire & Delahunt, 2017)

4.3 ANALYSIS OF DATA

To analyse the data, the researcher made use of the 6 phases of thematic analysis proposed by Braun & Clarke (2006). This section is discussed in detail in chapter 3.

4.3.1 **Phase 1: Familiarisation with the data**

The researcher immersed herself in, and became intimately familiar with her data corpus; reading and re-reading the questionnaires transcripts, the observation report, looking at the photos and listening to audio-recorded data as well as making notes and jotting down early impressions as advise by (Maguire & Delahunt, 2017, p. 3355). In order to organise the data, and to get a better understanding of the data, the researcher summarised all the answers collected from the 6 questionnaires on a single sheet and relevant information from the transcripts on two sheets. Since the observation was very informal and the researcher only wanted to observe how teacher interacted with the students and how he/she applied teaching strategies and classroom accommodation, the researcher did not make use of a formal observation schedule. This is because the aim was not to particularly focus on the subject content and lesson preparation.

4.3.2 **Phase 2: Coding**

The researcher made use of a theoretical thematic analysis. Thus, the researcher coded only segments of data that was relevant or highlighted something interesting about the research questions. The researcher started to organise the data in a systematic way by making use of coding to reduce the data items (questionnaires, transcripts and observation record) to meaningful data extracts. This involved generating concise labels for important features of the data relevance to the (broad) research question guiding the analysis. Coding was not simply used as a method of data reduction; but an analytic process. Therefore, codes captured both a semantic and conceptual aspect of the data. The researcher made use of open coding and coded every relevant data item. In addition, the researcher worked through each transcript, questionnaire and the observation report, coding every segment of text that seemed relevant to the research questions.

4.3.3 **Phases 3, 4 and 5: Developing themes**:

Thematic Analysis of Open Ended Questionnaires and Interview Transcripts

Table 18: Main Theme 1 – Teachers' Knowledge of ADHD

R	Theme 1: Measure (amount) of knowledge	Theme 2: How knowledge was gained	Theme 3 Formal/informal training (workshop)
1	None	No response	None
2	Little	Talking with friend/colleagues	None
3	None	No response	None
4	Very basic (minimal)	Talking/ reading	None
5	Know some symptoms (moderate)	General knowledge	None
6	None	No response	None

Table 19: Main Theme 2 – Teachers' Ability to Identify Learners with ADHD:

R	Theme 1: How well teacher know their learners	Theme 2: # of learners with possible ADHD	Theme 3: Knowledge of symptoms to be able to identify leaners with possible ADHD	Theme 4: Willingness to learn more about ADHD symptoms	Theme 5: How teachers view learners with possible ADHD
1	Don't always know them	Don't know	None	Not interested – ready to retire	Don't know them, has no view
2	Difficult to know them individually. Know very bright & very naughty ones	10 – 15 overall	Can't concentrate, easily distracted, can't sit still, don't want to work	Will attend workshops, if they are available	They don't want to work
3	I believe I know my learners well. I know their abilities	5	Don't work in class, disrupts classes, restless	Will attend workshops, if they are available	Can't cope, always wants attention, don't work in class naughty, using drugs,
4	I know them moderately to fairly well	1 per class	Concluded from info provided during interview	Will attend workshops, if they are available	Disruptive, do not want to sit still, aggressive and threating at times but do listen at times, even if they are disruptive
5	I could say 80 %	Yes (no total)	Minimal concentration, non-attentiveness, disorderly, haphazard	Will attend workshops, if they are available	Difficult to deal with. ADHD not a disability, just a condition
6	I know them very well	4	No response	Will attend workshops, if they are available	Disruptive, fighting, showing off, but view them as having potential – just need to build their confidence

Table 20: Main Theme 3 – Teaching Strategies and Classroom Accommodations Employed to Support Learners with ADHD

R	Theme 1: How teachers feel about teaching these learners	Theme 2: Strategies employed	Theme 3: Seating arrangements	Theme 4 Effectiveness of strategies and accommodations	Theme 5 Teachers' opinion of who is responsible to teach learners
1	Have no problem teaching them – not aware of them	None – not aware of learners with ADHD	No response	Don't employ any – not effective	Professionals placed in school by the department
2	Should go to special schools –ill-equipped to deal with them	Give them little work – tell stories to get their attention	Place learners separate from their friends	No time for accommodations – not effective	Remedial teachers
3	They don't belong there – not trained to deal with them	Give time-limit to complete work, but extra time if needed	Learners are asked to sit in front, next to teacher	No time for accommodations – not effective	Special schools with trained professionals
4	Can't be discriminated against. Confident, yet weak and on edge with aggressive learners	Use visual and audio aids. Allows role-play Jumps on table if needs be.	Sit either in front or at the back. Isolated when they misbehave.	Think what she does is enough – but there is room for improvement	Psychologist or remedial teachers, but teachers need to be trained to deal with them
5	They should be in mainstream but they need trained teachers. You do what you can, but it is not enough.	Give minimal work. Bored learners kept busy by e.g. drawing. Mark exercise quickly so they can go to the next one	No response	Not much accommodation – classes too big – not effective	Trained teachers and psychologists
6	Learner should be in mainstream. I feel confident teaching them	Individual attention, group work, pairing with stronger learners. Performing for rest of class	Changes seating arrangements occasionally	She feels that she does enough	Schools should be provided with qualified people

Table 21: Main Theme 4 – Challenges Faced when Teaching Learners With ADHD

R	Theme 1: Lack of support from Department of education	Theme 2: Large classes	Theme 3: Not equipped to deal with them	Theme 4: Time constraints (Rigid curriculum)	Theme 5: Lack of resources	Theme 6: Dealing with 'difficult" learners
1	Must provide training and professionals	No response	No response	No response	To follow up on learners with ADHD involves manpower and money, which we do not have	We see these kids as misbehaving and go on as usual. If real problem comes up, as a subject teacher, I refer them to the class teacher
2	Must provide training and professionals, promised to send remedial teachers – never did	Classes are large with 45 to 50 learners, can't give them individual attention	Have no training to deal with these kids, they must go to special schools	Because of time constraints and syllabus that must be finished, no time to make accommodations	No response	Separate cliques, shout to keep them quiet and threaten them with detention, encourage over-aged learners to go to FET colleges
3	Must provide training and professionals, place leaners in special schools	Can't focus on only one child when there are 49 others who must go on with their work	We do not have the skills	Because of time constraints and a curriculum that must be completed, we do not give them the attention they need	No response	Strict teacher, let them sit next to me, allow learners freedom, but get them to sit when needs be, involve parents, test them for drugs

Challenges Teachers Face when Teaching Learners With ADHD (Cont'd…)

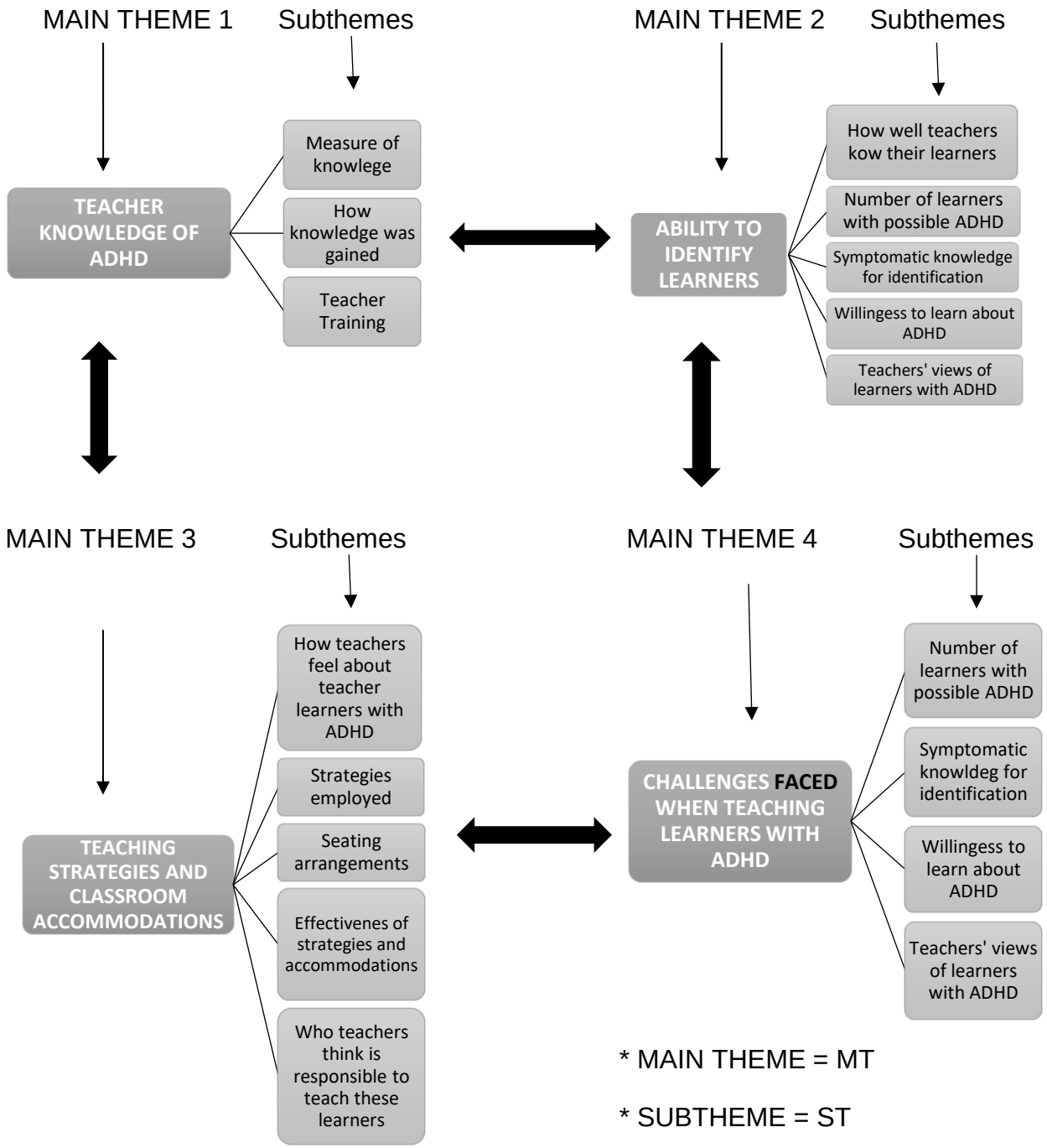
R	Theme 1: Lack of support from Department of education	Theme 2: Large classes	Theme 3: Not equipped to deal with them	Theme 4: Time constraints	Theme 5: Lack of resources	Theme 6: Dealing with 'difficult" learners
4	Needs to provide training and professionals	No response	We can't deal with these kids on a daily basis on our own. Sometimes we hurt them more than we help.	No response	Department must supply resources, Help parents financially with Ritalin, it's very expensive	Let them go out Isolate and monitor them Send them to principal Involve them in activities, but when moody, let them be, ask rest of class to do the same
5	Needs to provide training and professionals. Department promised to provide support systems for these leaners – never did	Have 60 learners , can't pay attention to one only	They need trained people, you do what you can, but it's not enough	You must work according to the pacesetter. There is no time	Department promised to provide support systems for these leaners – never did	Put them out of the class or sent them to the principal –if problem persist, you try to find out what is wrong
6	Needs to provide training and professionals, promised to send remedial teachers – still waiting, need to involve parents, not supportive enough to leaners with ADHD	No response	Not trained on dealing with them. You are not always sure if you are doing the right thing, but you try	No response	No response	Make time to talk to get to know them Involve their parents Take them aside to reprimand Build their confidence, but you become furious and shout

* R = respondent

4.4 INTERPRETING ANALYSIS

The information from the open-ended questionnaires as well as the transcribed interviews were combined and four main themes, each with its own subthemes were identified. Answers to the sub-research questions, which ultimately answered the main research question were extracted from across the themes.

Figure 7: Thematic Map



4.4.1 **Sub Research Question 1**:

What knowledge do teachers have of the characteristic symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) in mainstream Grade 10 learners?

MT1: st1: *Measure (amount) of knowledge about ADHD*

From the data analysis it is clear that half of the respondents (R1, R3 and R6) had no knowledge of ADHD. R5 admitted that she really only know some of the symptoms of ADHD, while R4 felt that her knowledge is too basic and she is not very confident regarding her knowledge.

> R5 said: "*I don't have much knowledge on the symptoms and would not be able to pick up the signs in a learner, even if it were obvious. The basic, very basic knowledge I have can make me misdiagnose a learner as ADHD."*

MT1:st2: How knowledge was gained

The three participants who indicated that, they had some knowledge of the symptoms of ADHD, gained it by either reading or hearing from friends and colleagues.

MT1:st3: Formal/informal Training (work shopped)

None of the respondent received any training or workshops regarding ADHD. All of them responded that they were not aware of any such training.

MT2:st2: Number of learners with possible ADHD; and
MT2:st3: Knowledge of symptoms to identify learners with possible ADHD

One respondent (R1) admitted that he had no knowledge of the symptomology and did not identify any learners with possible ADHD.
However, one respondent (R4) identified 4 learners with possible ADHD, but did not supply any symptoms she used to identify these learners.

Three respondents (R2, R3, and R5) had basic knowledge of the symptomology of ADHD, which they used to identify learners who might have ADHD. The following statements illustrate this assertion.

R2 identified 10-15 learners – stating that they "*can't concentrate*", are "*easily distracted*", and they "*don't want to work*"
R3 identified 5 learners. Citing that they "*don't work in class, disrupts classes, and are restless"*
R5 stated that she had student who show "*minimal concentration, non-attentiveness and are disorderly and haphazard*" Although she said she could identify the symptoms in some of her learners, she did not give the number of learners possibly affected.

MT2:st4: Willingness to learn more about ADHD symptoms

From the six respondents, it was only one (R4) who indicated the willingness to learn more about ADHD and its symptoms. Moreover, one respondent indicated that she would welcome any workshop/training that would provide them with the necessary skills. When responded R1 was asked if he/will be willing to attend a workshop, he answered:

> *"To be honest with you I never heard of any workshops here. Ivy, at this stage of my life I don't think so to be very honest. I'm so negative towards workshops. It's like… om die waarheid te praat ek wil nou net uit (to speak the truth, I just want out) [laughs]"*

On the same note R4 adamantly answered that:

> *"They need to give us more resources, maybe courses and not just send one, two teachers because they teach Life Orientation (LO), send everyone, so everyone can know how to deal with it, how to see the signs because we miss it."*

Summary of themes emerging from sub-research question 1

None of the respondents received any training from the department (as in-service teachers or as students). They had little or no knowledge of ADHD and the little knowledge that they had, they obtained from either reading about it or hearing about it from friends or colleagues. One of the respondents even admitted that he was not aware that there might be learners with ADHD in their school. The basic knowledge that some of the respondents had, had been more related to the characteristic symptoms of ADHD, which enabled them to identify learners with possible ADHD. All the respondents, except one (R1) was interested in attending workshop to broaden their knowledge about the disorder if there was the opportunity.

4.4.2 **Sub Research Question 2**:

What challenges do Grade 10 teachers face and what strengths do they have when teaching learners with Attention-Deficit/Hyperactivity Disorder in mainstream classes?

MT2:st5: How teachers view learners with possible ADHD

How the teacher view learners with possible ADHD will determine whether teachers find teaching them challenging or not. Data analysed in this study indicate that all of the respondents had a grim view of learners with possible ADHD, although two of the respondents (*R4 and *R6) seemed more positive. Respondents reported as perceiving these learners as disruptive, attention seekers, naughty, aggressive and not willing to work in class, not able to cope, as simply misbehaving and as probably being on drugs. The following verbatim reports support this argument.

R1: *"… we see them as just misbehaving*."

R2: *"… they don't want to work"*

R3: *"… can't cope, always wants attention, don't work in class, naughty, using drugs"*

*R4: *"… disruptive, do not want to sit still, aggressive and threating at times, … but at times you'll be surprised they listen, even though they can't sit still"*

R5 *"… difficult to deal with. ADHD not a disability, just a condition*"

*R6 *"disruptive, fighting, showing off, but they have potential – just need to build their confidence"*

MT4:st1: Lack of support from the Department of Education (DoE); and
MT4:st5: Lack of resources

All the respondents felt that the DoE needs to support them by providing training for teachers as well as providing schools with trained professionals such as psychologist, remedial teacher and staff who is skilled in working with learners with ADHD. In conjunction to this R2 and R5 lamented that the DoE promised to provide their schools with remedial teacher as well as putting systems in place to cater for leaners with barriers to learning, but they did not keep their promise. The following statements attest to this.

"…But can I mention that the department did promise us three remedial teachers which never arrived for this year; that's on record." (R2)

"…For instance there was a programme, I don't know what it was called. We were told to identify learners with educational needs, then we were promised we would be given support systems from the department, but up to now there's nothing." (R5)

Furthermore, R6 felt that the DoE should inform them about the protocol when they need to identify and refer learners with ADHD to professionals.
Moreover, R6 as well as R4 were of the opinion that the DoE also needs to assist the parents of learners with ADHD, both financially as well as putting the correct system in place to help these learners. The following narratives illustrate this plea.

R4: "So ek voel die departement moet ons meer help gee (thus I feel that the department should help us more) in terms of psychologists or people these kids

can go to, even if they give them the Ritalin®, cos sometimes the parents cannot afford it. So if they can help us with that, already there will be a change in our lessons, change in the school, because these kids not only disrupt the class, hulle (they) disrupt die hele skool (the entire school) any time they get, so ek voel die department moet help met daai (thus I feel the department must help with that). They need to give us more resources…"

R6: "*I would start with the department of education. It's there we know it's there, the referral thing… he is not belonging here, but what are the processes that we need to follow as an educator to take this child out of this misery? Because everything is about protocol. … Sometimes, because you are saying his not coping here, then you are redirecting, so the procedures are there, they are handwritten, but they need that protocol. They need a psychologist, because he is a professional in this thing he will be dealing with the learners and also with the parents, because it does not only need you as a teacher, it needs this child and the parents and the SMT so that the process can go."*

In support of the above, R2 was also of the opinion that working with and referring learners with ADHD would be difficult without help from the department. He had the following to say:

"*The problem now is how you follow up with that, because now you see a child, he needs to be positively identified and diagnosed. You can't go say that every child that is now whatever is ADHD, so it's a difficult process to follow up and it obviously involves money and man-power because the department needs to now put people in schools or going around schools and doing these assessment to identify these learners.*

MT4:st2: Large classes; and
MT4:st4: Time constraints (rigid curriculum)

Half of the respondents (R2, R3 and R5) stated that the large classes made it difficult for them to fully support these learners. They also stated that time constrains (length or periods to complete syllabus) makes it challenging to teach learners who show symptoms of ADHD. The respondents stated that:

> R2: *"Well…, because of the large classes … uhhm… on average 45 – 50 learners in a class … Well, there are time constraints. There's a syllabus that needs to be completed. So there's no time to do that and if you consider the large classes, the big classes that we have."*

> R3: *"…we have large numbers, because the curriculum needs to be completed, we as teachers do not give attention to the child's cry for help, because your mind is on the 35, 45 of 55 minutes in class. You can't still listen to the child's problem. So… the work must be done, the other 49 has to go on with their work, so, we can't bother too much with one who struggles. I think we give too little attention to such children."*

> R5: *"… us as educators we don't have much time to listen… I can't fully attend to him, whereas I'm having 60 learners that are waiting for me…. Really, really I'm honest, because the pacesetter is telling you, you are supposed to do this and this and this and this, because honestly there is no time."*

MT4:st6: Dealing with difficult learners

Another challenge all the respondents faced was to deal with these "difficult" learners without the necessary training or skills to do so. Each respondent had their own way of coping with them. The verbatim below illustrates how each of the respondent coped when teaching learners with possible ADHD and co-morbidity (CD and ODD).

> R1: *"We see these kids as misbehaving and go on as usual. If real problems come up, as a subject teacher, I refer them to the class teacher."*

R2: *"I separate the cliques they like to sit in. Because there is no corporal punishment, I shout [referring to reprimanding] at them to keep them quiet and threaten them with detention. I also encourage the over-aged learners to go to either a finishing school or a FET colleges."*

R3: *"I am a strict teacher, thus they are very calm in my class. I let them sit next to me, allow learners their freedom to 'perform' but gets them to behave and sit down if they have to. We also involve their parents to get them tested for drugs if they misbehave badly*"

R4: "*Sometimes I allow them to 'go to the toilet, empty a bin or collect a project' – I know they might be lying about having to go out, but if I don't let they go, they disrupt my class. When they are angry and want to fight, I isolate them, but keep an eye on them. At times the bigger boys become very aggressive and you feel threatened, weak and on the edge. Then you keep them isolated, but monitor them. I also send them to the principal, because you can't hit them. I involve them in activities, but when they are moody, I let them be and ask the rest of the class to do the same"*

R5: *"If at first they behave badly, I chase them out of my class or sent them to the principal. If the problem persist, I try to find out what is wrong…"*

R6: *I make time to get to know them. I involve their parents. When they act out in class, I take them aside to reprimand them. I try to build their confidence, especially the ones who have potential. But at times I do become furious and shout at them, but then you collect yourself again and go on…"*

Summary of themes emerging from sub-research question 2

Teacher perception of learners with ADHD has an effect on whether they will support them or not. Wheeler (2007) postulated that the perceptions, knowledge of teachers and their attitudes towards ADHD could have implications for the delivery of suitable

educational provision. Most of the respondents had a negative attitude, seeing them as “naughty or not willing to work”. Even though the majority of the respondents had a negative perception of these learners, one respondent indicated that she has surprisingly found that when she poses questions to the learners – their answers indicate that they do listen even though they are inattentive and distracting. A second respondent indicated that some of these learners have the potential to do well, they just lack confidence. All the respondents identified the following as the main challenges in teaching leaners with ADHD; lack of support from the DoE, lack of resources, large student numbers and time constraints due to the syllabus requirements, lack of knowledge, skills training and specialised personal – be it remedial teachers or psychologist was the major stumbling block when it comes to effective teaching learners with possible ADHD. Respondents dealt with the learner who could be challenging, especially the ones who might have co-morbid CO or ODD, by putting them out of the class, sending them to the principal, isolating them from others in the class and calling in their parents. Half of the respondents also indicated the fact that they could not use corporal punishment, which was a limitation to dealing with some of these learners.

4.4.3 Sub Research Question 3

What teaching strategies do teachers employ to support learners with Attention-Deficit/Hyperactivity Disorder in Grade 10 mainstream classes?

4.4.4 Sub Research Question 4

What will be a workable framework for implementing classroom accommodations for teachers to effectively support learners with Attention-Deficit/Hyperactivity Disorder in Grade 10 mainstream classes?

Answers to both sub-research questions 3 and 4 are presented simultaneously, as they are interlinked.

MT3:st1: How teachers feel about teaching these learners;
MT4:st3: Not equipped to deal with them; and

MT3:st5: Teachers' opinion of who is responsible for these learners

Before asking the teachers about the strategies and accommodations they employed to teach learners with possible ADHD, the researcher wanted to establish:

- How they feel about teaching these learners;
- Whether they felt the learners belonged in mainstream classes; and
- Who they felt should be responsible for teaching these learners, since these factors will have an impact on their willingness to accommodate them in their classes.

This is summary of what the individual respondents reported:

> R1: *"It is a catch-22 situation. It's difficult for them to cope in this environment, but you want them to be integrated in society, because if you take them out of the mainstream, you classify them and a stigma is attached to them…it difficult. Up to now I have had no problem with teaching any of my learners, because I was not aware that they might have ADHD…but I feel the department should place professional who can deal with them, at schools"*
>
> R2: "*It's difficult to know who has a problem and who does not, because we do not have the skills to identify them. I have no training to deal with these kids, thus I do feel that these kids should be in special schools, because we are not equipped to teach them. But, since there are only a few special schools in the Eastern Cape, I feel the department should provide us with remedial teacher to teach them. They should be placed in separate classes where they can work according to their own pace…"*
>
> R3: *"I think these kids don't belong here, they can't cope, they are irritated and that is why they are naughty in class. The department is doing them an injustice by placing them in mainstream schools. They need to be in special schools with trained professionals. We do not have the skills."*

R4: *"We can't discriminate against them based on their condition. There should be specialised teachers placed in government schools like this who can assist where we can't. We should be given workshops to know how to help them and how to cope as well. We can't deal with these kids on a daily basis on our own. Sometimes we are hurting them more than we are helping…"*

R5: *They should be in mainstream, because it's just a condition, it's not like they have a disability. In each school there should be a person responsible for them, because it's difficult for us to deal with them. So, they should be here, but the department should give us trained people to specifically deal with them. You do what you can, but it's not enough"*

R6: *Whether they should be in the mainstream depends on their severity. If they can cope in the mainstream, the department should organise a workshop for us to give us the opportunity to know them and know how to handle them. I cope with them, but the department should supply each school with qualified people to deal with pupils when they are referred by teachers and to also assist the parents. You are not always sure if you are doing the right thing, but you try".*

MT3:st4: Effectiveness of teaching strategies and classroom accommodations

All the respondents, except R4 and R5 felt that they did not employ teaching strategies and classroom accommodations effectively. Apparently, R2 and R3 stated that they do not use accommodations because there is no time, based on curricular demands. Moreover, R1 indicated that he did not employ any accommodations and did not use any different strategy, because he was not aware of any learner with ADHD in his class. Perhaps, this is because he did not know how to identify such learners. He was very clear on not using accommodations, and his answer generally included the staff at their school as a whole. He remarked the following:

"From the first place we never accommodated kids with these [referring to ADHD]*. I won't call it ADHD at the moment, because some of those characteristics that you mentioned here; the irritability in class, the lack of*

attention span and things like that, that's something we face all the time. To be honest, we haven't accommodated, because we don't see it as a disorder, we just think the kids are misbehaving, that's how they are we continue, you know, so they have not been accommodated if there is a disorder there."

However, R4 indicated that, in terms of teaching strategies and classroom accommodations to support these learners she tried enough, but there was room for improvement. Nonetheless, among the respondents, only R 6 felt that she did enough to accommodate the learners with possible ADHD.

MT3:st2: Seating arrangements

As classroom accommodation all the respondents (except R1 and R5) referred to the seating arrangements they made:

R2: "Separate learners from their friends"

R3: "Learners sit in front, next to the teacher"

R4: "Learners sit either in front or at the back – isolate them when they misbehave".

R6: "Change the seating arrangement occasionally"

MT3:st2: Strategies employed

All the respondents except R1 used some sort of adaptation to their teaching strategy to support the learners. Three of the respondent (R2, R3 and R5) indicated that they either changed the amount of work they gave to the learners or gave them extra time to complete. These respondents indicated (during interview and on questionnaires) as follow:

R2: *"I give them very little work to do. I move the friends away from each other. I threaten them with detention. I tell them a story before I start with my work to get their attention. It is a challenge…"*

R3: *"Ask him/her to focus, not to disturb the other pupils*. *Give them a time-limit to finish the work." "I will give you extra time to complete your work…Ok…*

you did not finish … can you give it to me tomorrow? … Those attention seekers… and we allow him to seek his attention… but then I tell him – now it's enough, we heard you… we saw you… now it's time for you to focus again."

R5: "*Give them minimal exercises, ask them to do what they like best, e.g. drawing, etc. When they finish an exercise, mark them immediately so that they have interest to do the second exercise."*
"You just do something which you think, maybe it will help, but you are not sure because really, you are not in the field, you are not a person who is trained to deal with them."

To the contrary, only R4 and R6 were of the opinion that they used correct/enough strategies to support these learners. They stated as follows:

R4: *"… I can't say it's the best we can do, but I can say there's room for improvement. With the teaching strategies we always have visual and you always try to have something, even if it's an audio-visual or something just to include them because sometime when you teach using your words, it is not enough, so they don't concentrate because they're hyperactive so you have visual things even if you have to jump around in class looking like a mad person…*
en op die tafel spring (and jump on the table) just to get their attention, so I feel like our teaching strategies – and all teachers don't use this, we have to be clear on that; you must have visual as well, even audio things to help these learners just to get their attention, so there's room for improvement."

R6: *"I guess so, because when you are a language teacher there are so many strategies; group work sometimes, individual work of course, pairing them, So for English there is debate … As an English educator I normally ask what that particular one likes, so that he/she performs for the class. Giving them individual attention in terms of one on one discussions in the form of unsuspicious questions so as not to offend them or discriminate against them. The questions I ask them, I will even ask those who are not challenged."*

Summary of themes emerging from sub-research questions 3 and 4

Most of the respondents seemed to use strategies that did not require too much preparation. They focused on seating arrangement as well as the amount of work they gave to the learners. The researcher also looked at factors that would have an effect on how they accommodate these learners in their classes, i.e. whether teachers felt equipped to teach these learners; whether they felt the learner belong in mainstream schools and whom they felt should be responsible for teaching these learners. None of the respondents felt equipped to teach these learners, mainly due to a lack of knowledge.

Half of the respondents felt that the learners should be accommodated in special schools and the other half felt that they should not be discriminated against, or stigmatised, thus indicating that they should be in mainstream schools. They suggested that the DoE should supply the schools with psychologist or remedial teachers to assist them with these learners.

The respondents also indicated that, even though it was challenging to teach these learners, they did the best they could. The teachers who responded to questions in this study, mostly used accommodations such as changing of seating arrangements, giving extra time to complete work, giving learners minimal work or keeping them busy by letting them do what they liked, e.g. drawing or leaving the class when they felt bored. The language teachers indicated that they used role play or performances, group work, pairing learner with stronger learners and visual as well as audio aids to stimulate the learners. However, only two of the respondents felt that they effectively supported these learners, but more support and help from the DoE in order to be more effective was necessary.

4.5 CONCLUSION

In this chapter, the researcher aimed at finding answer to the research question using thematic analysis. Data was extracted from responses to open-ended questionnaires and transcripts of interviews to identify themes emerging from the data. The researcher also summarised the emerging themes at the end of the analysis pertaining

to each research question. The findings mainly indicates a general lack of knowledge regarding the characteristic symptoms of ADHD, lack of skills and knowledge regarding the instruction of these learners, various challenges that hinders effective support of these learners and a general feeling of dismay. Moreover, the findings showed that half of the respondents are not prepared for inclusive education, since they feel that learners with ADHD should be in special schools. For the teachers who felt that learners with disorders shouldn't be accommodated in the mainstream raised issues of not being knowledgeable and skilled enough to deal with these learners without support from either remedial teachers or psychologists.

The next chapter deals with the conclusions and recommendations of the study.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The previous chapter focused on the presentation, analysis and interpretation of qualitative data gathered through interviews and open-ended questionnaires. This chapter deals with the summary, findings and recommendations and the overall conclusion of the study.

5.2 SUMMARY

To provide an answer to the main research question: “How do teachers support learners with (ADHD) in mainstream Grade 10 classes”, the researcher through a qualitative thematic data analysis extracted main- and sub-themes that answered the four sub-research questions which were:

- What knowledge do teachers have of the characteristic symptoms of ADHD in mainstream Grade 10 learners?

- What are the challenges and strengths of Grade 10 teachers when teaching learners with ADHD in mainstream Grade 10 classes?

- What teaching strategies do teachers employ to support learners what ADHD in Grade 10 mainstream classes?

- What would be a workable framework for implementing classroom accommodations for teachers to effectively support learners with ADHD in Grade 10 mainstream classes?

The findings of the study indicated that teachers in mainstream high schools do not possess adequate knowledge to identify and refer learners with ADHD. As assumed by the researcher, the teachers' lack of knowledge leads to unsuitable teaching strategies and classroom accommodations. Their biggest challenge to effectively support learners with ADHD was a lack of support and knowledge.

5.3 CONCLUSIONS

The following are the conclusions that derived from the findings in relation to each of the research questions.

5.3.1 **Teacher knowledge of the characteristic symptoms of ADHD**

According to the literature, teacher's knowledge of ADHD impact their ability to: identify and refer students (Ohan et al., 2008; Weyandt et al., 2009), manage learners with ADHD (Al-Omari et al., 2015), support learners in the classroom setting (Lessing & Wulfsohn, 2015), as well as their attitudes towards learners with ADHD (Anderson et al., 2014). With approximately 1 in 20 learners being diagnosed with ADHD, it is highly plausible that in a class with 30 – 45 learners, at least 1 learner could be diagnosed ADHD. Thus, it is imperative that mainstream high school teachers need to take initiative in becoming more knowledgeable regarding ADHD (Polanczyk et al., 2007; Banaschewski et al., 2017).

The study revealed that teachers at both SCH1 and SCH2 had no or little knowledge about the characteristic symptoms of ADHD. This finding is in agreement with the findings of Weyandt, Fulton, Verdi and Wilson (2009) who claimed that most general education (mainstream) teachers generally lack knowledge of ADHD. Their knowledge of ADHD is mostly based on the type of behaviour exhibited by the students. The majority of the teachers could identify learners who might possibly have ADHD. They based their identification on learner characteristics such as being disruptive, constantly seeking attention, lack of concentration and distractibility. The numbers of learners who might possibly have ADHD identified by the teacher fell within the rage of 1 out of 30 learners. This is in line with the finding that it is highly plausible that in a class with 30 – 45 learners, at least 1 learner could be diagnosed ADHD (Polanczyk et al., 2007;

Banaschewski et al., 2017). In this study, only one teacher, indicated that 14-15 (much higher total of compared to other research findings) of his learners might possibly have ADHD.

Among the teachers who stated that these learners need to be identified for referral, only two teachers specifically indicated that learners needed to be referred to medical practitioners for diagnoses. On the other hand, three of the teachers incorrectly assumed that they needed to refer learners to special schools. However, one teacher assumed incorrectly that she needed knowledge of ADHD to be able to diagnose learners. The Policy on Screening, Identification and Assessment (SIAS) Document by the Department of Basic Education (2014) stated that the role of the teacher is to gather information and identify learners at risk of learning breakdown and/or school dropout. Therefore, diagnoses should only be made by the primary care clinician as advocated by American Academy of Pediatrics (2011).

All the teachers ascribed their lack of knowledge to the lack of training from the DoE. This in in accordance with Damons (2013) who also found that many of the respondents from her study related their lack of skill and knowledge to inadequate training at teacher training institutions. The majority of the teachers indicated that they wanted to learn more about ADHD to be able to correctly identify learners with possible ADHD and to provide the necessary support these learners need. This is consistent with the findings of Rush & Harrison (2008) that teachers feel if they had more training regarding ADHD, they would be more willing to work with learners with ADHD. The finding further corroborates finding of Wheeler (2007), in that teachers would welcome training in the identification and management of ADHD.

5.3.2 **Challenges and strength when teaching learners with ADHD**

Even though the researcher was not specifically looking at teacher perceptions, the data analysis indicated that the perception teachers hold of learners with ADHD, influence whether they see teaching these learners as a challenge or not. As stated by Wheeler (2007), the perceptions and knowledge of teachers and their attitudes towards ADHD could have implications for the delivery of suitable educational

provision for pupils with the disorder. In this current study, the two teachers who saw positivity in the learners they identified as possibly having ADHD are the only two teachers who seemed to want to go the extra mile and felt that they would effectively support such learners. Most of the negative perceptions stemmed from the teachers who believed that these learners chose to behave the way they did, that is, being disruptive, naughty, not wanting to work, etc. According to Appelbaum (2008), the first step to working with and supporting students with ADHD is to understand that, although this disorder is often invisible – buried beneath, what appears to be misbehaviour, sloppiness, laziness and even stubbornness, is a real disability.

This misperception/belief directly links with the first factor teachers identified as a challenge – teachers' lack of knowledge and training.

- **Lack of knowledge and training**

All the teachers identified their lack of knowledge as a major challenge when it came to teaching the learners with ADHD. They did not only have a challenge with lack of knowledge concerning the characteristic symptoms of ADHD, but also their role as a teacher in the identification and referral of learners with ADHD to trained professionals for diagnoses. They are therefore not supposed to refer these learners to special schools as many of the respondents indicated or diagnose the learners themselves, as one of the respondents indicated. The data also showed that as a result of their lack of knowledge, teachers could not effectively support these learners academically. Thus, such learners became frustrated or unaware that their misbehaviour, lack of interest, inability to cope, inability to stay focussed, boredom in class could possibly be the result of undiagnosed ADHD as pointed out by one respondent. All the teachers unanimously blamed their lack of knowledge on the DoE's lack of support and training, echoing Mkhuma (2012) who found that training provided by the District Based Support Team was not effective in addressing challenges teachers face with regard to the implementation of the inclusive policy or the identification of learners who experience barriers to learning.

- **The Rigid Curriculum**

According to Education *White Paper 6* Department of Education (2001, p. 19), one of the most significant barriers to learning is the curriculum. Barriers to learning arise from the different aspects of the curriculum such as the content, the language, classroom organisation, teaching methodologies, pace of teaching and time available to complete the curriculum, teaching and learning support materials, and assessment. Most of the teachers indicated that the time constraints placed on them due to having to follow a pace-setting and having to complete the syllabus makes it challenging to teach these learners. Thus majority of the teachers did not have time to address the individual learner's needs. However, one of the teachers indicated that she would make time for learners – even if she had to give up her break. However, in this instance she referred to dealing with emotional problems learners face, and not necessarily their academic problems.

- **Lack of Ongoing Support**

The teachers indicated that the department does not support them when it comes to teaching learners with barriers to learning. Two teachers, one from each school stated that earlier in the year the DoE had promised to provide their schools with remedial teachers and support structures for learners experiencing barriers to education, but this was still not implemented. In addition, one teacher also stated that their SMT needs to be more understanding to the needs of teachers when it comes to teaching these 'difficult' learners. Lack of effective and sufficient support for teachers in South Africa is resonated in the literature of researchers such as Hariparsad (2010), Lopez (2008a), Mkhuma (2012), Naicker, (2008) A. Naidoo, (2012), and N. Naidoo (2012).

- **Lack of Parental Involvement**

The literature indicates that teachers points to lack of parental support as one of their major challenges in effectively assisting learners with ADHD. The lack of parental involvement in the effective education of their children is a huge concern since they play a crucial role in assisting learners with ADHD with the homework (Damons, 2013;

Lopes et al., 2009; Mkhuma, 2012). Surprisingly, not one of the teachers indicated lack of parental support as challenge. In this study, the respondents referred learners to parents, when they misbehaved; calling the parents in to ask them permission to test for substance abuse and expecting the department to assist parents financially, i.e. with the purchasing of ADHD medication or with psychological assistance.

- **Teacher Workload, Over-crowded Classes and Lack of Resources**

According to Wevers (2012), the class sizes in South African schools are considerably higher than in European countries, making it more difficult to provide effective support to the diverse learner population in the schools. As a result, educators experience difficulties in providing individual attention to learners with slower work tempos while managing their classrooms. All the teachers in the study stated that their classroom size and large numbers made it virtually impossible to give a learner an individual attention. The class sizes both in Mathematics and Language classes ranged from 40-50 learners. This being a sizable number of learners per class, the teachers in this study stated that they could not spend too much time on one learner, when the needs of the rest had to be considered.

The teachers mentioned that based on their workload, they had to finish the work in a set time-frame, forcing them to work faster and not able to give individual attention. Therefore, the teachers pointed to a lot of work having to be completed within limited period of time.

Moreover, the teachers reported the lack of support staff and psychologist as the main lack of human resources. In addition, one teacher referred to a lack of funding; since addressing barriers to learning would mean extra manpower and money to employ people to assist with the identification and assessment of these learners.

During the observation at SCH2 the researcher noticed that the classroom was ill-equipped: with almost 40% of the windows broken, there were not enough chairs, learners had to collect chairs from empty class next-door, there were no teaching aids on walls, the classroom was badly vandalised, with wall sockets, light, and all electrical fittings stolen, and the chalkboard was not properly fixed to the wall.

All of this was a clear indication of lack of resources. Furthermore, most of the classes at the school were in a similar condition, yet none of the teachers indicated lack of resources as a challenge to effectively support ADHD learners. This might suggest that teachers are already used and accustomed to teach in this environment, despite the fact that the environment is not conducive to effective support for leaners with ADHD.

- **Interventions to Support Learners**

As indicated in the literature (American Academy of Pediatrics, 2011; Bradshaw & Kamal, 2013; Clark, 2010; Lessing & Wulfsohn, 2015; Ohan et al., 2008; Topkin et al., 2015; Weyandt et al., 2009), teachers can make use of behavioural, pharmaceutical, and educational interventions to support learners with ADHD. Behavioural interventions include support from parents as well as peers. In this study, two of the teachers indicated that they involve the parents to assist the learners, but it was more for correction purpose than support. For instance, one teacher mentioned that she pairs learners with possible ADHD with a stronger pupil to assist him/her. On the other hand, only one of the teachers made reference to pharmaceutical interventions, when she suggested that the department should assist with ADHD medication (Ritalin®) which is very expensive, that most parents could not afford it.

- **Teaching Strategies and Classroom Accommodations Employed By Teachers to Support ADHD Learners**

The literature indicates that teaching strategies include all approaches that a teacher may take to actively engage students in learning. These strategies drive a teacher's instruction as they work to meet specific learning objectives. Effective teaching strategies meet all learning styles and development needs of the learners (Meador, 2015).

Most of the respondents in this study indicated that they did not employ any teaching strategies effectively to support learners with possible ADHD. The reason for this was possibly because they were not aware that learners might have ADHD. Most of the

teachers thought that the students were just naughty and attention seekers. Teachers reported using accommodations and/or teaching strategies such as seating arrangement, minimizing the amount of work given to learners, increasing the time they are allowed to complete work, allowing learners who became easily bored to do what they enjoyed, e.g. drawing or giving learners extra exercises to do.

This is supported by the literature where for instance Lopes et al. (2009) stated that due to a lack of knowledge, teachers tend to keep learners busy, often assigning task to them that are not necessarily learning related. Further, Nowacek and Mamlin (2007) elaborated this by pointing out that even in cases where teachers attempted to make use of modification, they seemed to select modifications that could be performed without advanced planning, that did not require differentiated instruction or behavioural intervention, or could be addressed by another professional or support person.
However, in this study, two of the language teachers indicated that they effectively employed strategies such as using visual and audio aids as well as performing to make the lessons more interesting for the leaners. Yet, even with employing these strategies, they made no accommodations to their teaching strategies to effectively support the learners with ADHD.

Trying to find a workable framework for the implementation of effective classroom accommodations seems futile, unless teachers change their perceptions.
As long as they feel that learners with ADHD should not be accommodated in mainstream schools, they do not find the needs of these learners as their responsibility. The majority of the teachers in the current study indicated that these learners should be taught by remedial teachers.
In the same vein, some teachers recommended that, they should be in separate classes where they can work at their own pace. Teachers' inability to make accommodations is supported by Gureasko-Moore et al., (2006) who stated that teaching time during the secondary years was invaluable, though limited, particularly when teachers are attempting to educate students while implementing effective classroom-based interventions. Teachers in high schools expect students to behave appropriately during instructional time; and that they are often not inclined to make classroom modifications or specifically teach classroom preparation skills for those who require assistance, i.e. students with ADHD. This is disheartening, because

evidence-based school/classroom interventions for ADHD exists (Blotnicky-Gallant et al., 2015).

5.4 RECOMMENDATIONS

It is recommend that the Department of Education should offer in-service training on ADHD to grade 10 teachers from mainstream schools. The training should cover knowledge to assist in the identification of characteristic symptoms, referral, assessment and evaluation to inform practitioners in making a diagnoses. The training should also ensure that the teachers are adequately skilled in the implementation a workable framework for classroom accommodation to effectively support learners with ADHD.

5.5 LIMITATIONS OF THE STUDY

Despite the insightful findings of this study, the study had the following limitations.

- The research sample was small (only 6 teachers from 2 schools) which was not necessarily representative of the broader population, thus it is difficult to generalise the findings.

  It is difficult to tell how far the findings are biased by the researcher's own opinions and experience in teaching at both mainstream and special schools.
- Research was focussed on only previously disadvantages school and not ex-model C schools.

- During collection of the data researcher could only observe one lesson and based to the time of the year, lesson was more focussed on revision of a test paper.

5.6 CONCLUSION

The concept of Inclusive Education has been embraced as the primary approach to education in South Africa. According to the Policy of Inclusive Education in South Africa, learners with barriers to learning [of which ADHD is prominent] are now accommodated within the mainstream schools (Department of Education, 2001). Du Plessis (2013) stated that the inclusion of learners with special education needs or learning barriers, into mainstream classes, is part of a universal human rights movement. In the year 2012, statistics showed that, learners with ADHD accounted for the second largest number of leaners with disabilities catered for in ordinary (mainstream) schools (Department of Education, 2014). With the increase of learners diagnosed with ADHD and ADHD having been reconceptualised as a lifelong disorder, mainstream high schools teachers will be faced with at least one learner with ADHD in their classrooms.

The purpose of this qualitative case study was to determine whether teachers in previously disadvantaged mainstream high schools have the necessary knowledge of the characteristics symptoms of ADHD to be able to identify and refer learners who present such symptoms. The study also sought to establish what teaching strategies and classroom accommodations the teachers implement to effectively support these learners.

Previously disadvantaged schools in low-income areas have not only had to deal with racial segregation, but also educational segregation. Within the educational segregation systems, schools were segregated both in mainstream and special schools. Due to this, mainstream teachers had not been trained to teach learners with barriers to education, such as ADHD – a disorder which does not only impact learners negatively academically, but holistically (Black-Hawkins, 2012; Damons, 2013; Lopes et al., 2009). The findings indicate that mainstream teachers are of the opinion that learners with ADHD should be taught in separate classes, with teachers who are specifically trained to teach them. This is in direct contradiction to the policy of inclusive education, as it establishes that the teachers see segregation their solution to teaching learners with barriers to education.

The teachers in mainstream schools are not only expected to teach these learners, but also help to identify and refer them for assessment. Many of these learners (especially in low-income areas) enter high school, having never been assessed and diagnosed. The literature (Boyles, 2007; Froehlich et al., 2007; Saloner, 2011) indicated that among children with ADHD symptoms, children from poor and minorities are less likely to go for diagnosis for the disorder and also less likely to receive consistent pharmacotherapy. This leaves the poorer children often disadvantaged in their schools, which possibly exacerbate the conditions of poverty. Due to a lack of effective support system, they consequently drop out of the education system. Thus, teachers play a pivotal role in ensuring that these learners are assimilated into society as individuals who have a positive contribution to make. Unfortunately this study showed that teachers in previously disadvantaged mainstream high schools lack the knowledge and skills to effectively support learners with ADHD in grade 10 classes. Moreover, finding revealed that mainstream grade 10 teachers have insufficient knowledge of the characteristics of ADHD, and as a result they do not only find it challenging to teach these learners, they are also not in a position to correctly assess and refer learners for diagnosis by medical professionals.

Due to the lack of knowledge, lack of training, time constraints, a rigid curriculum and lack of support, teachers rarely employ suitable teaching strategies to support learners with ADHD. Instead, when dealing with learners who present the characteristic symptoms of ADHD, teachers make use of the easiest and not often most effective classroom accommodations. Even when it comes to the academic assessment of these learners, they do not employ suitable accommodations or concessions.

Teachers working in lower socio-economic schools face numerous challenges on a daily basis as they lack the skills, knowledge and positive attitudes to support these learners. Apart from this, the lack of parental involvement plays a significant role in the teachers' inability to effectively support these learners. ADHD effects the learner holistically, thus a combination of support from home, school, community and the society at large is needed if these learners are to make a positive contribution to society. Without ongoing assistance from the Department of Education as well as the availability of the necessary resources, accommodating learners with disabilities in mainstream classes will be nearly impossible for teachers.

For the Department of Education to succeed in effectively implementing inclusive education system that encompasses the values of the constitution such as equality, they need to equip mainstream high school teachers with skills by providing the necessary training and resources to make inclusion become a reality. The curriculum needs to be re-evaluated, more teachers needs to be employed to ensure smaller classes and a lighter work-load. The onus however, does not only rest on the Department of education, but also on the teachers. From the study, it is evident that teachers want to accommodate these learners and they are willing to be trained to effectively support learners with ADHD in mainstream Grade 10 classes.

REFERENCES

Aguiar, A. P., Kieling, R. R., Costa, A. C., Chardosim, N., Dorneles, B. V, Almeida, M. R., & Rohde, L. A. (2014). Increasing Teachers' Knowledge About ADHD and Learning Disorders. *Journal of Attention Disorders*, 18(8), 691–698. https://doi.org/10.1177/1087054712453171

Al-Omari, H., Al-Motlaq, M., & Al-Modallal, H. (2015). Knowledge of and Attitude towards Attention-deficit Hyperactivity Disorder among Primary School Teachers in Jordan. *Child Care in Practice*, 21(2), 128–139. https://doi.org/10.1080/13575279.2014.962012

Al-Yagon, M. (2016). Perceived Close Relationships With Parents, Teachers, and Peers: Predictors of Social, Emotional and Behavioural Features in Adolescents With LD or Comorbid LD and ADHD. *Journal of Learning Disabilities*, 49(6), 597–615. https://doi.org/10.1177/0022219415620569

Alsop, B., Furukawa, E., Sowerby, P., Jensen, S., Moffat, C., & Tripp, G. (2016). Behavioral sensitivity to changing reinforcement contingencies in attention-deficit hyperactivity disorder. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 57(8), 947–956. https://doi.org/10.1111/jcpp.12561

American Acadamy of Pediatrics. (2011). ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents. *Pediatrics*, 128(5), 1007–1022. https://doi.org/10.1542/peds.2011-2654

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). *Diagnostic and Statistical Manual of Mental Disorders 4th Edition TR.*, 280. https://doi.org/10.1176/appi.books.9780890425596.744053

Anderson, D. L., Watt, S. E., Noble, W., & Shanley, D. C. (2012). Knowledge of Attention Deficit Hyperactivity Disorder (ADHD) and Attitudes toward Teaching Children with ADHD: The Role of Teaching Experience. *Perspectives in Schools*, 49(6), 511–525. https://doi.org/10.1002/pits.21617

Anderson, D. L., Watt, S. E., & Shanley, D. C. (2014). A Multi-dimensional Model of the Origns of Attitude Certainty: Teachers' Attitudes Towards Attention-Deficit/Hyperactivity Disorder. *Social Psychology of Education*, 17(1), 19–50. https://doi.org/10.1007/s11218-013-9235-5

Appelbaum, M. (2008). How to Handle Students with ADHD: AHDH is a “hidden disability.” Retrieved from http://www.sagepub.com/sites/default/files/upm-binaries/23476_Appelbaum_Chapter_1.pdf

Armstrong, T. (1999). Strategies to Empower, Not Control, Kids Labeled ADD/ADHD. Retrieved from http://www.ascd.org/publications/books/199273/chapters/Strategies-to-Empower,-Not-Control,-Kids-Labeled-ADD~ADHD.aspx

Armstrong, T. (2009). *Multiple Intelligences: in the Classroom*. *Educational Research* (3rd ed.). Virginia: ASCD. https://doi.org/10.3102/0013189X018008004

Aziz, L., Mckenzie, J., Watermeyer, B., Waterhouse, S., Beere, R., Vanessa, J., & Swift, O. (2016). Promoting the right to education of children with disabilities Position statement on the implementation of White Paper 6, (March), 1–16.

Bakare, M. . (2012). Attention deficit hyperactivity symptoms and disorder (ADHD) among African children: a review of epidemiology and co-morbidities. *African Journal of Psychiatry*, 15(5), 358–61. https://doi.org/http://dx.doi.org/10.4314/ajpsy.v15i5.45

Banaschewski, T., Becker, K., Döpfner, M., Holtmann, M., Rösler, M., & Romanos, M. (2017). Attention-Deficit/Hyperactivity Disorder. *Deutsches Arzteblatt International*, 114(9), 149–159. https://doi.org/10.3238/arztebl.2017.0149

Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology : Study Design and Implementation for Novice Researchers Qualitative Case Study Methodology : *Study Design and Implementation*, 13(4), 544–559.

Becker, S. P., Mehari, K. R., Langberg, J. M., & Evans, S. W. (2017). Rates of peer victimization in young adolescents with ADHD and associations with internalizing symptoms and self-esteem. *European Child and Adolescent Psychiatry*, *26*(2), 201–214. https://doi.org/10.1007/s00787-016-0881-y

Ben, D., Ben, J., Aucamp, A., Venter, A., & Wynchank, D. (2012). *Understanding Attention Deficit Hyperactivity Disorder (ADHD)*. Kempton Park: Novartis South Africa.

Benner, A., & Graham, S. (2009). The Transition to High School as a Developmental Process Among Multiethnic Urban Youth. *Child Development*, 80(2), 356–376. https://doi.org/10.1111/j.1467-8624.2009.01265

Black-Hawkins, K. (2012). Developing inclusive classroom practices: What guidance do commercially published texts offer teachers? *European Journal of Special*

Needs Education, 27(4), 499–516. https://doi.org/10.1080/08856257.2012.720412

Blaikie, N. (2010). *Designing Social Research: The Logic of Anticipation* (2nd ed.). Polity Press. Retrieved from www.politybooks.com

Blotnicky-Gallant, P., Martin, C., McGonnell, M., & Corkum, P. (2015). Nova Scotia Teachers' ADHD Knowledge, Beliefs, and Classroom Management Practices. *Canadian Journal of School Psychology*, 30(1), 3–21. https://doi.org/10.1177/0829573514542225

Bose, D. K. (2013). ADHD in the Classroom. *Currents in Teaching and Learning*, *1* & 2(2), 94–97.

Boyles, S. (2007). Many Kids With ADHD Aren't Diagnosed: Poorer Children Receive Less Treatment. Retrieved August 17, 2017, from https://www.webmd.com/add-adhd/childhood-adhd/news/20070904/many-kids-with- adhd-arent-diagnosed

Bradshaw, L., & Kamal, M. (2013). Teacher knowledge, training and acceptance of students with ADHD in their classrooms: Qatar case study. *Near and Middle Eastern Journal of Research in Education*, (2013), 5. https://doi.org/10.5339/nmejre.2013.5

Braincorp , retrieved from: http://www.braincorp.in/images/intelligence/multiple/Intelligence.jpg

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2013). *Successful Qualitative Research: A practical guide for beginners*. . Croydon: SAGE Publications. Retrieved from www.sagepublications.com

Bricki, N., & Green, J. (2007). A Guide to Using Qualitative Research Methodology. *Medecins Sans Frontieres*, 11–13. Retrieved from http://msf.openrepository.com/msf/handle/10144/84230

BRIDGE Education Network. (2014). Disabilities In Education And Inclusive Education: Policy Review and Literature Survey. *Bridge: Linking Innovation in Education*, (May), 1–16. Retrieved from http://www.bridge.org.za/knowledgehub/disabilities-in-education-and-inclusive-

education-policy-review-and-literature-survey/

Brown, A. M. B. (2015). Has the Policy Window Closed? A Critical Analysis of South Africa's Inclusive Education Policy. *African Journal of Teacher Education*, 4(2 Parr II), 23.

Browning, D. (2003). Common Definitions: Adaptations, Accommodations, Modifications. *Teaching & Learning*. Retrieved from http://www.pent.ca.gov/acc/commondefinitions_accom-mod.pdf

Bruggink, M., Meijer, W., Goei, S. L., & Koot, H. M. (2014). Teachers' perceptions of additional support needs of students in mainstream primary education. *Learning and Individual Differences*, 30, 163–169. https://doi.org/10.1016/j.lindif.2013.11.005

Bryman, A. (2012). *Social Research Methods* (4th ed.). New York: Oxford University Press.

Burke, J. D., Rowe, R., & Boylan, K. (2014). Functional outcomes of child and adolescent oppositional defiant disorder symptoms in young adult men. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 55(3), 264–272. https://doi.org/10.1111/jcpp.12150

Burns, K. (2009). Assisting learning and success in ADHD children. *Journal of the International Christian Community for Teacher Education*, 3(1), 1–9.

Canu, W. H., & Mancil, E. B. (2012). An Examination of Teacher Trainees' Knowledge of Attention-Deficit/Hyperactivity Disorder. *School Mental Health*, *4*(2), 105–114. https://doi.org/10.1007/s12310-012-9071-3

Cheung, C., Rijdijk, F., McLoughlin, G., Faraone, S., Asherson, P., & Kuntsi, J. (2015). Childhood predictors of adolescent and young adult outcome in ADHD. *Journal of Psychiatric Research*, 62, 92–100. https://doi.org/10.1016/j.jpsychires.2015.01.011

Christie, P., Butler, D., & Potterton, M. (2007). *Report to the Minister of Education Ministerial Committee on Schools that Work*. Retrieved from http://www.education.gov.za/LinkClick.aspx?fileticket=yWhdeL9fgLQ=&tabid=422&mid=1301

Clark, L. E. (2010). *Managing Adolescent Learners with Attention- Deficit / Hyperactivity Disorder : Guidelines for Educators*. University of the Free State.

Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Over- coming challenges and developing strategies for effective learning. *The Psychologist*, 26(2), 120–

123. Retrieved from http://eprints.uwe.ac.uk/21155%5Cnhttp://www.thepsychologist.org.uk/archive/archive_home.cfm?volumeID=26&editionID=222&Article

Cohen, D., & Crabtree, B. (2006). RWJF - Qualitative Research Guidelines Project | Interpretivist Paradigm. Retrieved from http://www.qualres.org/HomeInte-3516.html

Cohen, L., Manion, L., & Morrison, K. (2002). *Research Methods in Education. (6th ed.)* London: Routledge Falmer.

Colberg, L. (2010). *Classroom Management and the ADHD Student*. Dominican University of California. Retrieved from http://0-search.ebscohost.com.ignacio.usfca.edu/login.aspx?direct=true&db=eric&AN=ED510820&site=ehost-live&scope=site

Coles, E. K., Owens, J. S., Serrano, V. J., Slavec, J., & Evans, S. W. (2015). From Consultation to Student Outcomes: The Role of Teacher Knowledge, Skills, and Beliefs in Increasing Integrity in Classroom Management Strategies. *School Mental Health*, 7(1), 34–48. https://doi.org/10.1007/s12310-015-9143-2

Colomer, C., Berenguer, C., Roselló, B., Baixauli, I., & Miranda, A. (2017). The impact of inattention, hyperactivity/impulsivity symptoms, and executive functions on learning behaviors of children with ADHD. *Frontiers in Psychology*, *8*(APR), 1–10. https://doi.org/10.3389/fpsyg.2017.00540

Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Proceures for Developing Grounded Theory*. (3rd ed.). Thousand Oaks: SAGE Publications.

Corbin, J., & Strauss, A. (2015). *Basics of Qualitative Research: Techniques and procedures for Developing Grounded Theory*. (4th ed.). Thousand Oaks: SAGE Publications.

Creswell, J. W. (2007). *Qualitative inquiry & research design: choosing among five traditions* (3rd ed.). Thousand Oaks: SAGE Publications.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Method Approaches* (4th ed.). Thousand Oaks: SAGE Publications.

Crowe, S., Creswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *Bmc Medical Research Methodology*, 11(1), 100. https://doi.org/10.1186/1471-2288-11-100

Dale-Jones, B. (2014, April). Teaching that embraces difference. *Mail and Guardian*,

5. Retrieved from https://mg.co.za/article/2014-04-07-teaching-that-embraces-difference

Daley, D., & Birchwood, J. (2010). ADHD and academic performance: Why does ADHD impact on academic performance and what can be done to support ADHD children in the classroom? *Child: Care, Health and Development*, 36(4), 455–464. https://doi.org/10.1111/j.1365-2214.2009.01046.x

Damons, T. (2013). *An analysis of teachers' skills in the identification of learners with behavioural and emotional problems*. Nelson Mandela Metroplitan University.

de Boer, A., & Pijl, S. J. (2016). The acceptance and rejection of peers with ADHD and ASD in general secondary education. *Journal of Educational Research*, 109(3), 325–332. https://doi.org/10.1080/00220671.2014.958812

De Jager, T. (2013). Guidelines to assist the implementation of differentiated learning activities in South African secondary schools. *International Journal of Inclusive Education*, (April 2015), 1–15. https://doi.org/10.1080/13603116.2011.580465

Department of Basic Education. Policy on Screening, Identification, Assessment and Support (2014). Pretoria.

Department of Educaion: Directorate Inclusive Education. (2005). *Draft Guidelines for Inclusive Learning Programmes*. Pretoria. Retrieved from https://www.education.gov.za/Portals/0/Documents/Policies/Inclusive Education/Guidelines For Inclusive Learning Programmes. 2005.pdf?ver=2016-04-16-203542-000

Department of Education. (1996). National Education Policy Act No. 27 of 1996. No. 19377 (p. A-98). Retrieved from https://www.elrc.org.za/sites/default/files/documents/NEPA.pdf

Department of Education. (2015). Report on the implementation of Education *White Paper 6* on Inclusive Education, (May). Retrieved from https://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjrvvP8_Z7JAhUK2RoKHUXCDDoQFggbMAA&url=http://www.thutong.doe.gov.za/ResourceDownload.aspx?id=49049&usg=AFQjCNE7o9Vci8RG0xTJi2N66OLp8cUpvg&bvm=bv.108194040,d.ZWU&cad=rja

Department Of Education. (2001). *Education White Paper 6 Special Needs Education Building an Inclusive Education and Training System*. Pretoria.

Department of Eduction. (2014). *Education Statistics in South Africa 2012* (Vol. 9).

Pretoria. Retrieved from www.education.gov.za

Donald, D., Lazarus, S., & Lolwana, P. (2007). *Educational Psychology in Social Context* (3rd ed.). Cape Town: Oxford University Press Southern Africa.

Dougherty, D., Olvera, R., Acheson, A., Hill-Kapturczak, N., Ryan, S., & Mathias, C. (2016). Acute effects of methylphenidate on impulsivity and attentional behavior among adolescents comorbid for ADHD and conduct disorder. *Journal of Adolescence*, *53*, 222–230. https://doi.org/10.1016/j.adolescence.2016.10.013

Drew, C. J., Hardman, M. L., & Hosp, J. L. (2008). Ethical Issues in Conducting Research. *Designing and Conducting Research in Education*, 55–80.

Du Plessis, P. (2013). Legislation and policies : Progress towards the right to inclusive education. *De Jure*, 76–92.

Dudovskiy, J. (2016). The Ultimate Guide to Writing a Dissertation in Business Studies: A Step-by-Step Assistance. Retrieved from https://research-methodology.net/about-us/ebook/

DuPaul, G. J., Weyandt, L. L., & Janusis, G. M. (2011). ADHD in the Classroom: Effective Intervention Strategies. *Theory Into Practice*, 50(1), 35–42. https://doi.org/10.1080/00405841.2011.534935

Edington, J., & Boone, S. (2008). *Attention Deficit Disorder and Attention Deficit Hyperactive Disorder Understanding Students: What Why and How*. Brigham Young University. Retrieved from https://gradebuddy.com/doc/2275789/attention-deficit-hyperactive-disorder-understanding-students-what-why-and-how?full=1

Efron, D., Bryson, H., Lycett, K., & Sciberras, E. (2016). Children referred for evaluation for ADHD: comorbidity profiles and characteristics associated with a positive diagnosis. *Child: Care, Health and Development*, 42(5), 718–724. https://doi.org/10.1111/cch.12364

Elik, N., Corkum, P., Blotnicky-Gallant, P., & McGonnell, M. (2015). Overcoming the Barriers to Teachers' Utilization of Evidence-Based Interventions for Children with ADHD: The Teacher Help for ADHD Program. *Perspectives on Language and Literacy*, 41(1), 40–49.

Evans, S., Brady, C., Harrison, J., & Bunforth, N. (2013). Measuring ADHD and ODD Symptoms and Impairment Using High School Teachers' Ratings. *Journal of Clinical Child & Adolescent Psychology*, 42(2), 197–207. Retrieved from http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=4&sid=05f2586d-

f10c-49b2-8844-e6149a21db36%40sessionmgr120&hid=128

F.S.U. Center for Prevention & Early Inbervention Policy. (2002). Inclusion White Paper. Retrieved from www.cpeip.fsu.edu/resourcefiles/resourcefile_18

Froehlich, T. E., Lanphear, B. P., Epstein, J. N., Barbaresi, W. J., Katusic, S. K., & Kahn, R. S. (2007). Prevalence, Recognition, and Treatment of Attention-Deficit/Hyperactivity Disorder in a National Sample of US Children. *Archives of Pediatrics & Adolescent Medicine*, 161(9), 857. https://doi.org/10.1001/archpedi.161.9.857

Funk, J. D. (2011). *Assessing Ohio's Teacher Knowledge of Attention Deficit Hyperactivity Disorder (ADHD): Are Current Teachers Adequately Prepared to Meet the Needs of Students with ADHD?* Ohio University.

Gardner, H., & Moran, S. (2006). The Science of Multiple Intelligences Theory: A Response to Lynn Waterhouse. *Educational Psychologist*, 41(4), 227–232. https://doi.org/10.1207/s15326985ep4104_2

Gaskell, M. E. (2011). *Parents perceptions of the impact of teachers attitudes and behaviors on the social-emotional functioning of children with ADHD / ADD*. Smith College.

Geng, G. (2011). Investigation of teachers' verbal and non-verbal strategies for managing attention deficit hyperactivity disorder (ADHD) students' behaviours within a classroom environment. *Australian Journal of Teacher Education*, 36(7), 1–16. https://doi.org/10.14221/ajte.2011v36n7.5

Ghanizadeh, A., & Zarei, N. (2010). Are GPs adequately equipped with the knowledge for educating and counseling of families with ADHD children? *BMC Family Practice*, *11*, 5. https://doi.org/10.1186/1471-2296-11-5

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, 204(6), 291–295. https://doi.org/10.1038/bdj.2008.192

Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. *European Journal of Information Systems*, 21(2), 135–146. https://doi.org/10.1057/ejis.2011.54

Gureasko-Moore, S., Dupaul, G. J., & White, G. P. (2006). The effects of self-management in general education classrooms on the organizational skills of adolescents with ADHD. *Behavior Modification*, 30(2), 159–183. https://doi.org/10.1177/0145445503259387

Hamilton, N. J., & Astramovich, R. L. (2013). Teaching Strategies for Students With Adhd : Findings From the Field. *Education*, 136(4), 451–460.

Hariparsad, S. D. (2010). *Challenges facing educators' in the inclusion of Attention Deficit Hyperactivity Disordered (ADHD) learners in the mainstream classroom*. University of Zululand. Retrieved from http://196.21.83.35/handle/10530/629

Henderson, S., Palić, M., Vignali, C., Hallier, B., Stanton, J. L., & Radder, L. (2016). Research Methodology. *International Journal of Sales, Retailing and Marketing*, 4(9), 1–92. https://doi.org/http://196.29.172.66:8080/jspui/bitstream/123456789/2574/1/Research%20Methodology.pdf

Hoepfl, M. C. (1997). Choosing Qualitative Research : A Primer for Technology Education Researchers. *Journal of Technology Education*, 9(1), 47–63. https://doi.org/10.21061/jte.v9i1.a.4

Hofstee, E. (2015). *Constructing a Good Dissertation: A Practical Guide to Finishing a Master's , MBA or PhD on Schedule*. Johannesburg: EPE. Retrieved from www.exactica.co.za

Holbrook, J. R., Cuffe, S. P., Cai, B., Visser, S. N., Forthofer, M. S., Bottai, M., & McKeown, R. E. (2016). Persistence of Parent-Reported ADHD Symptoms From Childhood Through Adolescence in a Community Sample. *Journal of Attention Disorders*, 20(1), 11–20. https://doi.org/10.1177/1087054714539997

Hyland, A. (Ed.). (2011). *Multiple Intelligences: Curriculum and Assessment Project*. Cork, Ireland: National Academy for Intergration of Research, Teaching and Learing.

Jacob, P., Srinath, S., Girimaji, S., Seshadri, S., & Sagar, J. V. (2016). Co-morbidity in Attention-Deficit Hyperactivity Disorder: A Clinical Study from India. *East Asian Archives of Psychiatry*, 26(4), 148–53. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/28053283

Jacobson, L. T., & Reid, R. (2010). Improving the Persuasive Essay Writing of High School Students with ADHD. *Exceptional Children*, 76(2), 157–174. https://doi.org/10.1177/001440291007600202

Jensen, C. M., & Steinhausen, H.C. (2015). Comorbid mental disorders in children and adolescents with attention-deficit/hyperactivity disorder in a large nationwide study. *ADHD Attention Deficit and Hyperactivity Disorders*, 7(1), 27–38. https://doi.org/10.1007/s12402-014-0142-1

Johnson, B., & Christensen, C. (2008). *Educational research: quantitative, qualitative and mixed method approaches*. (3rd, ed.). Thousand Oaks: SAGE Publications.

Keaveny, D. (2014). *Transitioning from primary to secondary school in Jamaica: Perspectives of students with l earning disabilities and or attention deficit hyperactivity disorder*. University of Sheffield.

Kendall, J. (2008).*The Experiences of Primary School Teachers Who Have Children Diagnosed with ADHD in their Classrooms*. University of Pretoria.

Kent, K., Pelhalm, W., Molina, B., Sibley, M., Waschbusch, D., Yu, J., Karch, K. (2012). The Academic Experience of Male High School Students with. *Journal Abnormal Child Psychology*, 39(3), 451–462. https://doi.org/10.1007/s10802-010-9472-4.The

Kern, A. (2008). *Foundation Phase Educator's Perceptions of Attention Deficit Hyperactivity Disorder (ADHD) at Private and Public Schools*. University of Witwatersrand.

Knoetze, S. (2015). *An investigation into the mathematics teaching practices of non-isixhosa-speaking teachers teaching isixhosa-speaking 3*. Rhodes University. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/28053283

Kos, J. (2008). What Do Teachers Know , Think and Intend To Do About ADHD ? In *The European Conference on Educational Research,* 9 January 2008 (pp. 1–8). Goteborg, Sweden: Australian Council For Educational Research. Retrieved from http://research.acer.edu.au/tll_misc/9

Kvale, S. (1992). Ten Standard Responses to Qualitative Research Interviews. *Journal of Phenomenological Psychology*, 31. https://doi.org/10.1163/156916294X00016

Langberg, J. M., Epstein, J. N., Altaye, M., Molina, B. S. G., Arnold, L. E., & Vitiello, B. (2008). The Transition to Middle School is Associated with Changes in the Developmental Trajectory of ADHD Symptomatology in Young Adolescents with ADHD. *Journal of Clinical Child & Adolescent Psychology*, 37(3), 651–663. https://doi.org/10.1080/15374410802148095

Leedy, P. D., & Ormrod, E. J. (2005). *Practical research : planning and design.* (8th ed.). Upper Saddle River, N.J: Prentice Hall.

Lessing, A., & De Witt, M. (2010). The Ability of Teachers to Accommodate Learners with Learning Disablities in the Inclusive Classroom. *Journal of Educational Studies*, 9(2), 16–35.

Lessing, A., & Wulfsohn, R. (2015). The potential of behaviour management strategies to support learners with Attention Deficit Hyperactivity Disorder in the classroom. *Education as Change*, 19(1), 54–77. https://doi.org/10.1080/16823206.2015.1024146

Lichtman, M. (2013). *Qualitative Research in education: A users' guide*. Los Angeles: SAGE Publications.

Lopes, T., Eloff, I., Howie, S., & Maree, J. G. (2009). South African Teachers' Experiences of Children in their Classrooms who may have ADHD. *Journal of Psychology in Africa*, 19(3), 347–354. https://doi.org/10.1080/14330237.2009.10820301

Lopez, M. A. (2008a). *South African educators' experience of learners who may have ADHD in their classrooms*. Pretoria.

Lopez, M. A. (2008b). *South African Educators' Experiences of Learners Who May Have ADHD in Their Classrooms*. University of Pretoria.

Lunenburg, F. C., & Lunenburg, M. R. (2014). Applying Multiple Intelligences in the Classroom: A Fresh Look at Teaching Writing. *International Journal Of Scholarly Academic Intellectual Diversity Diamond & Hopson*, 16(1), 1–15. Retrieved from http://www.nationalforum.com/Electronic Journal Volumes/Lunenburg, Fred C Applying Multiple Intelligences IJSAID V16 N1 2014.pdf

Maguire, M., & Delahunt, B. (2017). Doing a Thematic Analysis: A Practical, Step-by-Step Guide for Learning and Teaching Scholars. *All Ireland Journal of Teaching and Learning in Higher Education*, 3(3), 3351–33514.

Mahomedy, Z., Van der Westhuizen, D., Van der Linde, M., & Coetsee, J. (2007). Persistence of Attention Dificit/Hyperactivity Disorder Into Adulthood: A Study Conducted on Parents of Children with Attention Deficit/Hyperactivity Disorder. *African Journal of Psychiatry (South Africa)*, 10, 93–98. Retrieved from http://www.journals.co.za/WebZ/images/ejour/images/ejour/medjda/medjda_v10_n2_a9.pdf?sessionid=01-33077-1224720479&format=F%5Cnhttp://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed8&NEWS=N&AN=2007568478

Maree, K. (Ed.). (2007). *First steps in research* (Revised ed.). Pretoria: Van Schaik Publishers.

Maree, K. (Ed.). (2013). *First steps in research* (Revised ed). Pretoria: Van Schaik Publishers.

Marshall, C., & Rossman, G. B. (1999). *Designing Qualitative Research* (3rd ed.). Thousand Oaks: SAGE Publications.

Martin, A. (2014). Academic buoyancy and academic outcomes: Towards a further understanding of students with attention-deficit/hyperactivity disorder (ADHD), students without ADHD, and academic buoyancy itself. *British Journal of Educational Psychology*, 84(1), 86–107. https://doi.org/10.1111/bjep.12007

McGuire, K. (2008). Diversity training 3: Gardner's multiple intelligences model.

McGuirk, P. M., & O'Neill, P. (2016). Using Questionnaires in Qualitative Human Geography. In I. In Hay (Ed.), *Qualitative research methods in human geography* (Revised, pp. 246–273). Don Mills, Canada. https://doi.org/9780195430158

Meador, D. (2015). "Strategies for Teachers: The Power of Preparation and Planning." Retrieved May 17, 2016, from thoughtco.com/power-of-preparation-and-planning-3194263.

Menikdiwela, K. R. (2016). *Developing a guideline for Sri Lankan primary school teachers to support children with ADHD traits*. Masaryk University Brno.

Mettler, K. (2015). *ADHD and Multiple Intelligences : Does a Pattern Exist ?* Walden University.

Mkhuma, I. L. (2012). *The Challenges Experienced by Teachers in Identifying Learners who Experience Barriers to Learning in a Rural Full-Service School in Kwazulu-Natal*. University of South Africa.

Mulaudzi, M. P., & Kutame, A. P. (2011). Arresting attention-deficit hyperactive disorder in children and adolescents, strategies for educators : a review of the literature. *South African Journal of Education*, 25(1), 82–99. Retrieved from http://reference.sabinet.co.za/webx/access/electronic_journals/persed/persed_v20_n3_a9.pdf%5Cnhttp://reference.sabinet.co.za/webx/access/electronic_journals/interim/interim_v7_n1_a9.pdf%5Cnhttp://reference.sabinet.co.za/webx/access/electronic_journals/m_c

Murrell, A. R., Steinberg, D. S., Connally, M. L., Hulsey, T., & Hogan, E. (2015). Acting Out to ACTing On: A Preliminary Investigation in Youth with ADHD and Co-morbid Disorders. *Journal of Child and Family Studies*, 24(7), 2174–2181. https://doi.org/10.1007/s10826-014-0020-7

Naicker, J. (2008). *Educators' Preparedness for Inclusive Education*. University of Zululand.

Naidoo, A. (2012). *Inclusive Education: A Phenomenological Study of the Experiences of Teachers in a Mainstream Primary School in East London*. University of Fort Hare.

Naidoo, N. (2012). *Impact of Educator Knowledge of Attention Deficit Hyperactivity Disorder on Teaching Strategies*. University of South Africa.

Nel, M., & M. Grosser, M. (2016). An appreciation of learning disabilities in the south african context an appreciation of learning disabilities in the South African context. *A Contemporary Journal*, 14(1), 79–92.

Noordermeer, S. D. S., Luman, M., Weeda, W. D., Buitelaar, J. K., Richards, J. S., Hartman, C. A., & Oosterlaan, J. (2017). Risk factors for comorbid oppositional defiant disorder in attention-deficit/hyperactivity disorder. *European Child & Adolescent Psychiatry*. https://doi.org/10.1007/s00787-017-0972-4

Nowacek, E. J., & Mamlin, N. (2007). General Education Teachers and Students With General Education Teachers and Students With ADHD : What Modifications Are Made ? *Preventing School Failure*, 51(3), 28–35. https://doi.org/10.3200/PSFL.51.3.28-35

Ohan, J. L., Cormier, N., Hepp, S. L., Visser, T. a. W., & Strain, M. C. (2008). Does knowledge about attention-deficit/hyperactivity disorder impact teachers' reported behaviors and perceptions? *School Psychology Quarterly*, 23(3), 436–449. https://doi.org/10.1037/1045-3830.23.3.436

Ohan, J. L., Visser, T. W., Strain, M. C., & Allen, L. (2011). Teachers' and education students' perceptions of and reactions to children with and without the diagnostic label "ADHD." *Journal of School Psychology*, 49(1), 81–105. https://doi.org/10.1016/j.jsp.2010.10.001

Okeke, C., & Van Wyk, M. (Eds.). (2015). *Educational Research: An African approach* (1st ed.). Cape Town: Oxford University Press.

Okeke, C., Van Wyk, M., & Phasha, N. (2015). *Schooling, society and inclusive education: An afrocentric perspective*. . Cape Town: Oxford University Press.

Olusakin, A. M., Osarenren, N., & Obi, F. (2008). Towards Helping Children with Attention Deficit Hyperactivity Disorder (ADHD) to Enjoy Peaceful Schooling. *Studies on Home and Community Science*, 2(1), 19–32. https://doi.org/10.1080/09737189.2008.11885249

Pagano, M. E., Delos-Reyes, C. M., Wasilow, S., Svala, K. M., & Kurtz, S. P. (2016). Smoking cessation and adolescent treatment response with comorbid ADHD.

Journal of Substance Abuse Treatment, 70, 21–27. https://doi.org/10.1016/j.jsat.2016.07.008

Pardini, D., & Fite, P. (2011). Disorder, Oppositional Defiant Disorder, Attention-Deficit/Hyperactivity Disorder, and Callous-Unemotional Traits as Unique Predictors of Psychosocial Maladjustment. *Journal of the American Academy of Child* 49(11), 1134–1144. https://doi.org/10.1016/j.jaac.2010.07.010.Symptoms

Perold, M., Louw, C., & Kleynhans, S. (2010). Primary school teachers' knowledge and misperceptions of attention deficit hyperactivity disorder (ADHD). *South African Journal of Education*, 30(2002), 457–473. Retrieved from http://ezproxy.umsl.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=afh&AN=53323548&site=ehost-live&scope=site

Polanczyk, G., De Lima, M. S., Horta, B. L., Biederman, J., & Rohde, L. A. (2007). The worldwide prevalence of ADHD: A systematic review and metaregression analysis. *American Journal of Psychiatry*, 164(6), 942–948. https://doi.org/10.1176/appi.ajp.164.6.942

Polanczyk, G. V., Willcutt, E. G., Salum, G. A., Kieling, C., & Rohde, L. A. (2014). ADHD prevalence estimates across three decades: An updated systematic review and meta-regression analysis. *International Journal of Epidemiology*, 43(2), 434–442. https://doi.org/10.1093/ije/dyt261

Poni, M. (2014). Research Paradigms in Education. *Journal of Educational and Social Research*, 4(1), 407–414. https://doi.org/10.5901/jesr.2014.v4n1p407

Ritchie, J. & Lewis, J. (2003). The Foundations of Qualitative Research. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*, 2–10. https://doi.org/10.4135/9781452230108

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (Eds.). (2014). *Qualitative Research Practice: A Guide For Social Science Students & Researchers* (2nd ed.). London: SAGE Publications. Retrieved from www.sagepublications.com

Rogers, M. A., & Tannock, R. (2013). Are Classrooms Meeting the Basic Psychological Needs of Children With ADHD Symptoms? A Self-Determination Theory Perspective. *Journal of Attention Disorders*, 20(10), 1–7. https://doi.org/10.1177/1087054713508926

Rostain, A. L., & Ramsay, J. R. (2006). College and High School Students with Attention-Deficit/Hyperactivity Disorder: New Directions in Assessment and Treatment. *Monograph American College Health Association.*, 7–16. Retrieved

from http://www.acha.org/Continuing_Education/docs/ACHA_Use_Misuse_of_Stimulants_Article1.pdf

Rowlands, B. H. (2005). Grounded in practice: Using interpretive research to build theory. *Electronic Journal of Business Research Methods*, 3(1), 81–92. https://doi.org/10.1002/jcp.20352

Roy, A., Oldehinkel, A. J., & Hartman, C. A. (2017). Cognitive Functioning in Adolescents with Self-Reported ADHD and Depression: Results from a Population-Based Study. *Journal of Abnormal Child Psychology*, 45(1), 69–81. https://doi.org/10.1007/s10802-016-0160-x

Rush, C., & Harrison, P. (2008). Ascertaining teachers' perceptions of working with adolescents diagnosed with attention-deficit/hyperactivity disorder. *Educational Psychology in Practice*, 24(3), 207–223. https://doi.org/10.1080/02667360802256774

Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*. Los Angeles: SAGE Publications.

Saloner, B. (2011). Race, Health, and Disadvantage: The Case of ADHD in Childhood. Retrieved August 25, 2017, from https://inequalitiesblog.wordpress.com/2011/04/26/race-health-and-disadvantage-the- case-of-adhd-in-childhood/

SAOU Professional Development Services. (2015). Accommodating Barriers To Learning in an Inclusive Education System Professional Development Service. Retrieved from http://www.saou.co.za/wp-content/uploads/2013/01/Accommodating-barriers-to-learning-in-an-inclusive-education-system.pdf

Sarwat, A., Memon, I., Bhatti, R., & Tariq, S. (2010). Attention Deficit Hyper Activity Disorder Subtypes and Co Morbid Disorders Among Children Attending Psychiatry Opd in Civil Hospital Karachi. *Medical Channel*, 16(3), 349–351. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=55121085&site=ehost-live&scope=site

Schellack, N., & Meyer, H. (2012). The management of attention deficit-hyperactivity disorder in children. *SA Pharmaceutical Journal*, 79(10), 12–20.

Schutt, R. K., & Chambliss, D. F. (2013). Qualitative Data Analysis. In *Making Sense*

of the Social World: Methods of Investigation. Retrieved from https://www.sagepub.com/sites/default/files/upm-binaries/43454_10.pdf

Seabi, J. (2010). Foundation Phase Educators' Perceptions of Attention Deficit Hyperactivity Disorder at a Mainstream Primary School. *South African Journal of Higher Education*, 24(4), 616–629. Retrieved from http://www.eric.ed.gov/ERICWebPortal/detail?accno=EJ937534

Segal, J., & Smith, M. (2015). Teaching Students with ADD / ADHD: Tips for teachers to help students with ADD / ADHD succeed at school.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), 63–75. https://doi.org/10.3233/EFI-2004-22201

Sibley, M. H., Altszuler, A. R., Ross, J. M., Sanchez, F., Pelham, W. E., & Gnagy, E. M. (2014). A Parent-Teen Collaborative Treatment Model for Academically Impaired High School Students With ADHD. *Cognitive and Behavioral Practice*, 21(1), 32–42. https://doi.org/10.1016/j.cbpra.2013.06.003

Sibley, M. H., Campez, M., Perez, A., Morrow, A. S., Merrill, B. M., Altszuler, A. R., … Yeguez, C. E. (2016). Parent Management of Organization, Time Management, and Planning Deficits among Adolescents with ADHD. *Journal of Psychopathology and Behavioral Assessment*, 38(2), 216–228. https://doi.org/10.1007/s10862-015-9515-9

Silverman, D. (2000). *Doing Qualitative Research: A Practical Handbook*. Wiltshire: SAGE Publications.

Silverman, D. (2011a). *Interpreting Qualitative Data: A guide to the Principles of Qualitative Research* (4th ed.). Cornwall: SAGE Publications. Retrieved from www.sagepublications.com

Silverman, D. (Ed.). (2011b). *Qualitative Research: issues of Theory, Method and Practice* (3rd ed.). London: SAGE Publications. Retrieved from www.sagepublications.com

Silverman, D. (2013). *Doing Qualitative Research*. (4th ed.). London: SAGE Publications.

Simon, V., Czobor, P., Balint, S., Meszaros, A., & Bitter, Iv. (2009). Prevalence and correlates of adult attention-deficit hyperactivity disorder : *British Journal of Psychiatry*, 194, 204–211. https://doi.org/10.1192/bjp.bp.107.048827

Sulaiman, T., Abdurahman, A. R., & Rahim, S. S. A. (2010). Teaching strategies

based on multiple intelligences theory among science and mathematics secondary school teachers. *Procedia - Social and Behavioral Sciences*, 8(5), 512–518. https://doi.org/10.1016/j.sbspro.2010.12.070

Sunday, C. E. (2012). Qualitative Data Analysis. Retrieved from https://www.uwc.ac.za/Students/Postgraduate/.../Qualitative data analysis.pdf

Suter, W. (2012). Qualitative Data, Analysis and Design. In *Introduction to Educational Research: A critical thinking approach* (2nd ed.). Thousand Oaks: SAGE Publications. https://doi.org/http://dx.doi.org/10.4135/9781483384443.n12

Taylor, P. C., & Medina, M. N. D. (2013). Educational research paradigms: from positivism to multiparadigmatic. *Journal of Meaning-Centered Education*, 1(2007), 1–16. https://doi.org/10.1007/s13398-014-0173-7.2

Thorne, S. (2000). Data analysis in qualitative research. *Evidence Based Nursing*, 3, 68–70. https://doi.org/10.1136/ebn.3.3.68

Topkin, B., Roman, N. V., & Mwaba, K. (2015). Attention Deficit Disorder (ADHD): Primary school teachers' knowledge of symptoms, treatment and managing classroom behaviour. *South African Journal of Education*, 35(2), 1–8. https://doi.org/10.15700/saje.v35n2a988

Toplak, M. (2015). ADHD : Making a Difference for Children and Youth in the Schools. *Perspectives on Language and Literacy*, 41(1).

Tucha, O., Walitza, S., Mecklinger, L., Sontag, T. a., Kübber, S., Linder, M., & Lange, K. W. (2006). Attentional functioning in children with ADHD - Predominantly hyperactive-impulsive type and children with ADHD - Combined type. *Journal of Neural Transmission*, 113(12), 1943–1953. https://doi.org/10.1007/s00702-006-0496-4

U.S. Depatment of Education: Office of Special Education and Rehabilitative Services - Office of Special Education Programs. (2008). *Identifying and treating attention deficit hyperactivity disorder: A Resource for School and Home*. Washington DC.

U.S. Depatment of Education Office of Special Education and Rehabilitative Services. (2008). *Teaching children with attention deficit hyperactivity disorder: Instructional strategies and practices*. Washington, D.C. Retrieved from http://edpubs.ed.gov

Van Niekerk, S. (2009). *Multiple Intelligence Profiles of Learners With Attention-Deficit / Hyperactivity Disorder (Adhd)*. North-West University.

Vogel, W. (2014). An update on attention deficit hyperactivity disorder. *South African Medical Journal*, 104(1), 16–24. https://doi.org/DOI:10.7196/SAMJ.7728

Volkow, N. D., Wang, G.-J., Newcorn, J. H., Kollins, S. H., Wigal, T. L., Telang, F., … Swanson, J. M. (2011). Motivation deficit in ADHD is associated with dysfunction of the dopamine reward pathway. *Molecular Psychiatry*, 16(11), 1147–1154. https://doi.org/10.1038/mp.2010.97

Walker, S., Venter, a, van der Walt, a, & Esterhuyse, K. G. F. (2011). Prevalence of attention-deficit/hyperactivity disorder (ADHD) symptomatology and psychiatric co-morbidity among adolescents diagnosed with ADHD in childhood. *South African Journal of Psychiatry*, 17(1), 24–28. Retrieved from http://www.scopus.com/inward/record.url?eid=2-s2.0-80051638559&partnerID=40&md5=406a32260c2325f5f89b2c701673b194

Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, 15(3), 320–330. https://doi.org/10.1057/palgrave.ejis.3000589

Walton, E. (2011). Getting Inclusion Right in South Africa. *Intervention in School and Clinic*, 46(4), 240–245. https://doi.org/10.1177/1053451210389033

Wellington, J., Bathmaker, A., Hunt, C., McCulloch, G., & Sikes, P. (2005). *Succeeding with your doctorate*. Thousand Oaks: SAGE Publications.

Wevers, N. E. (2012). *The Management of Learners Who Experience Barriers To Learning in Mainstream Primary Schools in the Eastern Cape By*. Nelson Mandela Metropolitan University.

Weyandt, L. L., Fulton, K. M., Verdi, G. R., & Wilson, K. G. (2009). Assessment of Teacher and School Psychologist Knowledge of Attention-Deficit/Hyperactivity Disorder. *Psychology in the Schools*, 46(10), 951–961. https://doi.org/10.1002/pits.20436

Wheeler, L. (2007). *Attention Deficit Hyperactivity Disorder (ADHD): identification, assessment, contextual and curricular variability in boys at KS1 and KS2 in mainstream schools.* University of Worcester. Retrieved from http://eprints.worc.ac.uk/466/

Willcutt, E. G., Nigg, J. T., Pennington, B. F., Solanto, M. V, Rohde, L. A., Tannock, R., … Lahey, B. B. (2012). Validity of DSM-IV attention–deficit/hyperactivity disorder symptom dimensions and subtypes. *J Abnorm Psychol*, 121(4), 991–1010. https://doi.org/10.1037/a0027347.Validity

Wilson, J. (2012). Gardner's Theory of Multiple Intelligences. Retrieved May 24,

2016, from http://www.juliannanwilson.com/2012/02/gardners-theory-of-multiple.html

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions : epistemological , theoretical. *European Journal of Education*, 48(2), 311–325. https://doi.org/doi:10.1111/ejed.12014

Yin, R. K. (2014). *Case Study Research Design and Methods*. (5th ed.). Thousand Oaks: SAGE Publications.

Zentall, S. S., Kuester, D. A., & Craig, B. A. (2011). Social behavior in cooperative groups: Students at risk for ADHD and their peers. *Journal of Educational Research*, 104(1), 28–41. https://doi.org/10.1080/00220670903567355

ANNEXURE A

INTRODUCTION LETTER FROM SUPERVISOR

16 October 2017
The Headmaster
Baysville Special School
Private Bag X9040
EAST LONDON
5200

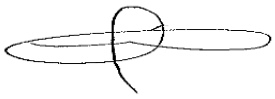
Dear Sir

REQUEST FOR PERMISSION TO DO FIELDWORK

This letter is to confirm that Miss Ivy Johleen Hendriks (Student number: 201515227) will be going to Ebenezer Majombozi and Greenpoint Secondary school on Wednesday, 18 October and Thursday, 19 October to complete fieldwork as part of her research.

It will be appreciated if you will grant her permission to go. She has received permission from the Circuit Manager as well as the headmasters of the two schools.

Thank you.



Professor Emmanuel Adu ***PhD***
SUPERVISOR/HIGHER DEGREES COORDINATOR

ANNEXURE B

ETHICAL CLEARANCE FROM UNIVERSITY OF FORT HARE

University of Fort Hare
Together in Excellence

ETHICAL CLEARANCE CERTIFICATE
REC-270710-028-RA Level 01

Certificate Reference Number:	ADU201SSHEN01
Project title:	**Teachers' support of learners with Attention Deficit Hyperactivity Disorder (ADHD) in Mainstream Grade 10 Classes.**
Nature of Project	Masters in Education
Principal Researcher:	Ivy Johleen Hendricks
Supervisor:	Prof E.O Adu
Co-supervisor:	N/A

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:

Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
  - Any unethical principal or practices are revealed or suspected
  - Relevant information has been withheld or misrepresented
  - Regulatory changes of whatsoever nature so require
  - The conditions contained in the Certificate have not been adhered to

- Request access to any information or data at any time during the course or after completion of the project.

- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely

Professor Wilson Akpan
Acting Dean of Research

01 June 2017

ANNEXURE C

PERMISSION FROM EASTERN CAPE DoE TO CONDUCT RESEARCH

Province of the
EASTERN CAPE
EDUCATION

EAST LONDON DISTRICT
Dr. WB Rubusana Building, NU 1 Mdantsane, Private Bag X9007 East London,5200
REPUBLIC OF SOUTH AFRICA, Website: www.ecdoe.gov.za

Ref. No. MRS I.J. HENDRIKS
Enquiries: MR. D.A. HANEKOM
Tel.: 0832272329
Fax: 0866540028

01 September 2017

TO WHOM IT MAY CONCERN

Re: Mrs. I.J. Hendriks

Permission is hereby granted to Mrs. I.J. Hendriks to conduct her Masters research using learners from Ebenezer Majombozi and Greenpoint Secondary schools situated in the East London District. The following pre-conditions exist:

1. No impact is made on teaching and learning time
2. Educators and learners will not be utilised during school teaching time
3. Prior permission has been obtained from the principal of the school with a clear guideline as to how the research will be conducted.
4. All ethical and moral obligations be upheld with respect to the content of the questionnaires

Regards

Mr. D. A. Hanekom
Circuit Manager/EDO: Circuit 6

PGDP

building blocks for growth

ANNEXURE D

UNIVERSITY INFORMED CONSENT FORM

University of Fort Hare
Together in Excellence

Ethics Research Confidentiality and Informed Consent Form

Please note:

This form is to be completed by the researcher(s) as well as by the interviewee before the commencement of the research. Copies of the signed form must be filed and kept on record

Our University of Fort Hare (Education Department) is asking teachers from your school to answer some questions, which we hope will benefit your school and possibly other communities in the future.

The University of Fort Hare (Education Department) is conducting research regarding: *Teachers' support of learners with Attention Deficit Hyperactivity Disorder (ADHD) in mainstream grade 10 classes*. We are interested in finding out more about *what knowledge teachers have of the characteristic symptoms of this disorder, what teaching strategies they employ and what classroom accommodations they make to effectively support these learners*. We are carrying out this research to help *mainstream high school teachers to understand this disorder and to support learners with this disorder.*

Please understand that you are not being forced to take part in this study and the choice whether to participate or not is yours alone. However, I would really appreciate it if you do share your thoughts with me. If you choose not take part in answering these questions, you will not be affected in any way. If you agree to participate, you may stop me at any time and tell me that you don't want to go on with the interview.

If you do this, there will be no penalties and you will NOT be prejudiced in ANY way. Confidentiality will be observed professionally.

I will not be recording your name anywhere on the questionnaire and no one will be able to link you to the answers you give. Only the researcher will have access to the unlinked information. The information will remain confidential and there will be no "come-backs" from the answers you give.

The interview will last from 10-15 minutes. I will be asking you questions and ask that you are as open and honest as possible in answering these questions. Some questions may be of a personal and/or sensitive nature. I will be asking some questions that you may not have thought about before, and which also involve thinking about the past or the future. I know that you cannot be absolutely certain about the answers to these questions but I ask that you try to think about these questions. When it comes to answering questions, there are no right and wrong answers. When I ask questions about the future I am not interested in what you think the best thing would be to do, but what you think would actually happen.

If possible, I would like to come back to this area once I have completed my study to inform you and your community of what the results are and discuss our findings and proposals around the research and what this means for people in this area.

INFORMED CONSENT

I hereby agree to participate in research regarding teachers' support of learners with ADHD in mainstream grade 10 classes. I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop this interview at any point should I not want to continue and that this decision will not in any way affect me negatively.

I understand that this is a research project whose purpose is not necessarily to benefit me personally.

I have received the telephone number of a person to contact should I need to speak about any issues which may arise in this interview.

I understand that this consent form will not be linked to the questionnaire, and that my answers will remain confidential.

I understand that if at all possible, feedback will be given to my community on the results of the completed research.

……..

Signature of participant **Date:……..**

I hereby agree to the tape recording of my participation in the study

……..

Signature of participant **Date:……..**

ANNEXURE E

LETTER OF REQUEST

University of Fort Hare
Together in Excellence

Private Bag X9040
EAST LONDON
5200

2 Burnett Road
Baysville
EAST LONDON
5214

Cell no: 083 539 0478
Work: 043 721 0270
Fax: 043 721 0273
Email: ivy@baysville.co.za or 201515227@ufh.ac.za

28 September 2017

The Principal
District A
East London
5209

Request for permission to do interviews – Grade 10 educators

I am Masters student at Fort Hare University and kindly request permission to interview educators and do observations. My research topic is: *Teachers' Support of Learners with (or at the risk of) Attention Deficit Disorder (ADHD) in Mainstream Grade 10 Classes.*

The educators that will be interviewed will be those teaching Mathematics and Languages in Grade 10.

With your and the teacher's permission, the interviews will be recorded and observations will be videoed, but all the data that will be collected, will be kept strictly confidential and anonymous. Please also note that the data obtained will be used solely for the purpose of the study and for no other purpose.

I would like to start with my research during the second week of the last term. Should my request be favourably received, it would also be required that educators complete a consent form which will be issued to them before the interview.

Thank you.

Yours faithfully

(MISS) I.J. HENDRIKS

MASTERS STUDENT

ANNEXURE F
QUESTIONNAIRE

Teachers' support of learners with Attention Deficit Hyperactivity Disorder (ADHD) in Grade 10 mainstream classes

QUESTIONNAIRE

Section A: Demographic Information

NAME: …… (will not be used in final report)

GENDER: ……

AGE: ……

CURRENT POSITION: ……..

GRADES CURRENTLY TEACHING: …….

YEARS OF EXPERIENCE AS AN EDUCATOR:

……

SUBJECTS YOU ARE CURRENTLY TEACHING:

……

NUMBER OF LEARNERS IN CLASS: ……

Section B: Open-ended questions

1. **What is your knowledge regarding the symptoms of ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)?**

2. **Do you have learners with ADHD in your class? How many and how do you know they have ADHD?**

3. **What teaching strategies (if any) do you employ to deal with learners who display symptoms of restlessness, inattentiveness, inability to focus, distraction, etc.?**

4. **What classroom accommodation do you make to support learners with ADHD/ How often do you make these accommodations and why would you say they are effective or not?**
5. **Since mainstream teachers are expected to teach learners with learning difficulties (such as ADHD), what help do you expect from the school as well as the Department of Education?**

ANNEXURE G

INTERVIEW SCHEDULE FOR PARTICIPANTS (TEACHERS)

1. **How long have you been teaching?**

2. **How well would you say you know your students? Please elaborate.**

3. **Have you ever attended a workshop on Attention Deficit/Hyperactivity disorder?**

4. **If your answer is yes, would you say you profited from attending the workshop and why do you say so?**

5. **If your answer is no, what prevented you from attending such a workshop and would you attend in future if you have the opportunity and why?**

6. **What is your opinion on learners with barriers to learning (in particular ADHD) in mainstream schools?**

7. **What challenges do you face in teaching learners who find it difficult to sit still, are inattentive and easily distracted?**

8. **Many learner with ADHD – especially boys present co-morbid disorder like conduct disorder, and oppositional defiant disorder with ADHD.**

   CD: learner are sometimes malicious, lying, cheating, destruction of property, cruelty – these often lead to substance abuse

   ODD: There is constant conflict, poor relationships with family and friends, persistently irritable, angry, vindictive, show inappropriate defiance and disobedient behaviour towards authority figures.

   How do you cope with them in your class if you have such a learner(s)?

9. **Do you think that the teaching strategies and classroom accommodations that you use is sufficient support for these learners, and why do you say so?**

10. **What kind of support do you expect from the school SMT and the Department of Education?**

ANNEXURE H

SUMMARY OF RESPONDENTS: OPEN-ENDED QUESTIONNAIRE

RESPONDENT	Question 1: What is your knowledge regarding ADHD?	Question 2: Do you have any learners with ADHD, how many and how do you know they have ADHD?	Question 3: What teaching strategies do you employ to deal with learners who display symptoms of restlessness, inattentiveness, inability to focus, distraction, etc.?	Question 4: What classroom accommodations to you make to support learners with ADHD/how often do you make accommodation? Why would you say they are effective/not?	Question 5: Since mainstream teachers are expected to teach learners with learning difficulties such as ADHD, what help to you expect from the school as well as the Department of Education
R1 Gender: Male Age: 53 Experience: 27yrs Grades: 10 – 11 Subject: Math No of learners: 41 – 46	None	None that I am aware of	None – not aware of learners with ADHD	None	Make literature available, Training to identify and treat learners with ADHD
R2 Gender: Male Age: 52 Experience: 30 yrs. Grades: 8, 10, 12 Subject: Math/Math Lit No of learners: 48 in gr 10 class	little knowledge of ADHD – from talking to friend/colleagues	Suspects 10 – 15 overall. Notice that they can't concentrate, easily distracted, distracted, don't want to work, find it difficult to sit still	Give them little work Separate them from friends Tell them stories before he begins his lesson – to get their attention. It's challenging	No time for accommodations. Syllabus needs to be completed. Classes are too big	Supply remedial teachers, pupils should be put in a separate class where they can work at their own pace. Department promised to supply teachers – did not keep that promise
R3 Gender: Female Age: not given Experience: 24 yrs. Grades: 10 Subject: Afr. FAL No of learners: 50 (in gr 10 class)	Don't have necessary skills [knowledge] to identify ADHD learners. When learners disobey orders, don't listen, are restless and disruptive, teachers assume they have ADHD.	5 learners. They don't work in class, disrupt classes, restless in class	Sit in front in class, asks learner to focus and not disturb others, Give learner a time-limit to complete work	Did not answer question – when questioned why, she stated that she made none that she's aware of	Skills development for teachers, psychologist to visit schools, SMT should be more understanding towards needs of teachers. Fewer leaners in class – to give more attention
R4 Gender: Female Age: 24 Experience: 2 yrs. Grades: 8 and 10 Subject: Eng H. Lang No of learners: 46 (in gr 10 class)	Not much knowledge – very basic, might lead to misdiagnoses	1 in each of her two grade 10 classes. Knows from information provided on questionnaire and during interview	Make use of visual aids and if topic allows – audio aids. Only talking does not help	Allows learners to leave the class if they ask, even if reason for going might be a lie. Consistent disruptions are frustrating. Let learner sit either in front or at back of class	Provide school psychologist or remedial teachers. All educators should be workshopped to know signs, symptoms to be able to help learners and to cope in the class
R5 Gender: Female Age: 43 Experience: 23 Grades: 10 – 12 Subject: Math	Minimal concentration span, non-attentiveness, disorderly and haphazardness	Yes – know by guessing – not trained * did not supply presumed total – not sure	Give minimal exercises Ask them to do what they like, e.g. drawing Mark completed exercises immediately so that they can be	Not much – big numbers of learners, difficult to provide individual attention	Must employ trained teachers who can deal with such learners. School-based psychologist would be of great help

No of learners: 41 (in gr 10 class			interested do to the next exercise		
R6 Gender: Female Age: 52 Experience: 23 Grades: 8,10 and12 Subject: Eng FAL No of learners: 44 (in gr 10 class	Don't know anything – except noticing unusual behaviour in some learners – but normally assume that there is a social / other problem	4 more or less [did not provide reason]	Occasionally changing seating arrangements. Since it a language, learners are asked what they like to do, e.g. perform for the class	Individual attention – one on one discussions – use unsuspicious question – ask entire class, not to discriminate or offend someone	Should supply schools with qualified persons who can deal with these learners when they are referred by educators. Parental involvement

ANNEXURE I

SUMMARY OF RESPONDENTS: INTERVIEW TRANSCRIPTS

(Only information pertaining to the research questions)

RESPONDENT	Question 1: Have you ever attended a workshop on ADHD… if yes, was it profitable and why? If no… why not and will you attend in future?	Question 2: What is your opinion of learners with barriers to learning (particularly ADHD) in mainstream schools?	Question 3: What challenges do you face when teaching learners wo find it difficult to sit still, are inattentive and easily distracted? How to you cope with these learners in your class?	Question 4: Do you think the teaching strategies and classroom accommodations to you make is sufficient support for these learners? Why do you think so or not?
001 Gender: Male Age: 53 Experience: 27yrs Grades: 10 – 11 Subject: Math No of learners: 41 - 46	No. To be honest, I am very negative towards workshops and at this stage of my life, I just want to get out of teaching	If barriers prevent you from teaching, it will make your life futile. If we can help to overcome barriers, we must rectify it. It is a catch 22 situation. You want these learners to be integrated in society and the minute they are taken out of mainstream they are stigmatized, yet you cannot deal with them here. There is no easy answer.	The challenge is to have constant two-way communication with the kids. If you lose contact with the kids, it causes a problem, then there is no teaching as such. Honestly I don't have problems with kids. I never needed to deal with those problems, always referred it to the class teacher.	I would not say that I have accommodated these learners. I cannot say that they have ADHD. We always assumed that the kids who display ADHD symptoms are just misbehaving, and we carry on as normal.
002 Gender: Male Age: 52 Experience: 30 yrs. Grades: 8, 10, 12 Subject: Math/Math Lit No of learners: 48 in gr 10 class	No. Never heard of any workshops, but will make an effort to attend if I learn of any	I don't have the formal training to identify these learners, but to be honest, I think they must go to special schools, or the department must provide us with teachers who can deal with them.	It is challenging to deal with them, because they disturb those learners who want to learn. It a challenge to keep them quiet and to make them concentrate. All you can do is shout at them or threaten them with detention. I encourage the over-aged learners to go to either finishing schools or FET colleges.	All I do is separate them from each other. Because of time constraints, the syllabus that needs to be finished and the big classes, there is no time to make use of accommodations.
003 Gender: Female Age: not given Experience: 24 yrs. Grades: 10 Subject: Afr. FAL No of learners: 50 (in gr 10 class)	No. Department never gave workshops that I can remember, but will definitely attend if there was a workshop	They don't belong here. We and the Department are doing them an injustice to have them in mainstream. They can't cope, are irritated, can't focus, always seeks attention and we call them naughty.	I am a strict teacher, thus the learners are calm in my class. I allow the attention-seekers their moment of attention, then get them to quiet down – sometimes with the help of the class. I let them sit next to me, in front and give them extra time if they need it. We cope with the problem kids by involving the parents and testing them for drug abuse. Because we do not have the skills to identify the problem we usually assume the kids are using drugs	No, I don't think so. The learners are probably crying for help by disobeying, but because our classes are full, with large numbers, time constraints, and a curriculum that must be completed we do not give them the attention they need. You can focus on one child only when the other 49 must go on with their work.
004 Gender: Female Age: 24	No. No one has informed us about such workshops, but I would	We can't discriminate against them, but we need specifically specialised teacher who will work with them	They disturb others. If they ask to leave the class, I let them, because they don't want to sit still. I normally let them sit in front or at the	I think what I do is enough, but the is room for improvement

Experience: 2 yrs. Grades: 8 and 10 Subject: Eng H. Lang No of learners: 46 (in gr 10 class)	like to attend, because it will help me.		back, alone, and monitor them. I always ask them questions, you'd be surprised – they to listen. If they misbehave badly – I take them to the principal, what else can I do? If they are aggressive, you feel weak, you can't always trust them and you feel on edge all the time. You let them be and ask other learners to ignore them	
005 Gender: Female Age: 43 Experience: 23 Grades: 10 – 12 Subject: Math No of learners: 41 (in gr 10 class	No, was never invited, but I would attend	Yes, they should be in mainstream, because it's not a disability, just a condition. They need trained people to deal with them.	One of my learners will just get up and walk out because he is bored. Because he likes to draw, I let him. Having 60 leaners I can't only attend to him. If you can't cope, chase them out or you send them to the principal. Sometimes you try to find the problem.	It is not – kids need someone who is trained. You do what you can, but it's not enough
006 Gender: Female Age: 52 Experience: 23 Grades: 8,10 and12 Subject: Eng FAL No of learners: 44 (in gr 10 class	No, never. Was never given the opportunity. Would gladly attend if opportunity arise	It depends on the severity of their barrier. If we are workshopped in how to handle these learners and their parents are involved it will be OK.	It is a challenge. These learners are disruptive and you are not equipped. You handle them in your own way that helps or doesn't sometimes. You must try to understand the child. But sometimes you get furious and shout at them. I cope by involving their parents, by making time to give them individual attention and by finding ways to build their confidence.	I guess to. I sometimes do individual work, group work or by pairing them with stronger learners. I will also tell them if they do not do what is expected, they will not get any marks.

ANNEXURE K

LANGUAGE EDITING CERTIFICATE

CERTIFICATE OF EDITING

Professional EDITORS Group

To whom it may concern

This document certifies that the dissertaion whose title appears below was edited for proper English language usage, grammar, punctuation, spelling and overall style by Dr Anthony Masha who is a member of the Professional Editors' Group and whose academic qualifications appear in the footer of this document.

DISSERTATION TITLE

TEACHERS' SUPPORT OF LEARNERS WITH ADHD IN MAINSTREAM GRADE 10 CLASSES: A CASE STUDY

RESEARCHER

Ivy Johleen Hendriks

DATE EDITED

January 2018

Editor's comment

All mistakes relating to grammar, punctuation, spelling and overall style have been corrected. The editor was not responsible for conducting a cross-referencing check.

B.A (Ed), Honours B.A. (Social Sciences), Honours B.A (Group Dynamics), Postgraduate Diploma in Education, M.ADMIN (Public Administration), Doctor of Administration in Public Administration