

CAPE PENINSULA UNIVERSITY OF TECHNOLOGY  
MOWBRAY CAMPUS



**TITLE**

Developing a conceptual framework which supports teachers of learners  
diagnosed with Asperger's Syndrome and High Functioning Autism

by

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A full dissertation

Thesis in fulfilment of the requirements for the degree

**Doctor of Education**

In the Faculty of Education and Social Sciences at the Cape Peninsula  
University of Technology

**Supervisor: Professor Janet Condy**

**December 2018**

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Signed: .....

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Date: .....

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## ACKNOWLEDGEMENTS

I was ever mindful of the Lord Jesus Christ, Psalm 46:10: “Be still and know that I am God”.

I wish to thank the following individuals and organisations

Professor Janet Condry, my supervisor, who through her great wisdom, knowledge and academic rigour steered and guided me patiently along this journey.

Dr Matthew Curr, for his willingness not only to critique the thesis as a language editor, but to share his views and expertise.

Professor Petrusa du Toit, who agreed to review this thesis.

Dr Corrie Uys, for sharing her knowledge of quantitative research methodologies.

The WCED school, the private schools and the three learners, teachers, support staff, psychologist and principal who so generously participated in the study and without whom this thesis would be not be possible.

The Faculty of Education of CPUT for granting me permission to conduct this research.

My husband André, for the all the support, encouragement and patience shown throughout the past five years of working on this study: not forgetting the technical expertise and formatting of the entire document. Thank you, for believing in me and allowing me the time to complete this research.

My daughters Simoné, Roxanne, and their respective husbands Nico and Dalmain as well as my three precious granddaughters Emma, Zoë and Mia, for their encouragement and support during this period.

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## ABSTRACT

Recent research into pedagogical practices regarding Autistic Spectrum Disorder (ASD) learners has been developing and transforming at a significant rate. However, there has been a dearth of empirical research into how teachers identify and respond appropriately to the basic personality traits of Autistic Spectrum/High Functioning Autistic (AS/HFA) learners. This thesis addresses this specific gap in the research field by undertaking an intensely empirical examination of three AS/HFA learners in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges.

The investigation was conducted in the Western Cape, South Africa, at three schools: one government mainstream and two private schools. Three Grade 3 teachers and three Grade 4 teachers were involved in the project. One facilitator, a class assistant, a teacher for Learners with Special Educational Needs (LSEN) and an educational psychologist took part. Three learners, aged 9 years transitioning from Grade 3 to Grade 4, were observed: all three were clinically diagnosed as AS/HFA. Of the learners, two were boys and one was a girl. The duration of the project was from August/September 2013 to August/September 2014.

A critical interpretive qualitative case study methodology and purposive sampling were deployed. Non-participant observations, semi-structured interviews and probing techniques suited the nature of this specific investigation. It was necessary to employ these methods to identify the social cognitive and social functioning challenges of these three learners. Analysis of effective pedagogical procedures was used to show by what means the researcher was able to extrapolate Bandura's principles of environment, personal and behaviour which were developed for typical learners, and apply these principles to atypical learners such as the three AS/HFA subjects under observation in this thesis. Effective pedagogical procedures were analysed in terms of a paradigm of reflective cognition. Such analysis of the detail of classroom procedures allowed the researcher to proceed in an inductive manner; from the specific to the general. Balancing this empirical investigation of specific details, was a generally deductive structure which was based on national and international research in the research area.

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The latest DSM-V document provided a blue-print which set out the boundaries for this area of study. Before reaching the issue of knowledge that is needed to support teachers confronted by, and too often perplexed by, the inappropriate behaviour of AS/HFA learners in the classroom, it is vital to situate the whole endeavour within the context of Inclusive Education; as reflected in South African policy documents.

The conceptual framework that was developed to answer the central research question was termed the Social Inclusive School Environment conceptual framework (SISE). This framework supports teachers by assisting them to recognise the interlinking causes of inappropriate, unexpected or disruptive behavioural challenges. Characteristic challenges included social cognitive challenges such as weak central coherence, theory of mind, sensory processing, executive function, and social functioning challenges such as global information processing, social imagination, social communication and social interaction. Where it is common in research practice in this area to select one or more of these characteristic challenges for study, this thesis is unique in conjoining all eight main challenges within the scope of a qualitative case study examination.

A major contributing factor in the development of the SISE conceptual framework was the nature of the collaborative support systems put in place by the three class teachers: co-planning, co-teaching and co-assessing. All three teachers aimed to improve their learners' self-confidence and thus engender self-efficacy and self-regulation skills. From observations of how all three learners performed during the lessons, it became clear to the researcher that all three learners found it difficult to adhere to new routines and changes or to comprehend all the dimensions and implications of discussions conducted by their Grade 3 teachers. These AS/HFA learners required more structure and thoughtful planning in order to adapt to change and understand the social implications of their learning environment. It was evident that all three teachers acknowledged the importance of assisting their learners to cope with changes in their daily schedule. The strategies that were implemented were a collaborative endeavour with the various support teams arranged by the schools and parents: a classroom facilitator, a class assistants, a LSEN teacher and an educational psychologist. Together, the professional teams embraced the importance of implementing secure and structured routines, processes, and modelling social and emotional behavioural regulation skills. By supporting the AS/HFA learners, all the Grade 3 teachers helped

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to reduce the amount of time it took to adapt to transitional situations, enhanced appropriate behaviour during these transitions, and facilitated less reliance on adult prompting. As all three learners progressed to, and through, Grade 4, their teachers developed intervention programmes in an attempt to assist these learners manage their behavioural adaptation in a more positive manner. Their focus was on challenges directly associated with how these learners experienced social cognitive and social functioning challenges.

The conceptual SISE framework is a synthesis of research conducted in three major areas: teachers of AS/HFA learners, these learners themselves and Bandura's principles of environment, personal and behaviour. The intersection between these three areas facilitated the formulation of the SISE conceptual framework. The findings of the study answer the key research question: "Is it possible to develop a framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges?" The answer is clearly in the affirmative, thereby consolidating the current theories on how to support teachers of AS/HFA learners.

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**LIST OF ABBREVIATIONS**

AAIDD	American Association of Intellectual and Developmental Disabilities
AD	Asperger Disorder
AJ	Teacher AJ
APA	American Psychiatric Association
AS	Asperger's Syndrome
AS/HFA	Asperger's Syndrome and High Functioning Autism
ASD	Autism Spectrum Disorder
ASHA	American Speech-Language-Hearing Association
BR	Behavioural Response
CAPS	South African Curriculum and Assessment Plan Statement
CC	Central Coherence
CJ	Teacher CJ
CPUT	Cape Peninsula University of Technology
DBSTs	District-Based Support Team
DEd	Doctor in Education
DoBE	Department of Basic Education
DoE	Department of Education
DSM-IV	Diagnostic and Statistical Manual (4 <sup>th</sup> edition)
DSM-V	Diagnostic and Statistical Manual (5 <sup>th</sup> edition)
EC	Emotional Control
EELC	Equal Education Law Centre
EF	Executive Function
FP	Foundation Phase
GIP	Global Information Processing
GR	Teacher GR
Grade R	Reception Year
HFA	High Functioning Autism
ICD-10-CM	International Classification of Diseases, Tenth Revision, Clinical Modification
IE	Inclusive Education
ILST	Institution-Level Base Support Team
IP	Intermediate Phase
JM	Teacher JM
JT	Teacher CT
KOICA	Korea International Cooperation Agency
LSEN	Learner with Special Educational Needs
MEd	Masters in Education

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NAS	National Autistic Society
NCESS	National Commission on Education and Support Services
NCS	National Curriculum Statement
NCSNET	National Commission on Special Needs in Education and Educational and Training
NICE	National Institute for Health and Care Excellence
PDD	Pervasive Developmental Disorder
PE	Physical Education
PhD	Doctor of Philosophy
RI	Response Inhibition
SA DoBE	South African Department of Basic Education
SA DoE	South African Department of Education
SA NCS	South African National Curriculum Statement
SA NDoBE	South African National Department of Basic Education
SA NDoE	South African National Department of Education
SC	Social Communication
SCT	Social Cognitive Theory
SI	Social Interaction
SIAS	Screening, Identification, Assessment and Support in South Africa
SIM	Social Imagination
SISE	Social Inclusive School Environment conceptual framework relating to AS/HFA learners
SM	Teacher SM
SP	Social Processing
SPD	Sensory Processing Disorder
SSRC	Special School Resource Centres
ToM	Theory of Mind
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISA	University of South Africa
WCC	Weak Central Coherence
WCED	Western Cape Education Department

## **CHAPTER 1**

### **INTRODUCTION TO THE RESEARCH**

#### **1.1 INTRODUCTION**

The purpose of this study is to develop a framework which supports teachers of learners diagnosed with Asperger's Syndrome or High Functioning autism (AS/HFA) in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges. Teachers in South African schools need to know how these conditions affect, not only academic performance, but behavioural adaptation in the classrooms. In this study, three learners previously diagnosed with AS and similar character traits of HFA were selected. The term 'AS/HFA learners'<sup>1</sup> has been used by the researcher throughout this research project to refer to the three learners on the ASD spectrum in this study. The researcher refers to them as 'learners and not participants'.

This chapter discusses the origin and background of the study, definition of terms used, statement of problem/research questions, aims of the study, conceptual framework of this study, and the overview of research design and methodology. It introduces the clarification of key concepts, limitations and assumptions of the study, and finally gives the organisation of the thesis.

#### **1.2 ORIGIN AND BACKGROUND OF THE STUDY**

In 2008 and 2009 the researcher conducted a case study for a Master's study on two Asperger's Syndrome (AS) learners experiencing sensory processing difficulties in their reception year of school (Grade R) (De Jager, 2009). In South Africa, it is compulsory for all learners to attend Grade R. The Masters study evolved out of a concern for young AS learners and the unique way they perceived their world in mainstream schools. A recommendation from this Master's study was that teachers in South African mainstream schools should be made more aware of sensory processing challenges and all the character traits young AS learners display. Another recommendation from this study was that teachers, in both government mainstream and private schools, need the assistance from multidisciplinary support teams,

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<sup>1</sup> The researcher acknowledges that the abbreviated formulation of AS/HFA learner may possess negative connotations but the correct full formulation of learners diagnosed with AS/HFA proved too cumbersome for the thesis as a whole.



consisting of an educational psychologist, learners with Special Educational Needs (LSEN) teachers and parents. With teachers being part of this support team, it would create more awareness and mindfulness of the AS learners' distinctive learning styles and their barriers to learning.

After becoming aware that both AS learners of the Master's study had left their local government mainstream schools, because they could not cope with the academic pressure in Grade 1, their parents were recommended by the schools to find more suitable alternative schooling. One learner was enrolled in a Special Needs school, and the other learner started home-schooling.

Attwood (2007:15) confirms that learners experiencing AS symptoms often only start to "feel different" when they are in a more formal school environment and extra pressure is put on them to achieve. He mentioned that this feeling of difference becomes apparent in mainstream schooling where social interaction and independent problem-solving is expected.

Another recommendation was that teachers need to become cognisant of their AS learners' unique interests and strengths, and include these attributes in their everyday teaching and learning. Although South African teachers are willing to accommodate learners on the autism spectrum in their private, or government mainstream classes, they often are not adequately trained to accommodate these learners (Equal Education Law Centre [EELC] 2016). They have limited understanding of the behavioural adaptation challenges these learners experience (EELC, 2016). It is unsurprising that teachers find it difficult to modify their curriculum and classroom environment to address these learners' unique learning needs. Once teachers have been made aware of these learners' character traits, and understand the learners' behavioural adaptation challenges, they are more able to make modifications to the curriculum, classroom environment and teaching styles. Teachers become more adept at changing the curriculum and the environment to integrate these learners to experience optimal learning (EELC, 2016).

The above research emphasises a lack of South African teachers in inclusive government mainstream and private school who understand of the atypical character traits of AS/HFA learners and their behavioural challenges. Hence, the researcher

decided to investigate how the combined influence of social cognitive and social functioning challenges of three learners in South African mainstream school environment, previously diagnosed with AS, had on their behavioural adaptation transitioning from Grade 3 and into Gr 4. A framework has been developed to provide an understanding and an awareness for teachers of AS/HFA learners with atypical character traits.

### **1.3 DEFINITIONS OF TERMS USED**

According to the Diagnostic and Statistical Manual (DSM-V) (American Psychiatric Association, [APA], 5<sup>th</sup> edition, 2013) all learners experiencing any autistic tendency are included in the Autism Spectrum Disorder (ASD). ASD learners are characterised according to the level of support the individual needs. The three levels of support comprise: “requiring very substantial support”, “requiring substantial support” and “requiring support” (DSM-V, 2013:52). Previously Asperger’s Syndrome (AS) and High Functioning Autism (HFA) were categorised as separate Autism syndromes. In this regard Attwood (2010:1) stated that “... research and clinical experience would suggest that there is no clear evidence that AS and HFA are different disorders and ... that their similarities are greater than their differences” (Leekam, Libby, Wing Gould & Gillberg, 2000; Sanders, 2009). More recently, Mazzone, Ruta and Reale (2012:1) agree that “... AS and HFA are two conditions within the broad category of Autism Spectrum Disorder”. They reason that “... in both AS/HFA conditions, these individuals experience social-communication impairments and over-focused receptive interest and behaviours, without any significant learning disabilities or language delays”. However, in the DSM-V (2013), the terms AS and HFA are no longer mentioned but resort under ASD.

In some inclusive government mainstream, and private schools, the terms AS and HFA are still used; presumably because learners were diagnosed with the term and still present with the same specific social cognitive and social functioning character traits. These character traits can influence these learners’ behavioural adaptation (DSM-V, 2013). Although several international and local studies have been conducted on the inclusion of AS/HFA learners in inclusive mainstream schools, teachers often neither have an awareness nor an understanding of the character traits associated with these

learners, nor do they know how to support them with their behavioural adaptation challenges.

AS/HFA learners in school environments must not be viewed as experiencing a collection of isolated symptoms, but as learners with syndrome-specific strengths and challenges. According to Weitlauf, McPheeters, Peters, Sathe, Travis, Aiello, Williamson, Veestra-VanderWeele Krishnaswami, Jerome and Warren (2014), ASD symptoms cause challenges across many areas of functioning and can begin to emerge early in life. Impairments may not be fully evident until personal, environmental and behavioural demands exceed these learners' ability to understand what is expected of them. These challenges could thus be (or not be) experienced in different forms of consistency and intensity during any given day dependent on the social and environmental demands.

Research has shown (Webster-Stratton & Herman, 2010:36) that the influence of behavioural challenges in terms of "social competence and emotional regulation" experienced by young children, eventually starts to inhibit their ability to function optimally in an acceptable manner for their age. Even with all the support structures in place, these challenges impact on their overall ability to accomplish all the outcomes and assessment standards stipulated in the South African Curriculum and Policy Statement (CAPS:2011).

In South Africa, it was only after Inclusive Education (IE) became part of the school system (National Department of Education [DoE], 2001), that teachers started to identify and accept both AS and HFA learners and the unique way they perceived and interacted within their classroom environment. Although South African inclusive education policies encouraged teachers to support all learners in their classes, most teachers in government inclusive mainstream, and private schools have not been adequately trained to work with learners with barriers (Autism South Africa, 2011). This is especially true when it comes to AS/HFA learners, as these learners experience challenges in various areas of development and require intervention and support in all these areas.

## **1.4 STATEMENT OF THE PROBLEM/RESEARCH QUESTIONS**

The main research question for this study may be formulated as follows: Is it possible to develop a framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges?

From this main question, the following sub-questions follow:

1. What social cognitive and social functioning challenges did the three learners diagnosed with AS/HFA experience during Grade 3?
2. How did the social cognitive and social functioning challenges influence the behavioural adaptation of the three learners during Grade 3?
3. How did the Grade 3 teachers assist the learners with behavioural adaptation challenges in preparation for Grade 4?
4. How did the social cognitive and social functioning challenges influence the behavioural adaptation of the three learners during Grade 4?
5. How can the researcher develop a framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges?

## **1.5 AIMS OF STUDY**

The main aim of the study can be formulated as follows:

To develop a conceptual framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges.

From this one main aim the following sub-aims are determined:

1. What social cognitive and social functioning challenges the three learners diagnosed with AS/HFA experienced during Grade 3;
2. How the social cognitive and social functioning challenges influenced the behavioural adaptation of the three learners during Grade 3;
3. How the Grade 3 teachers assisted the learners with behavioural adaptation challenges in preparation for Grade 4;
4. How the social cognitive and social functioning challenges influenced the behavioural adaptation of the three learners during Grade 4; and

5. To develop a framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges.

## **1.6 CONCEPTUAL FRAMEWORK: BANDURA'S SCT AND STRAMPEL & OLIVER'S LEVELS OF REFLECTION AND COGNITIVE PROCESSING**

The theory underpinning this research is Bandura's Social Cognitive Theory (SCT) (Bandura, 1986), which "... rests on several basic assumptions about learning and behaviour" (Denler, Wolters & Benzon, 2014:20). Bandura emphasises the significance of environment, and personal and behavioural factors in the process of learning (Wood & Bandura, 1989), and how these factors influence each other in the classroom. Bandura believes that learning is not shaped by academic environment factors alone (Bandura, 2001) but largely conditioned by a learner's own thoughts, self-efficacy, personal perception and interpretations of what transpires in class (Denler et al., 2014). A learner has the ability to influence his or her own behaviour in a particular learning environment. Through forethought, self-regulatory processes, learners exert influence over their own social and behavioural responses. Bandura stresses that learning is not based purely upon developing new behaviours, but upon developing cognitive processes such as self-efficacy, self-observation, self-evaluation and self-reaction.

These cognitive processes develop naturally in most learners and assist them with social functioning. Learning new skills and behaviours in a SCT learning environment (Bandura, 2001) therefore takes place normally in the way determined by Bandura. But, in the case of AS/HFA learners, such cognitive processes need to be nurtured consciously in the individual and constructed deliberately in the classroom and learning environment.

Due to the atypical character traits of individuals with ASD, Bandura's model of the way in which SCT cognitive processes normally take place, does not apply naturally (Cumine, Dunlop & Stevenson, 2010; Patten & Watson, 2011; Carr, Moore & Anderson, 2014; Birtwell, Willoughby & Nowinski, 2016). Learners with ASD often lack cognitive processes of self-efficacy (Huang, Hughes, Sutton, Lawrence, Cahen, & Zeleke, 2017). These challenges may often be ascribed to confusion, difficulty with appropriate communication, sensory difficulties and a lack of self-help skills that can cause behavioural adaptation challenges (Cumine et al., 2010). Self-observation skills, such

as attending and imitating of observed responses are often lacking in young children on the autism spectrum (Patten & Watson, 2011; Williams, Whiten & Singh, 2004).

Cognitive processes of self-evaluation are needed to achieve a desired goal and to be sufficiently motivated to change resistant behaviour (Bandura, 1991). Such processes can be learnt over time. According to Carr et al. (2014), however, the self-evaluation cognitive process is often perceived as a singular challenge for individuals on the autism spectrum. The cognitive process of self-reaction is needed to modify behaviour appropriately during social interactions (Bandura, 1991). Due to poor non-verbal communication and a limited ability to understand and use the rules of social behaviour during reciprocal conversation, AS/HFA learners experience challenges with cognitive processes of self-reaction. Generally, these learners experience challenges with SCT cognitive processes; something which can influence their social and behavioural adaptation in a SCT school environment.

Because personal or private perception is particularly pronounced among AS/HFA learners, learning can be affected negatively by the challenges mentioned above: that is to say such learners, if left to themselves without consciously constructed environments for learning such skills, are particularly at risk of self-isolation. AS/HFA learners need to be taught self-regulatory processes such as deliberate and conscious forethought and self-reflection to correct negative tendencies to self-isolation.

In analysing selected cases of effective pedagogy discussed in Chapter 8 the levels of reflection and cognitive processing as set out by Strampel and Oliver (2007) were employed as a critical lens. Strampel and Oliver's (2007) paradigm for cognition comprises four levels of learning: stimulated reflection and cognitive stimulation, descriptive reflection and cognitive retrieval, dialogic reflection and reconceptualization, and critical reflection and application.

## **1.7 OVERVIEW OF RESEARCH DESIGN AND METHODOLOGY**

Three qualitative case studies were conducted within a critical interpretive research paradigm for the researcher to view the world through the perceptions and experiences of three learners. They were diagnosed with AS and not ASD, prior to the DSM-V diagnosis of ASD in 2013. A qualitative approach allowed the researcher to observe and study these learners in their natural school settings. This approach generated a

rich narrative, forming a deeper understanding of the issues surrounding these learners as they transitioned from Grade 3 to Grade 4 and throughout Grade 4.

A case study design was chosen for the following reasons:

1. To focus on the “how” and “why” questions;
2. As non-participant, not to manipulate the behaviour of the three learners involved in the study;
3. To interpret and describe a phenomenon in a real-life context;
4. To observe the teacher in context; and
5. To develop a true reflection of what was happening, by considering the context within which it occurred (Yin, 2003:1).

Using an in-depth interpretative paradigm and a case study design, helped describe and explain particular real-life phenomena within each of these learners’ lives that formed part of this doctoral study. One learner attended a government inclusive mainstream school and two attended a private school: both schools were located in the Western Cape.

Purposive sampling was used for selecting the three learners on the basis of them being 9 years old in Grade 3 and the fact that they had been earlier clinically diagnosed with AS by educational psychologists.

Data were collected from two sources. The researcher used non-participant observations and semi-structured interviews with their current class teachers (Henning, van Rensburg & Smit, 2007:3). The information gathered from the observations and the interviews, helped the researcher gain insights through “... subjective understanding ...” of these learners and how they interacted within the world around them (Henning et al., 2007:3).

Because this is not a comparative study, each of the three learners’ results were analysed independently of each other. During the inductive analysis process, standard procedures to organise, date and code the data from the observations and interviews of each learner were used. Data segments were organised into “... more meaningful units...” and themes, based on the literature (Henning et al., 2007:127). The researcher then further analysed all the themes. Using a colour-coding procedure during the analytical ordering process assisted in making sense of the themes.

Continuous reflections were made while observing each learner during his/her learning experience. These notes focused on the learning environment and responses from the

teachers. This data helped ensure a “thick description” of all the occurrences taking place (Henning et al., 2007:85). Trustworthiness was established by including the criteria of credibility, transferability, dependability and confirmability, to ensure objectivity in the qualitative findings of this study (Guba, 1981; Schwandt, Lincoln & Guba, 2007). Implementation of these criteria is discussed in Chapter 3.

Ethical considerations and procedures such as informed consent from the University (CPUT), the Western Cape Education Department (WCED), the schools, the teachers and mothers, plus one father were obtained. Assurances were provided that the names of the schools, teachers and participants would remain anonymous. The implementation of ethical procedures that were followed, are explained in more detail in Chapter 3.

## **1.8 CLARIFICATION OF KEY CONCEPTS**

The term Inclusive Education (IE) is defined because one of the learners selected is in a government mainstream inclusive school. The term ASD is explained and the criteria as stipulated in the Diagnostic and Statistical Manual (5<sup>th</sup> Edition) (DSM-V, 2013) are provided. Since this study researchers three learners who transition from Grade 3 to Grade 4, a brief clarification of the concept of ‘transition’ will be provided. Finally, the terms ‘social cognition’, ‘social functioning’ and ‘behavioural adaptation’ of AS/HFA learners are clarified.

The following terms are discussed in sequence: IE, ASD, transition, social cognition, social functioning, and behavioural adaptation.

### **1.8.1 Inclusive Education (IE)**

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2017), define Inclusive Education (IE), as: “... a process that strengthens the capacity of the education system to reach out to all learners”, and inclusion as “... process that helps to overcome barriers limiting the presence, participation and achievements of learners”. In the South African context, IE strives to embrace “... a learning environment that promotes the full personal, academic and professional development of all learners irrespective of race, class, gender, disability, religion, culture, sexual preference, learning styles and language” (Du Plessis, 2013:67; DoE, 2007). Phasha,



Mahlo and Sefa Dei (2017:6), agree, when they state that inclusion is about “wholeness” and learners must be seen as “... a complete person who engages body, mind, soul and spirit”. IE must be viewed as more than special needs and disabilities experienced by learners, but seen as an all-inclusive education with equal opportunities for all learners (Phasha et al., 2017).

### 1.8.2 Autism Spectrum Disorder (ASD)

The term ‘autism’ was originally used by a child psychologist Leo Kanner (1943) to describe a specific set of behaviours experienced by children who showed little communication skills with others, had a variety of learning problems and displayed unusual behaviours. Since then it is widely accepted that autism is *not* a narrowly defined condition, but rather a spectrum that varies in severity. Variants can include good language and cognitive thinking (Cumine et al., 2010). An individual's age, stage of development, intellectual abilities and language level must be taken into account before making an Autism Spectrum Disorder (ASD) diagnosis.

From 1994 to 2000, all DSM documents use the term ‘Asperger’s Disorder’ (AD), whereas in the professional world the term ‘Asperger Syndrome’ or ‘Asperger’s Syndrome’ (AS) was commonly used by researchers and authors. From May 2013, AS became part of the diagnostic criteria of the Autism Spectrum Disorder (ASD). As mentioned, the terms Asperger’s Syndrome (AS) and High Functioning Autism (HFA) are not used any more in the most recent DSM-V. However, the literature chapter contains reference to AS/HFA learners and/or individuals because the term was in use before the publication of the DSM-V in 2013, and many researchers still use the term AS or HFA or AS/HFA even after the publication of the DSM-V in 2013. Moreover, the three learners in this study may still be referred to as AS/HFA learners because they had originally been diagnosed with AS and/or HFA, before publication of the DSM-V in 2013.

The following section provides the “... complete text of the diagnostic criteria for Autism Spectrum Disorder (ASD)” as they appear in the 5<sup>th</sup> edition of the Diagnostic Manual of Mental Disorders (DSM-V, 2013:50). This manual is used by psychologists and psychiatrists when, for example, evaluating individuals diagnosed with ASD. The DSM-V divided the criteria into five domains:

- A. Persistent deficits in social communication and social interaction;
- B. Restricted, repetitive patterns of behaviour, interests;
- C. Symptoms must be present in the early developmental period;
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning; and
- E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.

In addition it includes sensory impairments that were not mentioned in the previous DSM-1V (2000). The complete criteria in the DSM-V manual (2013:50) describe ASD as:

- A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):
  1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
  2. Deficits in nonverbal communicative behaviours used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures: to a total lack of facial expressions and nonverbal communication.
  3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behaviour to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.
- B. Restricted, repetitive patterns of behaviour, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):
  1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
  2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behaviour (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
  3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to, or preoccupation with, unusual objects, excessively circumscribed or perseverative interests).
  4. Hyper- or hypo reactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).
- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learnt strategies in later life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

- E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

### 1.8.3 Transition

According to Autism Advocate (2009), 'transitioning' occurs in various stages of life; either moving between different grade phases while in-school and later out-of-school into adult life. For all learners, but especially AS/HFA learners, these transitions are especially challenging and require specific consideration and planning by family and staff members. The three most important transitions young learners in school experience, are when they enter a school for the first time in Gr R (5 - 6 year olds), which forms part of the Foundation Phase (Grades R to 3), when they transition into the Intermediate Phase (Grades 4 to 6), and when they transition into the Senior Phase (Grades 7 – 9).

### 1.8.4 Social cognition

The word 'cognitive' is an adjective derived from the Latin verb '*cognoscere*' 'to know': thus 'cognition' is "... the mental action of acquiring knowledge and understanding through experience and the senses" (English Oxford Living Dictionaries, 2016). In addition, social cognition is the integrated processing of socio-emotional information, needed to direct interaction, thereby underlying adaptive social behaviour (Swaab, Bouma, Henderiksen & König, 2011). It involves "... the perception of others (e.g. body signs, facial expressions, intentions), the perception of self (e.g. own thoughts and emotions) and interpersonal knowledge needed to manage tasks and self-regulate daily life" (Duijkers, Vissers, Verbeeck, Arntz & Egger, 2014:119).

### 1.8.5 Social functioning

Social functioning is defined as "... the ability of a person to interact easily and successfully with other people" (Medical Dictionary, 2009). To be able to function socially includes a set of rules. These rules "... guide individuals on how to engage and interact with others, to participate in social activities with independence, and to demonstrate emotional reciprocity" (Holloway, Healy, Dwyer & Lydon, 2014:1133).

### 1.8.6 Behavioural adaptation

Adaptive behaviour is defined by the American Association of Intellectual and Developmental Disabilities (AAIDD) (2017:1), as "... the collection of conceptual, social and practical skills that individuals need to function in their daily lives". It further states "... a collection of conceptual, social and practical skills that are learned and performed by people in their everyday lives". They (AAIDD, 2017:1) define these skills as:

- Conceptual skills that are needed to understand language, number concepts and self-direction;
- Social skills that are important for interpersonal and social responsibility, problem solving and the ability to follow rules; and
- Practical skills that are required for activities in daily living, including personal care, safety and following routines.

## 1.9 LIMITATIONS OF THE STUDY

All research projects are necessarily limited in various respects: by the same token it is important for the researcher to recognise such limitations in his or her work. In this research project there were certain definable limitations of which the researcher was aware. A primary limitation in this research was the apparently small number of learners under observation. The restricted number of learners referred to in this project can in part be accounted for by the fact that so few learners who were attending government mainstream or private schools in Grade 3 (in the year 2013) in the Western Cape had been officially diagnosed with AS/HFA. Currently in South Africa diagnosis of ASD learners is sporadic, inconsistent and late. Lack of early diagnosis of AS/HFA learners is a worldwide phenomenon (Smith Myles, Cook, Miller, Rinner & Robbins, 2005; Attwood, 2007) but in South Africa the lack of timely diagnosis is particularly problematic. Furthermore, AS/HFA learners on the autism spectrum are diagnosed under Level 3 of the DSM-V (2013) diagnostic manual, which means that their language impairments and cognitive abilities are often not sufficiently pronounced to cause disruption in a mainstream classroom and alert teachers to their AS/HFA status. In South Africa, many AS/HFA learners between Grade 3 and Grade 4 manifest the language and cognitive abilities of typical learners yet are only diagnosed as atypical when their social challenges become obvious. For this reason many AS/HFA learners are not correctly or timeously diagnosed. This imprecision made it difficult to locate suitable research candidates and placed a limitation upon the scope of the research project.

Another critical factor in limiting the range and depth of this research is the fact that learners in South Africa are admitted to formal education later than in many developed countries. Most international research is conducted on younger AS/HFA learners (five – eight years); after they enter formal schooling. The implication of this discrepancy in age for admission is that this research project is limited by the amount of international research that applies to conditions in this country.

This research investigation is limited in so far as it does not deal with all ASD learners. AS/HFA learners, although a sub-set of all ASD learners, are able to demonstrate cognitive and linguistic abilities which allow them to be included in mainstream government schools. The remainder of ASD learners in South Africa are either kept at home or admitted to special schools. This research project cannot pretend therefore to be applicable in any way to all ASD learners. It is restricted in its scope and applicability to a small range of AS/HFA learners transitioning from Grade 3 to Grade 4.

The decision to focus on this group alone was made in part because it is widely recognised that there are two nodal points in primary education in the country: the first occurs when learners enter formal schooling at Grade R; the second occurs when they transition from Foundation Phase to Intermediate Phase, that is to say from Grade 3 to Grade 4. The fact that this research is restricted to learners in transition from Grade 3 to Grade 4 is due in part to the almost complete lack of appropriate national and international research conducted so far in this small area. In this respect this research project is a pioneer project which will open up fields of research for later enquiry.

This study is limited in that it is purely qualitative in nature: the research conducted was not derived from a mixed method basis. Quantitative analysis was used, however, in Chapter 6 to address Research Question 4: as explained in Chapter 3, Section 3.3. This thesis cannot claim therefore to be systematically based upon statistical and mathematically verifiable evidence represented in a consistently quantitative form. Such research remains to be done.

This research was limited in scope in so far as observation was restricted to one government and two private schools. This restriction was unavoidable owing to the scarcity of suitable learner candidates for observation. In some cases where suitable learners were identified, parents were not prepared to grant permission for

observation. The findings of this thesis would have had greater transferability and applicability if more schools could have been included in the foundational research.

This thesis is limited in its theoretical structures largely as a result of time and spatial constraints. The groundwork was of such a nature that it was not possible to devote large areas of the thesis to the theoretical questions which surround the core concerns implicit in the investigation as a whole. Because so little research had been undertaken in this area, all critical attention had to be given to observations, interviews, note-taking, reflections, writing up of results, quantitative representation of findings and conclusions. This thesis focused on responding to the research gap noted by Schriber, Robins and Solomon (2014:112) who state that "... the unique characteristics of individuals with ASD as manifested in their basic personality traits have received little empirical attention". The larger theoretical issues which are prompted by this research remain for further investigation.

#### **1.10 ASSUMPTIONS OF THE STUDY**

A reasonable assumption is that AS/HFA learners who attend a government mainstream or private school in South Africa, have a support system at school. The support system at school normally includes teachers, psychologists and learning support personnel. It is assumed that teachers of these learners are aware of the associated character traits and are equipped to assist and support them in their classes. It is assumed that all AS/HFA learners have all the character traits as published in the older DSM-IV (2000). They display behavioural challenges that, in turn, influence their academic achievements. Although research has proven that AS/HFA learners do experience various social cognitive and social functioning character trait challenges on a continuous basis, it may or may not influence their academic achievements (Attwood 2007; Minshew & Hobson, 2008; Britwell, Willoughby & Nowinski 2016).

Another assumption is that AS/HFA learners can accomplish most of the outcomes and assessment standards of all grades, as stipulated in the South African, Curriculum And Policy Statement (CAPS:2011).

## **1.11 ORGANISATION OF THESIS**

This introductory chapter familiarises, orientates and formulates the significance of the research problem. The origin and background of the study, definition of terms used, statement of problem/research questions, aims and the conceptual framework of the study, the overview of research design and methodology were discussed. It introduces the clarification of terms, limitations and assumptions of the study, and finally sets out the organisation of the thesis.

The next seven chapters have been arranged as follows:

### **Chapter 2: Conceptual Framework and Literature Review**

Chapter 2 presents the overview of the concepts of this research, Inclusive Education as reflected in South African policy documents, timeline of Asperger's Syndrome (AS) as part of the Autism Spectrum Disorder (ASD), character traits associated with AS/HFA, identification, intervention and support for AS/HFA learners and conceptual framework, which include Bandura's Social Cognitive Theory (SCT) and Strampel and Oliver's levels of reflection and cognitive processing. Concluding comments end this chapter.

### **Chapter 3: Research Design and Methodology**

Chapter 3 introduces the research paradigm, approach and design. The research methodology is discussed in detail including the research sites, sampling, data collection which includes a discussion on pre-testing, observations, and interviews. Data analysis, trustworthiness, the role of the researcher, ethical considerations are explained and finally the chapter concludes by providing concluding remarks.

### **Chapter 4: Findings and Discussions: Research Question 1 and 2**

Chapter 4 consists of a detailed discussion and analysis of the results of Research Question 1 and Research Question 2 of the three learners with AS/HFA. To answer Research Questions 1 and 2, the researcher has purposefully arranged the chapter into two sections: results of Learners T, L and E focussing on observations of lessons as listed in the various tables and interviews conducted with each learner's Grade 3 teacher. A summary of the results are drawn from the body of evidence focussing on

the influence of social cognitive and social functioning challenges upon these learners in terms of behavioural adaptation.

### **Chapter 5: Findings and Discussion: Research Question 3**

This chapter presents and analytically discusses the findings of the results relating to Question 3. Similarly to Chapter 4, the findings of the three learners are presented separately. To answer Research Question 3, the results of each learner are presented in four themes, which was further structured into three sections for each learner. Firstly, evidence from the interviews and observation data is presented in tabular form. Secondly, the results of each of the four themes are provided and discussed. Finally there is a summary of the results pertaining to each learner. To conclude this chapter, a summary of the overall results is provided.

### **Chapter 6: Findings and Discussion: Research Question 4**

This chapter presents and analytically discusses the findings of the results relating to Question 4. Similarly to Chapters 4 and 5, the results of Research Question 4 of the three learners are presented. This chapter is structured in two sections for each learner. First, evidence of behavioural adaptation challenges is presented in two tabular and two pictorial forms. Each of the presentations is followed by a discussion. Second, a summary of the results for each learner is provided. To complete this chapter, a summary of each learners social cognitive and social functioning challenges that influenced behavioural adaptation challenges is presented.

### **Chapter 7: Overview of the findings of the Research Questions 1, 2, 3 and 4**

Chapter 7 provides an overview of the findings of the research, which provides answers to the research questions and the main aim and sub-aims of this study.

### **Chapter 8: Introduction to the Social Inclusive School Environment (SISE)**

#### **conceptual framework: Question 5**

This chapter introduces the new Social Inclusive School Environment (SISE) conceptual framework, as based on the findings of the study. It answers the Research Question 5 which is: "How can the researcher develop a framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges?" A discussion of four examples of



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effective pedagogy is provided. How these examples are related to the broad research background is explained and followed by an overview of the components of the investigation and its conceptual framework. To conclude this chapter, the new SISE conceptual framework is presented. Concluding comments are made.

### **Chapter 9: Summary, Recommendations and Conclusions**

This final chapter provides a summary of the research study, recommends suggestions for future research and concludes this study with concluding comments.

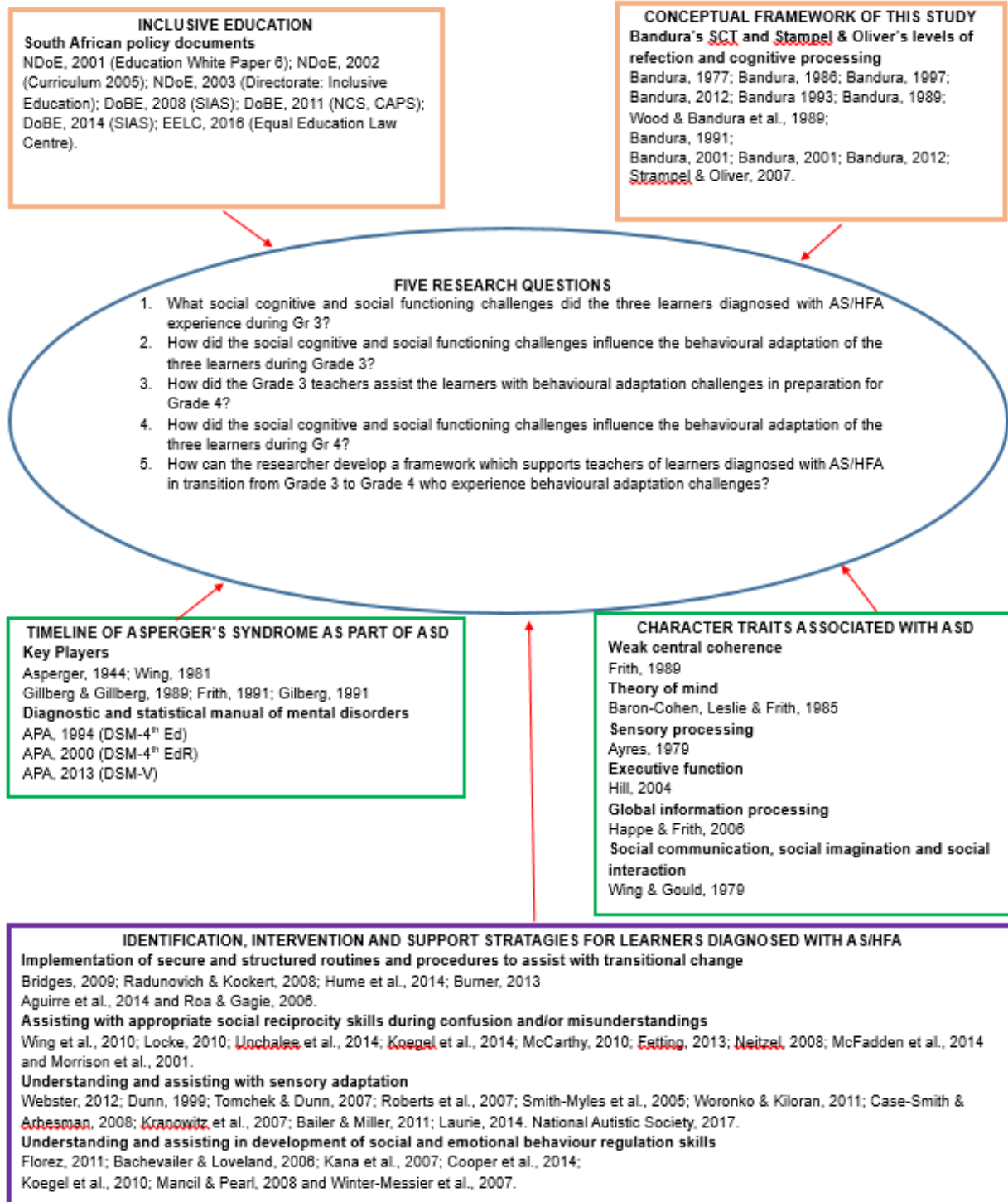
## **CHAPTER 2**

### **LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

#### **2.1 INTRODUCTION**

The purpose of this chapter is to present the literature review and conceptual framework: both of which explain key concepts underpinning the research questions for this thesis and define the research questions themselves; together with the empirical part of the research. Figure 2.1 provides a visual representation and overview of the concepts of this research which are explored and critically discussed in this chapter:

- Inclusive Education as reflected in South African policy documents;
- Timeline of Asperger's Syndrome (AS) as part of the Autism Spectrum Disorder (ASD);
- Character traits associated with ASD;
- Identification, intervention and support strategies for learners diagnosed with ASD;
- Conceptual framework: Bandura's Social Cognitive Theory (SCT) and Strampel and Oliver's levels of reflection and cognitive processing; and
- Concluding comments.



**Figure 2.1** An overview of the components of the investigation

## **2.2 INCLUSIVE EDUCATION AS REFLECTED IN SOUTH AFRICAN POLICY DOCUMENTS**

In South Africa, prior to the transition to a constitutional democracy in 1993, education was segregated not only on the basis of race but also on the basis of disability (DoE, 2001). Following the demise of apartheid, "... compulsory education was implemented for all South African children and segregated schooling practices were eliminated" (Donohue & Bornman, 2014:2). Since 1994, when democracy was established in South Africa, there has been a radical overhaul of government policy; from an apartheid framework to providing services to all South Africans on an equal basis. According to Hodgson and Khumalo (2016:4), basic education had become a constitutionally entrenched right that has been described by the Constitutional Court as "immediately realisable", and by the Supreme Court of Appeal as "... a primary driver of transformation". The South African Education Department set out to accommodate all children with disabilities in appropriate schooling; "... whether at separate special schools, in specially resourced full-service schools, or at local, neighbourhood inclusive mainstream schools" (Hodgson & Khumalo, 2016:5).

According to Engelbrecht and Green (2007), to commence the process of accommodating all children with appropriate schooling, the National Commission on Education and Support Services (NCESS) and National Committee on Special Needs in Education and Training (NCSNET) were tasked in 1996 to form a collaborative group in order to investigate the existing situation of educational barriers and recommend an Inclusive and Training Policy. The recommendations from these documents informed the development of the policy on inclusive education as formulated in Education White Paper 6: Special Needs Education: Building an Inclusive Education and Training System (DoE 2001).

The objective of the White Paper 6 (DoE, 2001) was to address barriers to learning for all learners in the education system. White Paper 6 was the first step towards implementing the policy goals and recognising the responsibility to "... attempt to address the diverse needs of all learners who experience barriers to learning" (Dalton, Mckenzie & Kahonde, 2012:2). This policy document continues to provide an important framework to guarantee

the right to quality education for children with disabilities. The White Paper 6 states that “... inclusion is about supporting all learners, educators and the system as a whole so that the full range of learning needs can be met. The focus is on teaching and learning actors, with the emphasis on development of good teaching strategies that will be of benefit to all learners” (DoE, 2001:17).

DoE Directorate: Inclusive Education: Special Schools as Resource Centres (2003:11) proposed a shift from Special Education to Inclusive Education (Table 2.1) so that “... children with disabilities who are included in high-quality classrooms with their typical developing peers stand to reap positive gains across developmental domains” (Gupta, Henninger & Vinh, 2014:38). This conceptual and operational guideline shifted the focus away from supporting learners who are assumed to have ‘special needs’ and towards addressing barriers in Special Schools and Full-service Schools (DoE, 2003. Table 2.1, adapted from DoE (2003), identifies the changing philosophies from Special Education to Inclusive Education. This guideline organised support to make it sufficiently responsive to learners’ needs including: cognitive ability, language, poverty, class and health (DoE, 2003).

**Table 2.1** Shift from Special Education to Inclusive Education (DoE, 2003:11)

<b>Theory</b>	<b>Special Education Theory</b>	<b>Inclusive Education Theory</b>
Assumptions	Pathological Deficits within the child Categories	Barriers to learning; Barriers in the system and Environment; and Level of support needed e.g. high, moderate and low levels of support.
Practices	Segregation of learners into special facilities	Includes all learners and reorganises support.
Pedagogy	Limited pedagogical possibilities	Pedagogy of possibility taking into consideration barriers to learning, multiple styles of intelligences and learning; and high expectations expanded into learning opportunities.

Moving from a Special Education theory to an Inclusive Education theory meant that one of the primary objectives of the schooling system in South Africa was to “... teach the prescribed curriculum to all learners, and to include differentiation of barriers to learning

within the curriculum change” (Aziz, McKenzie, Watermeyer, Waterhouse, Beere, Japtha, Fish, Kumumalo & Swift, 2016:10).

In 2012 the Department of Basic Education (DoBE) began to implement the newly-formed South African National Curriculum and Assessment Policy Statement (CAPS, 2011) to maintain and support a school education system for all learners in the 21st century and beyond. Inclusivity, which is one of the primary aims of CAPS (2011) stipulates and necessitates differentiation within the curriculum. Wium and Louw (2015:16) state that “... differentiation of the curriculum requires adapting teaching and assessment methods and the learning environment .... and ... differentiation of context require that the learning material be adapted and presented at varying degrees of complexity”. However, South African school teachers still tend to focus more upon “... content knowledge of teaching and learning, in addition to the pedagogic practice” (Du Plessis, 2013:1). One of the issues that is obstructing the progress of the development of inclusive education in South African schools, is a lack of teacher skills in adapting the curriculum to meet a range of individual learning needs (Chataika, Mckenzie, Swart & Lyner-Cleophas, 2012). In order to acquire these skills, and to plan and work collaboratively with the relevant therapist for the greater benefit of learners Dalton et al. (2012), stress that mainstream teachers need training and support from the educational system. Despite positive steps towards implementing a development framework for an inclusive system (NDoE, 2002; United Nations International Children’s Emergency Fund [UNICEF], 2012; DoE, 2008/2014) and the fact that significant support has been made available to advance the rights of learners with learning barriers, the EELC (2016) assert that much work still remains to be done. The support practices across the curriculum remain challenging in inclusive mainstream schools in South Africa.

South African inclusive educational policies (DoE, 2001; NDoE, 2002; DoE, 2003; DoE, 2008/2014 and EELC, 2016), state that learners whose learning disabilities or language impairments are not so pronounced as to cause disruption in a mainstream classroom, should be included into inclusive mainstream schools. Baron-Cohen (2000:497), however, states that AS/HFA learners present social challenges and are too easily regarded as ‘disabled’.

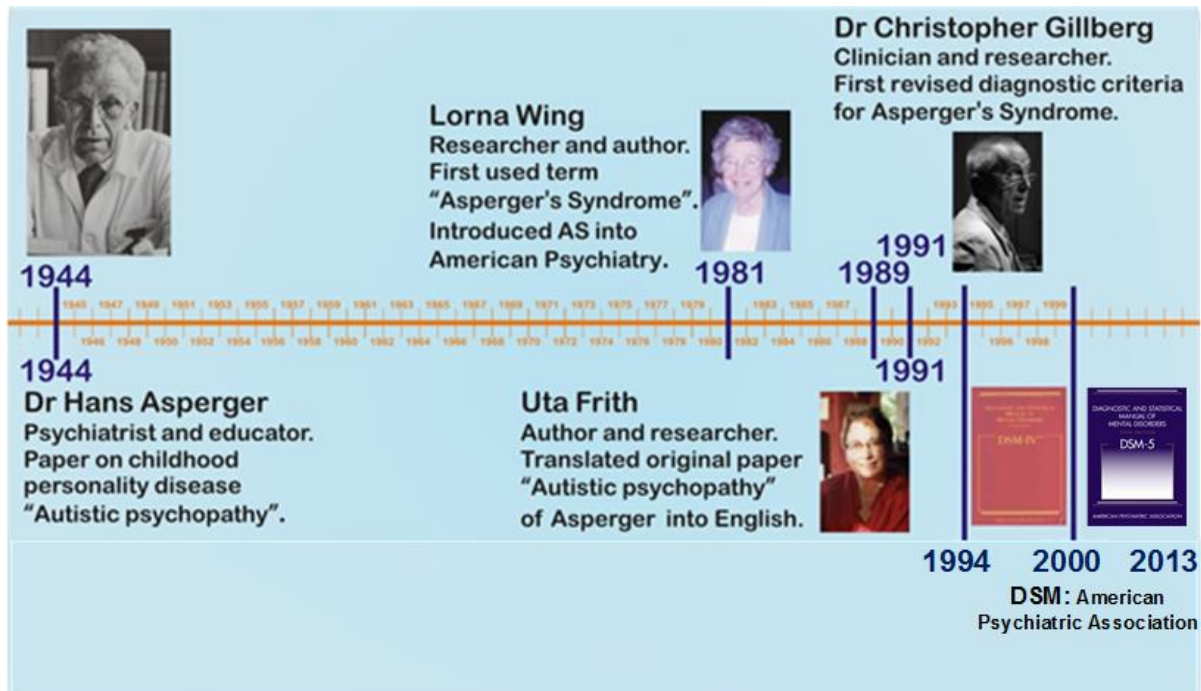
Springer, Van Toorn, Laughton and Kidd (2013) assert that there could be over 270 000 individuals with ASD in South Africa; including learners previously diagnosed with AS and HFA. Such researchers estimate that there may be as many as 5 000 new cases per year. It is not clear whether the increase in the prevalence of this disorder in South Africa is related to a "... heightened awareness among professionals and parents, or to the broadening of the diagnostic criteria since 2000" (Springer et al., 2013:95). "As there are only a few dedicated Special schools in South Africa for individuals with autism spectrum disorder, it means that the remainder of learners with ASD are assumed not to be receiving the specialised education they need" (Bateman, 2013:276). These learners with ASD include AS/HFA learners: most of whom are diagnosed with the condition only after they have entered formal schooling from Grade 1 upwards (Mandell, Novak & Zubritsky, 2005; Shattuck, Durkin, Maenner, Newschaffer, Mandell, Wiggins & Cunniff, 2009; Daniels & Mandell, 2014). This means that many learners missed early specialised education or early intervention. The following section describes the historical timeline of the development of AS, a recognised disorder, and how this disorder was not listed separately again but incorporated as part of ASD in the Diagnostic Statistical Manual (DSM-V, 2013).

### **2.3 TIMELINE OF ASPERGER'S SYNDROME (AS) AS PART OF THE AUTISM SPECTRUM DISORDER (ASD) [since diagnosis took place prior to 2013]**

This section follows the historical development of Asperger's Syndrome (AS). As mentioned, the three learners in this study were originally diagnosed with AS; before reclassification by the Diagnostic Statistical Manual-V (DSM-V) (2013). From 1994 to 2000, all DSM documents used the term 'Asperger Disorder' (AD); whereas in the professional world the term 'Asperger's Syndrome' (AS) was commonly used by researchers and authors. From May 2013, AS became part of the diagnostic criteria for ASD.

The terms 'AS' and 'HFA', as well as the term 'individuals with AS/HFA', may still be used in this study, because that is the way researchers previously referred to such individuals (before 2013), and still do occasionally. The three learners in this study may therefore still legitimately be referred to as learners diagnosed with AS/HFA because that is how they were originally diagnosed (before 2013) – either with AS or HFA or AS/HFA.

To understand the complexity of the development of AS more fully, Figure 2.2 describes the main role players, their professional backgrounds, and the terminology they used when referring to AS. A discussion follows showing the timeline of AS till it was “categorised as part of ASD in the DSM-V” (2013:50).



**Figure 2.2** Timeline of Asperger's Syndrome (AS) as part of the Autism Spectrum Disorder (ASD) (Adapted from De Jager, 2009)

In 1943, a Viennese psychiatrist and educator, Hans Asperger, first recognised common behavioural and cognitive challenges in a group of more than 400 children who displayed severe social impairments. He termed this condition ‘autism psychopathy’ meaning autism (self) and psychopathy (personality disease). He described this syndrome in the following manner:

The children I will present all have in common a fundamental disturbance, which manifests itself in their physical appearance, expressive functions and, indeed, their whole behaviour [Hans Asperger 1944].

It was only after Hans Asperger died in 1980 that Lorna Wing (1981) introduced the term ‘Asperger's Syndrome’ (AS). She argued that Asperger (1944) diagnosed many facets of behaviours of children with autism psychopathy, but failed to define the syndrome explicitly (De Jager & Condy, 2011).



After an international conference held in 1988, to include AS as a spectrum disorder, the first diagnostic criteria for AS were published by Gillberg and Gillberg (1989), revised by Gillberg, 1991). The original paper by Asperger, 'Autistic Psychopathy', was translated into English by Frith (1991) shortly afterwards.

Although AS was described as a spectrum disorder (Gillberg, 1991), Klin, Volmar and Sparrow (2006:221) state that "... it [AS] was not officially recognised in the DSM", which is widely recognised as a classification system. It was not until the fourth illustration of the DSM-1V, that AD was officially entered into the accepted terminology of the American Psychiatric Association (APA) (1994:74) as one of five 'Pervasive Developmental Disorders' (PDD); having some similar characteristics and impairments in several developmental areas. Being one of the five PDD disorders meant that AD could be differentiated from Autism, Rett's Syndrome, Childhood Disintegrated Disorder and Pervasive Developmental Disorder not-otherwise-specified.

In 2000 the DSM-1V was revised with no changes to the terms used for AD and the criteria for diagnosis. Attwood (2007:53) however, argued that the text-revised (TR) DSM-1V (2000, TR) diagnostic criteria for AS were lacking and considered the term a 'work in progress'.

The DSM -1V (2000 TR) criteria for PDD were reviewed to develop a new revised draft. The final DSM-V manual was released on 18th May 2013. The American Psychiatric Association (APA) (2013) stated that the revised Manual of Mental Disorders (DSM-V, 2013) represents a new, more accurate, medically and scientifically useful way of diagnosing individuals with autism-related disorders. According to this document (DSM-V, 2013) learners are not diagnosed separately as having AD, but have now been placed under the umbrella of 'Autism Spectrum Disorder' (ASD): a term used to describe a number of symptoms and behaviours that influence communication, social interaction, social imaginative abilities and rigid, repetitive behaviours. These symptoms and behaviours can affect how individuals with autism perceive their world and interact with others (The National Autistic Society [NAS], 2016).

DSM-V (2013:50) describes three levels of severity to indicate support for ASD individuals (Table 2.2). Prior to 2013, learners included in this study were classified by their school principals and class teachers as being on ‘Level 1’; which is described in the DSM-V as ‘requiring support’. The three levels of support described in the DSM-V are:

**Table 2.2** Severity levels of ASD (DSM-V: 2013:50)

Severity Level for ASD	Social Communication	Restricted Interests & Repetitive Behaviours
Level 3 “Requiring very substantial support”	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning; very limited initiation of social interactions and minimal response to social overtures from others	Preoccupations, fixated rituals and/or repetitive behaviours markedly interfere with functioning in all spheres. Marked distress when rituals or routines are interrupted; very difficult to redirect from fixated interest or returns to it quickly
Level 2 “Requiring substantial support”	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions and reduced or abnormal response to social overtures from others	Rituals and respective behaviours (RRB) and/or preoccupations or fixated interests appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress or frustration is apparent when RRB’s are interrupted; difficult to redirect from fixated interest
Level 1 “Requiring support”	Without supports in place, deficits in social communication cause noticeable impairments. Has difficulty initiating social interactions and demonstrates clear examples of atypical or unsuccessful responses to social overtures of others. May appear to have decreased interest in social interactions.	RRB’s cause significant interference with functioning in one or more contexts. Resists attempts by others to interrupt RRB’s or to be redirected from fixated interest.

The next section discusses the character traits associated with ASD [which includes AS/HFA]. The literature referred to the following section shows how these learners view their learning environment quite differently from their peers. This often results in difficulty

implementing the set of interrelated components needed in a SCT school environment (DSM-V, 2013).

## **2.4 CHARACTER TRAITS ASSOCIATED WITH ASD [which includes both AS and HFA]**

In the DSM-V (2013:50) ASD is described as a life-long neuro-developmental disorder, characterised by: "... deficits in social communication across multiple contexts, and ... restricted, repetitive patterns of behaviour, interest and activities". According to the Western Cape Government, Department of Health (2017) it is important to form an understanding of, and an appreciation for, the common character traits associated with learners on the autism spectrum. This document stresses (Western Cape Government, 2017) that understanding these learners' character traits highlights the diverse nature of this disorder and allows for the planning and modification of an inclusive learning environment suited to each learner's unique learning style. To form a better understanding of the symptomatic social cognitive and social functioning character traits associated with ASD learners, these traits are dealt with in detail. Such traits include weak central coherence (Frith, 1989); theory of mind (Baron-Cohen, Leslie & Frith, 1985), sensory processing (Ayres, 1979), executive function (Hill, 2004), global information processing (Happé & Frith, 2006), social communication, social imagination, and social interaction (Wing & Gould, 1979). More recently, Lenroot and Yeung (2013) identified individuals with ASD as experiencing the following impairments and functioning challenges in social interactions: delayed atypical language development, restricted interests and patterns of behaviours, abnormal sensory function, anxiety symptoms, and poor attention and impulsivity. All these associated character traits of ASD learners are discussed and explained in more detail.

### **2.4.1 Weak Central Coherence (WCC) and Global Information Processing (GIP)**

The following discussion focusses on Weak Central Coherence (WCC) and Global Information Processing (GIP) challenges experienced by individuals on the autism spectrum. The discussion comprises four sections. First, central coherence is defined and then the background to WCC is provided. Second, the term GIP is explained. Third, the

two concepts are individually discussed in relation to how they manifest in these individuals. Finally, a discussion linking the two concepts with the focus upon behavioural adaptation is provided.

Central coherence is defined by Aljunied and Frederickson (2011:172) as "... an in-built propensity to form meaningful links over a wide range of stimuli and to generalise over as wide a range of contexts as possible". Central coherence is a term given to a human being's ability to derive overall meaning from a mass of detail. Frith (1989:13) theorised that individuals with autism may have a heightened focus upon 'detail' rather than the 'whole': Frith developed the concept of 'Weak' Central Coherence (WCC). To clarify this distinction, she states that: "... a person with strong central coherence, looking at an endless expanse of trees, would see the forest. A person with weak central coherence would see only a whole lot of individual trees" (Frith, 1989:13). Frith believes that individuals on the autism spectrum have a detail-focused cognitive style because they "... cannot see the wood from the trees". This phrase means that 'individuals are unable to develop a general understanding of a situation because they are too focussed on the finer details' (Cambridge Advanced Learner's Dictionary and Thesaurus, 2017).

Frith (1989:13) posits that individuals with autism display WCC since "... they lack high-level central cognitive control needed to perceive global, cohesive concepts". This shortcoming may result in these individuals perceiving the world as fragmented, disorganised and a collection of disconnected detail. More recently, Happé and Frith (2006:2) state that the notion of WCC could "... account for both deficits and strengths". When a task requires an individual to extract global meaning from many details, it may pose a problem to an individual with ASD. Having a "... detail-focused cognitive style" (Frith, 1989:13), however, being able to pick out extreme detail from surrounding masses, could, in some instances, be advantageous for these ASD individuals. Some individuals with ASD may experience 'savant skills' which account for advanced abilities to memorise extreme detail, such as in Mathematics, Arts and Music and Electronics (Happé & Frith, 2006; Happé & Booth, 2008; Wallace, 2008 and Mottron, Bouvet, Bonnel, Samson, Burack, Dawson & Heaton, 2013). Having a fixated and narrow focus of attention, "...

may represent an outcome of superiority in local processing, and may be a processing bias, rather than a deficit” (Happé & Frith, 2006:5).

While there are potential advantages to WCC processing styles (for example: attention to detail and a narrow focus on attention), Koldewyn, Jiang, Weigelt and Kanwisher (2013), state that there are disadvantages in a world set up for a GIP style of interaction within one’s environment (Happé & Frith, 1996; Behrmann, Avidan, Leonard, Kimchi, Luna, Humphreys & Minshew, 2006).

Global Information Processing (GIP) means “... the ability to integrate piecemeal information into a coherent whole; to grasp the ‘gist’ of a situation” (Happé & Frith, 2006:78). They argue that experiencing GIP challenges often results in individuals with ASD being unable to “see the big picture”, and becoming overly focussed on details; at the expense of a global perspective. This handicap, according to Happé, Booth, Charlton and Hughes (2006), can negatively affect such individuals’ ability to integrate environmental stimuli into a coherent whole.

According to Knott and Dunlop (2007), without a good GIP style, individuals with autism find it difficult to see connections and generalise from one area to another. This challenge occurs, according to Fillippello, Marino and Oliva (2013:3), because autism individuals process information “... piece by piece, and the information thus obtained is isolated and fragmented”. By ASD learners only focussing on one specific detail, they can display behaviours of “... an insistence of sameness of routine, difficulty with categorising and generalising information across environments or audiences” (Brooks, 2016:9).

Lawson (2011); Brown and Bebko (2012); Boyd, Mcdonough and Bodfish (2012), Fillippello et al. (2013) and Kimhi (2014) identified that WCC and GIP both influence the behavioural responses and social adaptation of learners on the autism spectrum. Their research has indicated that these learners may: not understand what comes next, not be able to complete a sequence of events (Brown & Bebko, 2012; Kimhi, 2014), not see others’ points of view (Lawson, 2011), and not adhere to new routines and changes (Fillippello et al., 2013).

The DSM-V's (2013: 50) criteria for ASD include a fuller description of these WCC and GIP challenges: "... insistence on sameness, inflexible adherence to routines, or ritualised patterns of verbal or non-verbal behaviour ... highly restricted, fixated interests that are abnormal in intensity or focus". During an investigation into global and local processing in learners with autism, Koldewyn et al. (2013:09) agree that if given a choice, these learners were "... less likely to report global information than their typical developed peers". They argue, however, that when explicitly instructed to report global information, they performed similarly to children that were not on the autism spectrum. Since WCC and GIP do not explain all aspects of ASD, Syriopoulou Deli, Varveris and Geronta (2016: 114), suggest that individuals with ASD should be considered as a "heterogeneous group with varying strengths and weakness" since all theories related to them can help "delineate a general profile" and assist in a better understanding of the main challenges that they face daily.

#### 2.4.2 Theory of Mind (ToM) and Social Imagination (SIM)

The following discussions focus on Theory of Mind (ToM) and Social Imagination (SIM) as associated with individuals with ASD. Four sections will be included in this discussion. First, the origin of the concept ToM is explained and discussed in relation to individuals on the autism spectrum. Second, the term SIM is defined and discussed. Third, the two concepts are viewed in relation to how they manifest in ASD learners. Finally, the social skills that are juxtaposed with the impaired ToM and SIM in ASD learners, are individually discussed. These social skills include: pragmatic and reciprocal conversational skills, honesty and deception skills, contextual understanding and abstract reasoning skills, as well as social problem solving and conflict resolution skills.

The concept of Theory of Mind (ToM) was defined by Premack and Woodruff (1978:515). They theorised that "... an individual has theory of mind if he imputes mental states to himself and others". This definition became the most accepted and commonly used phrase to describe ToM in individuals with autism in the area of developmental psychology (Baron-Cohen et al., 1985; Frith & Happé, 1994; Korkmaz, 2011). In a study conducted by Baron-Cohen et al. (1985:38), young children with autism are shown to experience

ToM because they are "...unable to impute beliefs to others and predict their behaviour, and find their immediate social environment unpredictable and incomprehensible". Leslie and Frith (1988) and Baron-Cohen (1991) state that young children with autism can experience difficulty understanding certain knowledge, intention and complex emotions. These challenges are often experienced by AS learners in an inclusive mainstream learning environment (Gillberg, 2002; Attwood, 2007).

Wing and Gould (1979) first introduced the concept of Social Imagination (SIM) as one of three basic impairments associated with autism. The set of basic impairments (social communication, social imagination and social interaction) became known as the basic "triad of impairments" in young children with autism (Wing & Gould, 1979:20). Wing and Gould describe Social Imagination (SIM), as "... the capacity to think about and predict the consequences of one's actions for oneself and other people" (Wing & Gould, 1979: 21). According to Wing, Gould and Gillberg (2011:769), having SIM is significant, and having a challenge with SIM must be seen as one of the "disabling" character traits of ASD. They stress that impaired social imagination "... should not have been ignored by the designers of the DSM-IV or the DSM-V. DSM-V instead introduced repetitive behaviour patterns, not the impaired social imagination, as the last leg of the triad". Wing et al. (2011), however, make it evident that although ASD learners have imagination, it is not necessarily social: these learners find it difficult to imagine other people's perspectives and show empathy (imagining how other people might be feeling). A caveat may be that being challenged in terms of social imagination does not necessarily mean they lack imagination. Many renowned individuals that showed AS/HFA character traits have become accomplished artists, musicians, mathematicians, writers and computer technologists, by using their uniquely intense imaginative and creative powers: for example, Vincent van Gogh - artist; Wolfgang Mozart - music composer; Albert Einstein - mathematician; Jane Austen - novelist and Bill Gates - Microsoft software.

Research confirms that having ToM and SIM challenges does not concern only the ability to recognise and understand thoughts, beliefs, desires and intentions of others (that can be different to our own), but to make sense of others' behaviour, and predict what they are likely to do next (Attwood, 2007; Korkmaz, 2011). When, for example, an AS/HFA

learner engages socially in a learning environment “... how they interpret the results of their own behaviour informs and alters their environment, and the personal factors they possess which, in turn, informs and alters subsequent behaviours” (Pajares, 2002:1). Some of the social skills challenges that can be experienced by ASD learners include: pragmatic and reciprocal conversational skills (Vicker, 2009), honesty and deception skills (Li, Kelley, Evans, & Lee, 2011) contextual understanding and abstract reasoning skills (Kimhi, 2011) and social problem solving and conflict resolution skills (Bonete, Molinero, Mata, Calero & Gómez-Pérez, 2016). According to Adibsereskhi, Nesayan, Gadomani and Karmilou (2015) these social skill challenges can be linked to impaired ToM and SIM in children with AS/HFA. These scholars argue that even though AS/HFA learners show relatively ‘normal’ levels of intellect and language skills, impaired ToM and SIM may influence their learning at school (Adibsereshki et al., 2015). How these social skills challenges can influence ToM and SIM is discussed at this point.

#### 2.4.2.1 Pragmatic and reciprocal conversational skills

Kimhi (2014:334) states that “... pragmatic functioning” is crucial in facilitating appropriate reciprocity skills. Previous studies confirm that AS/HFA learners experience challenges with pragmatic functioning and appropriate conversational skills (Dennis, Lazenby & Lockyer, 2001; Loukusa, Leinonen, Jussila, Mattila, Ryder, Ebeling & Moilanen, 2007). As included in the DSM-V (2013:50) criteria for ASD, these challenges can occur upon the basis of “... deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation...” Appropriate social communication with teacher and peers is an important social development skill that AS/HFA learners need in an inclusive learning environment. In a recent study which investigated young learners and adults with ASD and their pragmatic language impairments, Volden (2017:59) states that these individuals are likely to display challenges in “... the development of communicative speech acts, the management of conversations, and the ability to adjust their language to meet the needs of listeners and situations”. She mentions, however, that no single group of skills or impairments can be considered pre-dominant among individuals with ASD.



#### 2.4.2.2 Honesty and deception skills

An important social cognitive milestone, according to Kimhi (2014:335) is "... the ability to deceive and lie actively, as distinct from the ability to recognise lies". When an individual deceives or lies, s/he intentionally instils a false belief in another individual's mind so that the ability to lie is considered an important manifestation of ToM (Kimhi, 2014; Li et al., 2011). According to Attwood (2007:117), AS learners are often regarded as "being remarkably honest", and do not know when it is more socially deft to tell a "white lie" rather than make a comment that is true but which is likely to cause offence. Research confirms that young learners on the autism spectrum find it difficult to engage in lying, deceiving and manipulating (Baron-Cohen, 1992; Sodian & Frith, 1992; Li et al., 2011; Talwar, Zwaigenbaum, Goulden, Manji, Loomes & Rasmussen, 2012).

#### 2.4.2.3 Contextual understanding and abstract reasoning skills

Korkmaz (2011:101) states that: "... precursors of ToM development include forms of non-verbal communication and gnostic functions..." which comprise a thinking ability that allows a person to grasp others' views on a topic or situation (Blair, 2008). Abstract reasoning skills such as "... recognising sarcasm and lying ..., rely on implicit ToM abilities" (Kimhi, 2011:340). AS learners experience ToM and SIM challenges and have "... significant difficulty developing peer relationships and are developmentally delayed in knowing what someone may be thinking, feeling, or conversing" (Moreno, Wheeler & Parkinson, 2012).

#### 2.4.2.4 Social problem-solving and conflict resolution skills

The term 'problem-solving' refers to the skill of "... using available information to identify and design solutions to problems" (Agran, Blanchard, Wehmeyer & Hughes, 2002:279). The concept of 'social problem solving' is used, however, when emphasising the solving of problems in a natural social environment (D'Zurilla & Nezu, 1999). Social problem-solving skills are essential for success at school and are central when engaging and participating within a school environment. When referring to conflict resolution skills, it is the process by which two people engage in a disagreement, dispute or debate, or find an appropriate agreement in solving the problem (Grimsley, 2017). Young learners with ASD

often lack conflict resolution skills because they have "... difficulties with deciphering the ambiguity of social problems and evaluating options for a course of action" (Weiss, 2013:44). This shortcoming may result in the learner failing to appreciate the range of options and/or responding impulsively when faced with a problem (Weiss, 2013). It is important for teachers to assist these AS/HFA learners to develop problem-solving and conflict resolutions skills, since "... insight into thoughts and abilities of other people to help, is not automatic" for these learners (Attwood, 2007:119). According to Attwood (2007), these AS or high functioning autism learners may resort to being confrontational, reluctant to change a decision or admit to making a mistake. These difficulties in appropriate social behavioural responses that AS/HFA learners often demonstrate (Bauminger-Zviely, 2013), can be linked to ToM and SIM challenges that they experience in their learning environment.

#### 2.4.3 Sensory Processing (SP) and Social Communication (SC)

The following discussion focusses on the Sensory Processing (SP) and Social Communication (SC) challenges experienced by individuals with ASD. There are four sections. First, it is necessary to provide a brief historical background: when Hans Asperger (1944) first identified the concept of SP experienced by young children he observed. Second, the origin of the concept SC is provided: as originally introduced by Wing and Gould (1979); one of three triads of impairments experienced by individuals with ASD. Third, these two concepts are explained individually. Fourth, the two concepts are linked; with the focus upon behavioural responses and social adaptation.

Historically, Asperger (1944), used the term "sensory sensitivities" to describe young children that he observed:

Over sensitivity and blatant insensitivity clash with each other... In the sense of taste we find almost invariably very pronounced likes and dislikes . . . ., abnormally strong dislike of particular tactile sensations. They cannot tolerate the roughness of a new shirt, or of mended socks... There is hypersensitivity too against noise. Yet the same children who are often distinctly hypersensitive to noise in particular situations in other situations may appear to be hyposensitive. They may appear to be switched off even to loud noises. (Translated by Frith, 1991:80).

Since this description by Asperger (1944), there has been compelling evidence that challenges in both over (hyper) and under (hypo) SP responses have been reported, and described in young learners and adolescents with ASD (Wing 1998; Dunn, Smith-Myles & Orr, 2002; Harrison & Hare, 2004; Rogers & Ozonoff, 2005). One of these studies by Wing (1998:13) affirms that SP challenges can be experienced through "... hypersensitivity, when a stimulus feels too intense", and "... hypo-sensitivity when young children with AS under-respond to stimuli". Lane et al. (2010:112) associated hypersensitivity responses such as "... covering ears to loud, unexpected sounds; restricted food preferences" and sensory hypo-sensitivity responses with "... failure to orient to name or react to pain or sensory seeking by e.g. rocking, hand flapping and noise making".

Social Communication (SC) was first introduced by Wing and Gould (1979:20) as one of three "triad of impairments" associated with individuals on the autism spectrum. Subsequently the basic triad of challenges underlying autism was incorporated into the DSM-1V (1994/2000) as: impaired social interaction, impaired social communication and restricted behaviour patterns. In the most recent DSM-V (2013:50), SC is included as one of the main criteria for ASD: "persistent deficits in social communication... across multiple contexts". One of the sub-criteria for impairment in SC comprises deficits in verbal and non-verbal behaviours used when socially communicating within an environment (DSM-V, 2013).

Ayres (1972:11) defines Sensory Integration, referred to as Sensory Processing (SP), as "... the neurological process that organises sensation from one's own body, and from the environment. SP makes it possible to use the body effectively within the environment". She states that it is an unconscious process and "... the brain must organise all our sensations if a person is to move and learn and behave in a productive manner" (Ayres, 2005:5). According to Ayres (1979), when SP becomes a deficit, it is termed a Sensory Processing Disorder (SPD). Ayres mentions that young patients experience SPD when sensory signals are not organised into appropriate responses; due to irregularity in the brain function. Having SPD makes it difficult to process sensory input into appropriate responses. For the purpose of this study, the term 'Sensory Processing' (SP) is employed

because this is the term used in the DSM-V (2013) to describe these behaviours. Subsequent studies note that there are significant differences between learners on the autism spectrum, and their peers who develop on a more standard or 'normal' trajectory; especially regarding the ways in which individuals on the autism spectrum process and respond to sensory experiences (Tomchek & Dunn, 2007; Minshew & Hobson, 2008; Baker, Lane, Angley & Young, 2008).

Timler, Vogler-Elias and McGill (2007:168) state "... social communication (SC) skills are the verbal and non-verbal behaviours people use to influence social situations". Since young AS/HFA learners are known to experience SC challenges, Paul (2008:835) stresses that "... a review of programs aimed at language development in high functioning children with ASD points out the importance of thinking beyond words and sentences to the social functions of communication and language use when developing interventions". SC challenges constitute some of the chief impairments in AS/HFA learners and are described in the DSM-V, (2013:50) as challenges which range from "... poorly integrated verbal and non-verbal communication through abnormalities in eye contact and body-language, or deficits in understanding and use of nonverbal communication..." Appropriate SC behaviours may be regarded as an important skill needed for ASD learners to engage verbally and non-verbally in their learning environment (Attwood, 2007; Vicker, 2009). The following discussion focuses upon the relation between SP and SC and the influence these two concepts can exert on behavioural responses and social adaptation of learners with ASD.

Research (Hume, 2008; Paul, 2008; Vicker, 2009) has shown that SP and SC together can influence behavioural responses and social adaptation of individuals with ASD in the following manner: an inability to adjust to change of setting (Hume, 2008); an inappropriate social non-verbal and verbal communication (Paul, 2008); and an inability to express personal thoughts in a socially acceptable manner (Vicker, 2009). These connections between SP and SC challenges experienced by young ASD learners, comprise some of the main underlying factors that can influence behavioural and social adaptation (Schoen, Miller, Brett-Green & Nielsen, 2009; Reynolds, Bendixen, Lawrence & Lane, 2011; Case-Smith, Weaver & Fristad, 2014).

To link SP and SC challenges with behavioural responses and social adaptation, this paragraph explains how these two concepts (SP and SC) are experienced in the learning environment. This research project established that DSM-V (2013) included SP challenges as one of the criteria of ASD. Behavioural responses due to SP challenges are described in the DSM-V (2013:50), as: "... hyper - or hypo-reactive to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement)" (DSM-V, 2013:50). Studies conducted among learners on the autism spectrum, confirm that these learners find it difficult to regulate their non-verbal and verbal behavioural responses during social interactions in their learning environment (Tomchek & Dunn, 2007; Minshew & Hobson, 2008; Lane et al., 2010; Marco, Hinkley, Hill & Nagarajan, 2011; Pheiffer, Koenig, Kinnealey, Sheppard & Henderson, 2011). Leekam (2015) argues that different types of sensory processing (social and emotional) and different types of social communication (verbal and nonverbal) interact with, and can influence, behavioural responses as well as cognitive understanding.

Behrmann and Minshew (2015:55) agree that SP in autism has widespread associations: with cognitive functioning and "... emotional and social aspects of functioning, and even with digestive symptoms..." Behrmann and Minshew (2015) state that these SP and SC challenges affect day-to-day behavioural responses and social adaptation of individuals as well as their teachers and peers who form part of their inclusive mainstream environment. Dickinson and Place (2016) agree that SP and SC influence the ability of young ASD learners to engage cognitively and socially within their own learning environment. One of the chief reasons for sensory processing challenges, and for learners with autism and AS/HFA not communicating and responding in the way expected of them, is that such learners have "... different responses to perception and communication" compared with their peers (Bogdashina, 2016; Casanova, 2016). According to Di Renzo, Bianchi di Castelbianco, Vanadia, Petrillo, Racinaro and Rea (2017:8), "... despite the recent recognition of sensory symptoms ... as specific criteria of ASD, this challenge [SP] has received less research attention than the social

communicative features of the disorder”. Since both SP and SC have “... significant relationships with the overall adaptive behaviour and impact on social participation in daily life” (Di Renzo et al., 2017:8), further studies are encouraged. Conducting further research may aid in a better understanding of the relations between SP and SC and their influences on the behavioural responses and social adaptation challenges associated with ASD learners (Di Renzo et al., 2017).

#### 2.4.4 Executive Function (EF) and Social Interaction (SI)

The following discussion examines Executive Function (EF) and Social Interaction (SI) challenges experienced by individuals with ASD, and the influence these two concepts may exert upon their behavioural responses and social adaptation. The discussions include four sections. First, the term EF is defined and discussed in relation to ASD learners. Second, the term SI is explained and discussed as one of the three elements in the triad of impairments linked to ASD. Third, the two concepts are viewed in relation to how they manifest in learners on the autism spectrum. Finally, the social challenges that are associated with impaired EF and SI among these learners are individually discussed. They include: lack of Response Inhibition (RI) lack of Emotional Control (EC) and inappropriate Behavioural Responses (BR). These three EF skills form part of EF subdomains which focus on behavioural adaptation (Dawson & Gaure, 2012). Selection of these specific EF skills does not suggest that the range of other EF concepts [such as task initiation, goal-directed persistence and sustained attention, and flexibility of thinking skills] is of lesser value: the three skills selected here happen to be particularly relevant to the research focus and methodology of this investigation.

The term EF emanates from the discourse of neuroscience and refers to brain-based skills that are required for humans to perform a task or interact appropriately (Dawson & Guare, 2012). Miyake and Friedman (2012:8) agree with Dawson and Guare (2012) and elaborate that EF “... comprises of a set of cognitive control processes, which regulates lower level processes (e.g. perception and motor responses), and it [EF] thereby enables self-regulation and self-directed behaviours towards goals”. These EF cognitive control

processes develop gradually and change across the lifespan of an individual (Diamond, 2013).

In relation to EF and autism, Hill (2004:3) originally stated that EF "... is an umbrella term for functions such as planning, working memory, impulse control, inhibition ..." Hill 2004, posits that EF dysfunctions underlie many of the key character traits associated with autism; both in the social and non-social domains. Since ASD learners exhibit EF challenges, Wertz (2012) argues that for these young learners to function and progress at school, social interaction and social communication skills are needed. After Hill's original definition of EF, Dawson and Gaure (2009, 2012) divided these skills into two dimensions which include cognitive and behaviour skills. This study focuses upon the challenges posed by the influence of EF behavioural sub-domains: Response Inhibition (RI), Emotional Control (EC) and inappropriate Behavioural Response (BR).

Social Interaction (SI) denotes communication between individuals within a social setting. Communication is characterised "... as a process of social interaction...", and "... has the function of creating and maintaining understanding between individuals" (Guerreiro & Serrazina, 2009:1745). Guerreiro and Serranzina (2009) explain that, within a school environment, teachers view education as an interactive and reflective process. Teachers should be engaged in differentiated activities, while continually being involved in socially interacting with their learners; to form meaning through communication (Guerreiro & Serrazina, 2009).

Herold (2013) reports that in the current DSM-V (2013), the ASD Criterion A focuses on Social Communication (SC) and Social Interaction (SI) which are regarded as inseparable and considered to be a single set of behaviours with contextual and environmental specificities. In an earlier paper, Wing et al. (2011:168) explain that impairment of Social Interaction (SI) is part of the triad of impairments among individuals with ASD and refers to "... the marked reduction of non-verbal signs of interest in, and pleasure from being with another person, making eye-contact, initiating and responding to smiling, initiating and responding to affectionate physical contact such as hugging or greeting...". For ASD learners, responding to and processing such social interaction and emotional

demonstrativeness pose a challenge that is consistent with other character traits already identified (DSM-V, 2013). Although the DSM-V (2013:50) states that "... difficulties [range from] "... sharing imaginative play or in making friends to absence of interest in peers", Attwood (2007:55) argues that solitude for the young learner with AS is not always experienced as emotional deprivation. In solitude, even when there is no-one else to talk to, these learners easily lose themselves in their own worlds; enjoying themselves without anyone judging whether the activity is abnormal, either in 'intensity' or 'focus'. Young AS/HFA learners are not in all cases anxious about being isolated from their peers: this apparent indifference does not indicate that they do not want to have friends or interact with their peers. In many cases children with autism simply lack the ability to form bonds of friendship (Cumine et al., 2010). Aspy and Grossman (2012:8), however, stress that "...differences in social function and social perception distinguish high functioning individuals with autism from other disorders which share communication differences and repetitive behaviours".

Birtwell et al. (2016) concur with the DSM-V (2013:50) document (ASD, Sub-Criterion A-3) where it mentions "... difficulties adjusting behaviour to suit various social contexts." Birtwell et al. (2016:22) state that "... in addition to social and cognitive impairments among children and adolescents with ASD, these individuals commonly present with co-occurring behavioural difficulties...". Earlier, Greenstone (2011:100) acknowledged these social behavioural difficulties and stressed that Executive Function (EF) and Social Interaction (SI) processes are "...critical for goal-directed behaviours, social behaviours, and emotional well-being". Out of concern for the social behavioural difficulties experienced by learners in inclusive classrooms researchers have suggested that inclusive learning environments should address all learners' social behavioural challenges (Mastropieri & Scruggs, 2010; Schwab, Gebhardt, Krammer, & Gasteiger-Klicpera, 2014). This concern to address social behavioural difficulties in ASD learners in mainstream classrooms, is mentioned by Humphrey (2008) and Mazurik-Charles, & Stefanou (2010). The following section discusses the importance of acquiring Executive Function (EF) skills of Response Inhibition (RI), Emotional Control (EC) and appropriate Behavioural Response (BR) for healthy social interaction and behaviours.



#### 2.4.4.1 Response Inhibition (RI)

Response Inhibition (RI), according to Dawson and Gaure (2014:428) may be defined as: “The capacity to think before you act”. They describe the process of RI as “... the ability to resist the urge to say or do something that gives us time to evaluate the situation and think of how our behaviour might impact it”. Greenstone (2011:104), state that lacking RI can influence a learner’s behavioural adaptation through displaying behaviours of “... impulsivity, difficulty staying in line... and ... interrupting others or calling out in class”. According to Yigal et al. (2010), individuals with ASD consistently display RI which exhibits itself through context-inappropriate behaviours. RI challenges can influence the behavioural adaptation in the classroom in numerous ways which may include: “... not being able to walk away from confrontation or provocation by a peer, not being able to resist a fun activity despite a change of plan, and not being able to resist saying hurtful things within a group situation” (De Jager & Condy, 2017:3).

#### 2.4.4.2 Emotional Control (EC)

Eisenberg, Hofer and Vaughan (2007:288) declare that Emotional Control (EC) is generally referred to as emotional-related regulation. Eisenberg et al. (2007) define the EC skill in regular learners as a “... process used to manage and change if, when, and how (e.g., how intensely) one experiences emotions and emotion-related motivational and physiological states, as well as how emotions are expressed behaviourally”. Similarly, and more recently, Dawson and Gaure (2014:428) describe EC as: “The ability to manage emotions to achieve goals, complete tasks, or control and direct behaviour.”

The DSM-V (2013:50) does not have an official criterion for defining EC (Samson, Hardan, Podell, Phillips & Gross, 2014). The document, however, uses the phrase “... deficits in social-emotional reciprocity.” Attwood (2007:130) mentions that clinical experience indicates that AS learners experience “... a tendency to react to emotional cues without thinking, and that ... the emotional maturity of AS is at least three years behind that of their peers” (Attwood, 2007:170). Lately, Greenstone (2011:105) states that EC is manifested through “... sudden/frequent mood changes, being emotionally reactive and showing periods of excessive emotional upset”. Mazefsky, Herrington, Siegel Scarpa,

Maddox, Scahill and White (2013) suggest that more research is needed to identify the underlying causes of EC in youth with ASD.

#### 2.4.4.3 Behavioural Responses (BR)

Behaviour is defined as "... the way in which one acts or conducts oneself, especially towards others" (Oxford Dictionary, 2017). With regard to inappropriate Behavioural Response (BR) and individuals with ASD, DSM-V (2013:50) criteria include "... deficits in social-emotional reciprocity" and "... deficits in non-verbal communicative behaviours used in social interactions." These inappropriate BR challenges among AS learners are affirmed by Attwood (2007:234), when he mentions that these learners are "... notorious for being impulsive, and respond without thinking of context, consequences and previous experiences". Other researchers have identified that individuals on the autism spectrum often experience different patterns of behaviours; they all agree that these individuals lack the skill of appropriate behavioural responses (Lopez, Lincoln, Ozonoff, & Lai, 2005; Birtwell, 2016, De Jager & Condy, 2017). In conclusion, teachers may be informed of the importance of acquiring EF and SI skills (which include RI, EC and inappropriate BR challenges) experienced by learners, but they may be overlooking the impact that a lack of these skills has upon both academic and behavioural issues (Greenstone, 2011). The next sub-heading discusses research into identification, support and interventions available for teachers of learners with ASD or AS/HFA in an inclusive school environment.

## **2.5 IDENTIFICATION, INTERVENTION AND SUPPORT FOR LEARNERS DIAGNOSED WITH ASD [which includes both AS and HFA]**

Attwood (2007:258) posits that teachers who are empathetic in understanding AS learners in their class show flexibility "... in their teaching strategies, assessment and expectations". Teachers need to create a teaching environment that is rich with opportunities for ASD learners to function optimally; while being mindful of these learners' character traits of "... core impairments in social communication and restricted and respective behaviours, with high rates of co-occurring emotional and behavioural problems" (Medeiro, Mazurek & Kanne, 2017:24).

To understand and assist with social participation in learners with ASD more fully, teachers need the assistance of a professional collaborative team to provide them guidance and support (Potvin, Prelock & Snider, 2008). Collaborative teaching is defined by Villa, Thousand and Nevin, (2008:5) as: "...two or more people sharing responsibility for educating student/s in a classroom." This professional collaborative team could show their support in the form of a "... consultative and co-teaching role" (Giangreco, 2013:7). Educational psychologists are becoming increasingly more involved in assisting teachers by taking on consultative roles and guiding teachers in the implementation of secure structures and routines (Forlin, 2010). Co-teaching is another didactic strategy which may support teachers; ensuring that AS/HFA learners reach their full potential. Co-teaching is a support method for teachers in their classrooms: "... an instructional approach used to help ensure that students with disabilities have access to the general curriculum" (Shamberger, Williamson-Henriques, Moffett & Brownlee-Williams, 2014:1). Co-teaching may include special educators (LSEN teachers), and/or other related professionals and facilitators who "... jointly ... can deliver instruction in one heterogeneous classroom using their combined expertise" (Shamberger et al., 2014:3).

Four aspects are now discussed which describe the assistance that teachers can offer to such learners in their classes: implementation of secure and structured routines and procedures; assisting with social reciprocity; showing understanding and assisting with sensory adaptation, and assisting with development of social and emotional behaviour-regulation.

### 2.5.1 Implementation of secure and structured routines and procedures to assist with transitional change

Researchers who examine how teachers implement secure and structured routines and procedures in an inclusive mainstream school environment to assist learners with managing transitional changes, report on the following key aspects. Bridges (2009:3) states that change and transition are different processes. Change is "... situational: the move to a new site... and transition is psychological: it is a three-phase process that individuals go through as they internalise and come to terms with the details of the new situation that the change brings about". As one of the criteria for ASD in the DSM-V, B-2

(2013:50), is: “Insistence on sameness, and inflexible adherence to routines ...” it is understandable that in an inclusive mainstream environment, AS/HFA learners may struggle with transitional changes in routines and procedures. These may occur on a regular basis during a school day. For these learners to transition and manage a new change successfully, they need to “... internalize and come to terms with the details of the new situation that the change brings about” (Bridges, 2009:3). An earlier study by Radunovich and Kockert (2008:2) mentions that young children on the autism spectrum display frustration and disruptive behaviour if “... transition occurs without preparation and proper support”. Teachers who show support, and assist learners with ASD manage transitional changes will, according to Hume, Sreckovic, Snyder and Carnahan (2014), reduce the time it takes to transition for one situation to the next. This support from teachers “... increases the possibility of appropriate behaviour occurring during transition, facilitate less reliance on adult prompting, and encourage successful participation in school...” (Hume et al., 2014:35). All of which may be beneficial to these ASD learners during transitional changes.

Hume (2006:1) mentioned that “... preparing students for the possibility of change, as well as the procedures that will be followed when change occurs, are vital tools in increasing successful transitions”. Unexpected changes, according to Burner (2013), can be extremely stressful for young learners with autism. It is essential for teachers to predict and prepare these learners for the upcoming changes in their routines, wherever possible (Burner, 2013). Implementation of secure and structured procedures can be achieved by providing a well-structured environment that is transparent and consistent in routines and procedures (Aguirre et al., 2014). These suggestions allow ASD learners to feel more secure (Carnahan, Hume, Clarke & Borders, 2009), while teachers regularly “... convey instructions, meaning, routine schedules and expectations” (Aguirre et al., 2014:225). Providing visual support is another way by which teachers can assist AS/HFA learners in their classrooms. By visually making the written daily routine available to learners on the autism spectrum can assist them sustain “... structure, routine and sequence” in their daily routine (Roa & Gagie, 2006:27).

### 2.5.2 Assisting with appropriate social reciprocity skills during confusion and/or misunderstandings

The DSM-V (2013:50) shows “Deficits in social-emotional reciprocity” to be one of the criteria for ASD. Individuals with ASD often lack appropriate reciprocity communication skills (Wing et al., 2011; Locke Ishijima & Kasari, 2010; Sanrattana, Maneerat & Srevisate, 2014), when they show inappropriate back-and-forth conversation during social interactions.

Koegel, Singh and Koegel (2010:1055) have demonstrated that “... targeted interventions can result in more sustained and meaningful social conversational exchanges in children with ASD”. McCarthy (2010:1) states that “... using positive reinforcement is generally seen as more effective than punishing a child for bad behaviour, as it has the added effect of improving confidence and self-esteem”. Positive reinforcement to encourage appropriate reciprocal communication should not be seen as a form of bribery, with incentives promised for good behaviour but as “... reinforcement techniques that encourage good behaviour as the most natural course of action” (McCarthy, 2010:1). In a classroom, the teacher can use positive reinforcement either as a reward for good behaviour or as a positive communication in the form of praise or encouragement. A different means of intervention that teachers may use to assist to improve social reciprocity in a more natural social context, is peer-mediated intervention (Fettig, 2013; Neitzel, 2008). Research (Morrison, Kamps Garcia & Parker, 2001 and McFadden, Kamps & Heitzman-Powell, 2014), has shown that using peer-mediated instruction increases positive social communication between learners with autism and their peers, and results in more frequent engagement and reciprocal interaction.

### 2.5.3 Understanding and assisting with sensory adaptation

Webster (2012:1) posits that a human beings sensory system is constantly adapting to correspond with the immediate environment and that “... these rapid sensitivity adjustments are known as adaptation”. It is documented that individuals with ASD display sensory traits that often have a negative effect on their behaviour and adaptation (Dunn, 1999, Tomchek & Dunn, 2007; DSM-V, 2013). AS/HFA learners need additional

understanding and support with sensory issues to function optimally in an inclusive mainstream school environment (Smith-Myles et al., 2005; De Jager & Condy, 2011).

It is important to note that a sensory processing disorder (SPD) is identified in learners with ASD and in many other learners. Adequate and appropriate behavioural response and adaptation is similar among all these learners with regard to sensory processing challenges. Learners with ASD, however, exhibit variations in sensory responsiveness (Woronko & Killoran, 2011:214). Woronko and Killoran stress that teachers need to acquaint themselves with these learner specific sensory needs because each learner "... presents their own unique set of responses, behaviours and needs". Case-Smith and Arbesman (2008) state that when teachers work in consultation with professionals such as psychologists and occupational therapists, they are more likely to understand and identify sensory responses of learners on the autism spectrum (Case-Smith & Arbesman, 2008). Teachers often are alerted to young children with ASD because such learners may experience severe difficulty with sensory responses; being hyper- or hypo-sensitive to visual, auditory, olfactory, gustatory, tactile, vestibular and proprioceptive stimuli.

There are a variety of techniques that can be used by teachers to assist AS/HFA learners when experiencing sensory processing challenges. In an inclusive mainstream school environment, the following teaching strategies have proven to be beneficial to all ASD learners: support given through change of environment to eliminate too many sensory distractions; pre-warning of exposure that may cause sensory overload, for example, allowing the learner to verbalise the sensory discomfort and being allowed to implement learnt skills to avoid sensory overload (Kranowitz, 2007; Koomar, Kranowitz, Szklut & Blazer-Martin, 2007; Bailer & Miller, 2011; Laurie, 2014; The National Autistic Society, [NAS], 2017).

#### 2.5.4 Understanding and assisting in development of social and emotional behaviour regulation skills

Behaviour regulation is referred to as "self-regulation" which is the process of appropriately responding in a socially acceptable manner to any given environment (Florez, 2011:47). Florez posits that "self-regulation" is a process whereby "... children

must translate what they experience into information that they can use to regulate thoughts, emotions, and behaviours” (Florez, 2011:47; Blair & Diamond, 2008). An earlier study, by Bachevalier and Loveland (2006:97) states that individuals with autism are impaired in “... self-regulation of social-emotional behaviour.” Similarly, Kana, Keller, Minschew and Just (2007:198), confirm an inability to inhibit social and emotional context-appropriate behaviour by individuals with HFA, claiming that behaviour regulation “... can lead to inappropriate non-verbal and verbal responses”. Teachers may make use of the strategy of positive reinforcement to assist AS/HFA learners: positive reinforcement can increase social and emotional context-appropriate behaviour which “... occurs when a behaviour is followed immediately by the presentation of a stimulus that increases the future frequency of the behaviour in similar conditions” (Cooper, Heron & Heward, 2014:13). Implementation of positive feedback allows a learner to continue with a preferred activity after successfully completing a non-preferred activity. Since ASD learners often focus on their own special interests, teachers may incorporate this interest to increase the learners’ motivation, social participation and behavioural regulation (Koegel et al., 2010; Mancil & Pearl 2008; Winter-Messier, Herr, Wood, Brooks, Gates Houston & Tingstad, 2007).

In the following section a theoretical perspective to learning theories is provided that leads to the introduction of Bandura’s Social Cognitive Theory (SCT), and Strampel and Oliver’s level of reflection and cognitive processing. Bandura’s theory was chosen as “... social and emotional well-being creates the foundations for healthy behaviours and educational attainment” (National Institute for Health and Care Excellence (NICE), 2013:14), and provides a framework of learning that takes into account the social environment, personal factors such as effect and cognition of the learners, and behaviour (Bandura, 1986). Strampel and Oliver’s levels of reflection and cognitive processing were employed as a critical lens to interpret selected examples of effective teaching practice dealt with at the start of chapter 8.

## **2.6 CONCEPTUAL FRAMEWORK: BANDURA'S SOCIAL COGNITIVE THEORY (SCT) AND STRAMPEL AND OLIVER'S LEVELS OF REFLECTION AND COGNITIVE PROCESSING**

### 2.6.1 Introduction to learning theories

Freeman (1997:646) comments that "... there is only one treatment that has passed the test of time and is effective for all children, autistic or normal, that is, structured educational programs geared to the person's developmental level of functioning". He acknowledges that all children have diverse educational needs and there is an obligation to continuously observe, identify, and research educational programmes; to assist teachers identify and meet all learners' diverse educational and personalised needs.

According to Ormrod (2016), to assist with the diverse educational needs of all learners, [which includes AS/HFA learners], educational researchers have moved towards viewing learning as an exploration of a learner's perception of learning, and the relation between learning contexts and academic achievement. Although there are many different views on learning, psychologists globally agree that "... they can best understand the nature of learning by studying it objectively and systematically through research" (Ormrod, 2016:21).

Entwistle and Smith (2002) began a trend for educational theorists to research multiple aspects of learning. These ranged from the neuro-physiological to processes of learning to a multifaceted array of social and psychological factors that can influence learners' motivation and persistence which may affect the learning environment in a positive way. To research multiple aspects of learning meant that one had to distinguish between target understanding and personal understanding. According to Entwistle and Smith (2002:332), "... target understanding derives in part from the formal requirements of the syllabus, but is interpreted from the teacher's own perspective. Personal understanding reflects how the student comes to see the topic presented by the teacher, influenced by the teachers' view, but also by the student's prior educational and personal history". Learning is thus seen as "... a long term change in mental presentation or associations as a result of experience, and social cognitive learning as how people learn through observing and imitating their behaviour or tailoring their behaviour based on different consequences."



(Ormrod: 2016:112). It is the means through which individuals acquire skills and knowledge as well as values, attitudes, behavioural and emotional reactions. Personal understandings are not formed from content knowledge alone but include beliefs and feelings about the educational context based on past and present experiences (Helyer, 2015).

Huitt and Dawson's (2011:5) study reveals that "... learners at the ages of middle childhood and adolescence support the notion that those social skills acquired in early education are related to social skills and academic performance throughout school-aged years". They state that developing social accomplishments enhances a learner's ability to succeed in school and has a positive influence upon their mental health. Because learning occurs in the classroom, academically and through continuous social interaction with the learning environment (Lampert, Graves & Ward, 2012:57), appropriate social interactions are important. Bandura's (1986) Social Cognitive Theory (SCT) was chosen, since AS/HFA learners are often assimilated into mainstream school environments. Dalton et al. (2012:2) state that "... these inclusive classrooms show that successful implementation of inclusion can lead to increased social involvement, personal well-being and higher levels of academic performance compared with segregated provision."

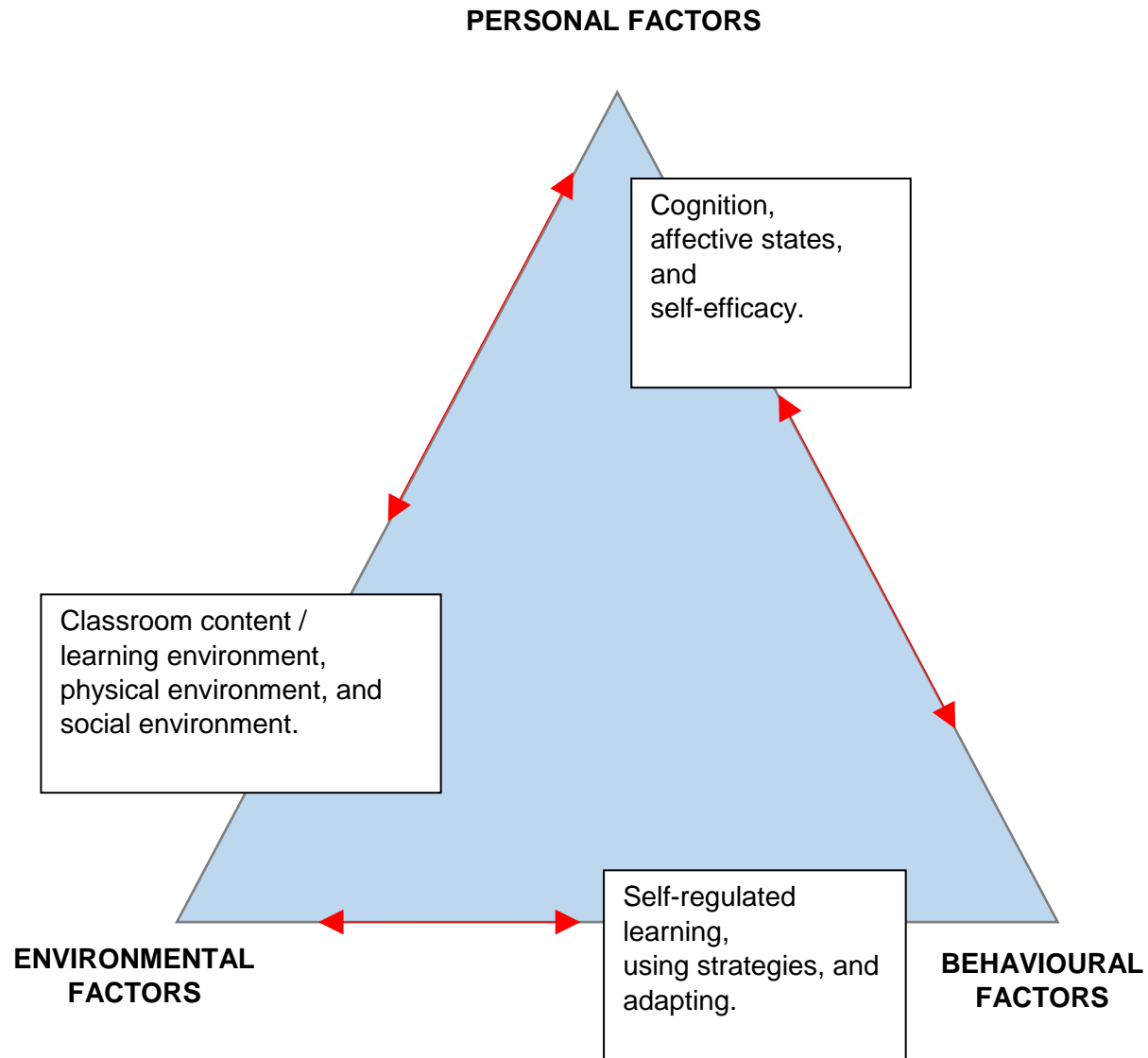
In the following section, SCT is discussed because this theory views learning within a social context: acknowledging the dynamic and reciprocal interaction between environment, personal and behavioural factors.

## 2.6.2 Social Cognitive Theory (SCT)

### 2.6.2.1 Introduction

Bandura's Social Cognitive Theory (SCT) was developed in 1986 and continues to remain one of the most appropriate, suitable and useful theories in which to work within inclusive mainstream schools. Wood and Bandura (1989:2) state that "... triadic reciprocal causation of human psychosocial functioning is where a person's (cognitions, biological factors), environment (social and perceived physical factors), and behavioural factors all operate as interacting determinants that influence each other bi-directionally" (Figure 2.3).

Triadic reciprocal causation is based upon the assumption that "... these personal, environmental and behavioural factors are influenced by enactive and observational learning from one's environment, personal motivation or self-efficacy, and the ability to self-regulate" (Bembenutty, White & DiBeneditto, 2016:217). Figure 2.3 presents an overview of the triadic model of SCT, and how it is reflected in a classroom context.



**Figure 2.3** Triadic reciprocal causation model of SCT (Adapted from Bembenutty et al., 2016)

The interactional links of the triadic reciprocal causation model between the three factors of influences as in a classroom context, are discussed in more detail.

The link between *personal* and *behaviour* of reciprocal causation reflects the interaction between thought, effect and action (Bandura, 1989:3).

The personal factor encompasses the biological properties of the individual. They include "... cognition, affective states and self-efficacy" (Bembenutty et al., 2016:218). Bandura (1986:25) relates the personal factor to how "... people think, believe and feel, can affect how they behave". He states that behavioural factors measure how "... their behaviours

are directed and shaped by expectations, self-perceptions, goals and intentions”. This measurement determines whether a learner is able to “self-regulate” his or her learning: something which will, in turn, determine their use of behavioural strategies and adaptation (Bembenutty et al., 2016:218). Self-efficacy by the learner is thus influenced by performance.

The link between *environment* and *personal* segment represent the interactive relationship between personal and environmental influences (Bandura: 1989:3).

As SCT offers “... a nice blend of behaviourist and cognitive ideas regarding how and what people learn by observing others, it theorises how people can gain control of their own behaviour by the acquiring of self-efficacy skills” (Ormrod, 2016:28). Self-efficacy refers to an individual’s belief in their capacity to execute behaviours necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997): such a capacity reflects confidence to exert control over motivation, behaviour and social environment (Bandura: 1977).

Bandura (1989:3) stresses that social and personal reactions can affect learners’ “... conception of themselves and others in ways that either strengthen or alter the environmental beliefs”. Social influences in the environment convey information and activate emotional reaction through modelling, instruction and social persuasion (Bandura, 1986). Self-efficacy is influenced by observing peers and teachers in the learning environment (Bembenutty et al., 2016). Through these social influences, which include classroom context and learning environments, the learner’s personal expectations, beliefs, emotional behaviours and cognitive competencies are developed and modified.

The link between *behavioural* and *environmental* segment represents the two-way influence between behaviour and the environment (Bandura, 1989:4).

Bandura (1989:5) stresses that environmental influences partly determine which forms of behaviours are developed and activated. He states that in the transactions of everyday life, “... behaviour alters environmental conditions and is, in turn, altered by the very conditions it creates” (Bandura, 1989:4). The environment only starts to operate as an influence when activated by appropriate behaviour; for example: “... a hot item does not

burn a person, unless it is touched”, or teachers do not influence learners unless they attend their classes (Bandura, 1989:4). How individuals behave activates a potential environment to become an actual environment of cause and effect. Individuals become both products and producers of their own environment, because of the bi-directionality of influences between behaviour and environmental circumstances.

#### 2.6.2.2 Definitions of cognitive processes of SCT and how they are experienced in a learning environment

Bandura (2001) mentions that cognitive processes (self-efficacy, self-observation, self-evaluation and self-reaction) assist with functioning and learning new skills and behaviours in an SCT learning environment. These processes are closely interrelated and each one has an effect upon motivation and goal attainment (Redmond, 2010; Denler, Wolters & Benzon, 2014).

The following section is twofold. First, cognitive processes such as self-efficacy, self-observation, self-evaluation and self-reaction are defined according to theorists. Second, within each of these cognitive processes described below, a discussion is of how these cognitive process skills can relate to learners with ASD in a learning environment.

- Self-efficacy

Self-efficacy is an individual’s belief in his/her own capacity to execute the behaviour necessary to produce specific performance attainments (Bandura, 1997). It is the self-belief of individuals that they have mastered a particular skill or task; which will make them more motivated to learn by paying better attention and becoming more involved in the learning process (Bandura, 1993).

It is important for teachers in inclusive government mainstream and private school environments to develop an understanding of the nature of AS/HFA learners and the reasons why they interact with, and behave in their environment in the way they do. Cumine et al. (2010:65) state that social anxiety and confusion, difficulty with appropriate communication, lack of a healthy sense of self, sensory difficulties, lack of self-help skills, are all sources of behavioural difficulties among young learners with autism. High levels

of self-efficacy have been the reason for learners making healthier choices, being persistent in completing a task and showing willingness to use more effective strategies (Bandura, 1993; Cumine et al., 2010).

- Self-observational learning

Self-observation is the cognitive process by which individuals observe and monitor their own desire to work towards their goals (Redmond, 2010). This self-observation cognitive process is used to assess progress towards goal attainment as well as to motivate behavioural changes (Redmond, 2010). Because all the components are interrelated (Wood & Bandura, 1989), self-observation alone is insufficient as motivation and depends on an individual's expectations of outcomes and efficacy (Zimmerman & Schunk, 2011).

According to Taylor and DeQuinzio (2012:344) "... social norms that we adhere to and we follow are based on observed responses of others". When entering a new social situation one customarily looks around and observes what others are doing, and imitates behaviour to 'fit in' (Taylor & DeQuinzio, 2012). This social sensitivity could be especially challenging when having AS/HFA learners in an inclusive school environment. Skills such as 'attending', and 'imitating of observed responses in a social environment', which are associated with observational learning, are often lacking in learners on the autism spectrum (Patten & Watson, 2011; DSM-V, 2013). Since teachers play the role of a 'model' in a child's learning acquisition, Bandura (1997) and Denler et al., (2014:22) stress that teachers should be "... dedicated to the building of high self-sufficiency levels among learners by modelling the behaviours and cognitive processes they want those learners to learn."

- Self-evaluation

Self-evaluation is a cognitive process by which individuals compare their performance to the desired need to achieve a goal, as well as to be motivated towards change of behaviour (Bandura, 1991; Redmond, 2010). This process compares an individual's current performance with a desire and motivation to perform or to achieve a goal. Performing and achieving a goal is affected by the standards set and the value and importance that an individual places on achieving this goal (Bandura, 1989). When

individuals achieve a valued goal, they are more likely to continue to exert a high level of effort, since sub-standard performance will no longer provide satisfaction (Bandura, 1989).

According to Carr et al. (2014), goal-setting skills can be learned over time, but are perceived as a challenge for individuals on the autism spectrum. They argue that it is possible that these individuals are not always given the opportunity to acquire the necessary skills to set and attain goals or the opportunity to practise them. The ability to independently set challenging, attainable and appropriate goals is a crucial skill needed by these individuals with autism. The development of goal setting skills, according to Carr et al. (2014:226), may contribute to "... improve awareness, task performance, fulfilment and independent functioning". Teachers need to give instructions that will assist AS/HFA learners to see what outcome the expectations of a particular behaviour will lead to, and whether the repetition of a particular behaviour is rewarded or criticised. When having AS/HFA learners in their class they should provide short and concise instructions that can help these learners form their own realistic and effective goals. According to Carr et al. (2014), these instructions lead to improved awareness, task performance, fulfilment and independent functioning in individuals on the autism spectrum.

- Self-reaction

Self-reaction is the cognitive process which individuals go through: they modify their behaviour based on evaluation of their progress towards their goal (Bandura, 1991). This process allows individuals to re-evaluate their goals in conjunction with their attainments. Learners are motivated to raise their goal expectations when they achieve a goal. When a goal is not achieved, however, they lower their goal expectation to a more achievable goal attainment. In this process, they may lose motivation (Bandura, 1989).

Donaldson and Zager (2010) and Orinstein, Suh, Porter, de Yoe, Tyson, Troyb, and Fein (2015), state that learners with autism experience difficulties maintaining reciprocal interaction essential to learning. Poor non-verbal communication, and a limited ability to understand and use the rules of social behaviour can affect their ability to perform activities for themselves successfully. Teachers should use instructional practices that

enable AS/HFA learners to set attainable goals that are clear, specific and moderately challenging. Unless learners have realistic goals and feel able to reach them, they may not activate the processes needed for self-regulation (Denler et al., 2014) and continue struggling with social and behavioural adaptation.

### 2.6.3 Strampel and Oliver's levels of reflection and cognitive processing

Strampel and Oliver's (2007) paradigm for cognition comprises four levels of learning. Stimulated reflection and cognitive stimulation occur when students are in a state of cognitive disequilibrium: authentic learning can then take place. Descriptive reflection and cognitive retrieval represent a basic level of cognition whereas dialogic reflection and reconceptualization signify a more advanced stage of learning at which students are able to apply the information and learning skills. Critical reflection and application are regarded as the most advanced point in the learning pyramid.

## 2.7 CONCLUDING COMMENTS

The current national and international literature initially discussed in this chapter, focused upon development and advancement of inclusive educational policies in South Africa. According to the South African inclusive educational policies, learners with ASD may be incorporated into inclusive mainstream schools if they experience limited learning disabilities or language delays. It is important to note, however, that some, if not many of these learners are diagnosed only when they enter formal schooling: by that stage they have missed out on vital early specialised education or timely intervention to assist them with social communication and behavioural adaptation.

This chapter provides a brief description of the historical timeline of the development of the diagnosis of AS in South Africa and abroad. Since learners with AS were included into the DSM-V (2013) as part of ASD, at the same time showing similar associated character traits as HFA, these AS/HFA learners were then classified as 'Level 1 - requiring support' (DSM-V: 2013:50). The significance of Hans Asperger's fundamental definitions is discussed followed by a brief overview of the work of researchers such as Lorna Wing, Uta Frith, Christopher Gillberg and the Diagnostic Statistical Manual (1994-2013).



The character traits associated with ASD (including AS and HFA) are debated in relation to the following areas of cognitive and social functioning that prove particularly challenging: central coherence, theory of mind, sensory processing, executive function, global information processing, social communication, social imagination and social interaction. These character traits are initially defined. The literature shows how learners with ASD view their learning environment differently from their peers; which results in difficulties with reciprocal communication and social/emotional and behavioural regulation.

The following section focusses on how teachers, with the collaborative educational support of psychologists, occupational therapists, facilitators and LSEN teachers, can create a teaching environment that is rich with opportunities for learners with ASD. Implementation and support strategies for teachers are discussed including: implementation of secure and structured routines and procedures, assistance with social reciprocity and sensory adaptation and understanding and assisting with development of social and emotional behaviour-regulation.

To conclude this chapter the background to global learning theories was sketched. A discussion of what forms the conceptual framework of this study followed: Bandura's Social Cognitive Theory (SCT) (1986-2012). Bandura's theory advocates that learning must be viewed within a social context; respecting the dynamic and reciprocal interaction of learners, environment and behaviour. Bandura's theory may be regarded as applicable to this study since it provides a blend of behaviourist and cognitive concepts in terms of how individuals learn by observing others. Bandura's ground-breaking work provided evidence of how individuals can gain control over their own behaviour by acquiring self-efficacy skills. To conclude this section skills and behaviours were discussed such as: self-observation, self-evaluation and self-reaction.

Chapter 3 introduces the research design and methodology, including the research paradigm, the research design and the remainder of the methodology aspects.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter commences by discussing the research paradigm (interpretive), the research approach (qualitative) and research design (case study) chosen for this study. The research methodology, in terms of the research sites, sampling and data collection instruments (observations and interviews), data analysis, trustworthiness and ethical considerations are discussed and explained. To conclude this chapter, final comments are made.

The research paradigm, approach, design and methodology are discussed in the next sections.

Figure 3.1 (adapted from Condy 2006) depicts the research paradigm, approach, design and methodology used to answer the five research questions in this study.

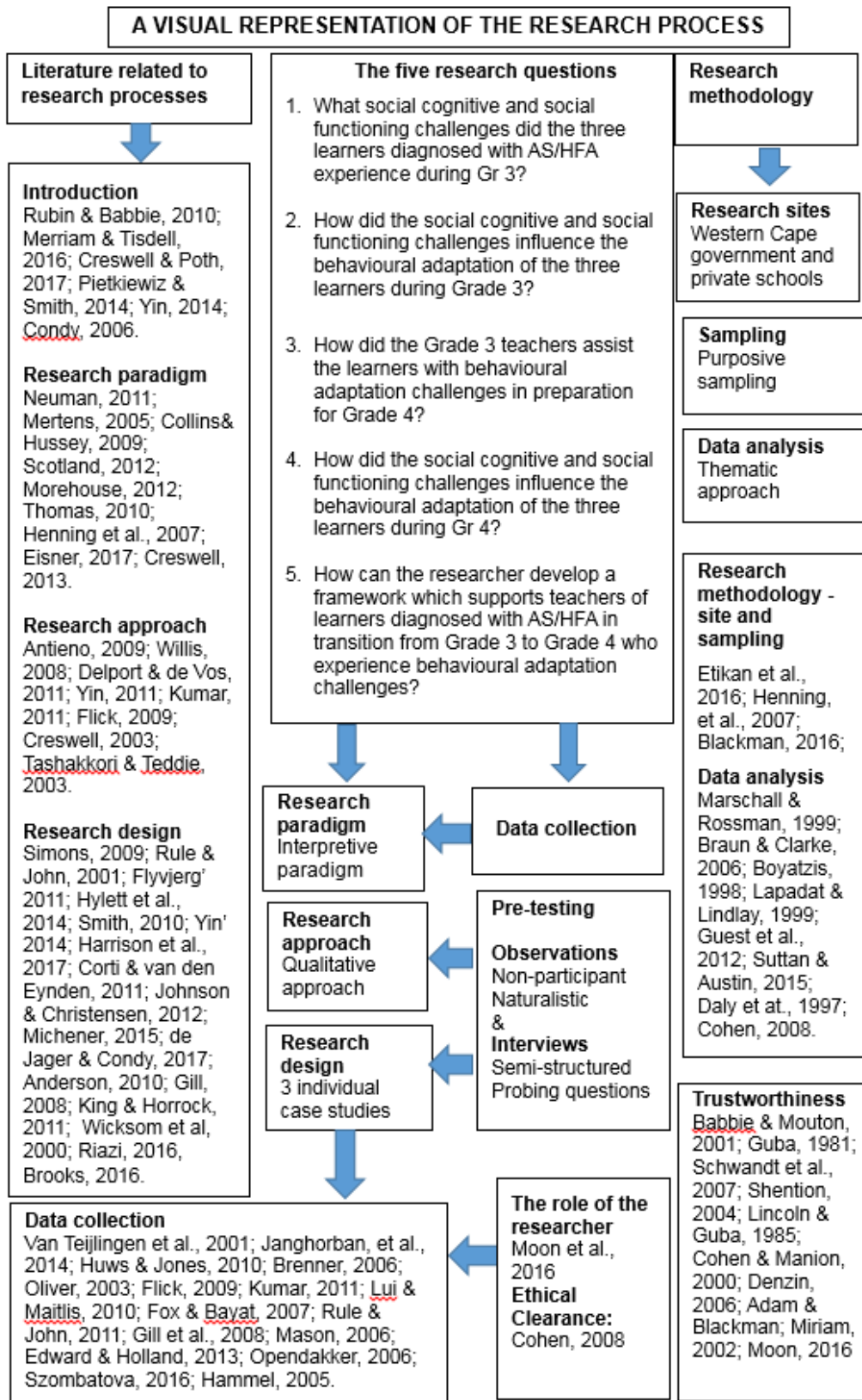


Figure 3.1 A visual representation of the research process

### **3.2 RESEARCH PARADIGM**

A paradigm is understood as a “whole system of thinking” (Neuman, 2011:94) and is composed of certain philosophical assumptions such as ontology and epistemology which provide a critical structure for argumentative content and action in the research; for the purpose of formulating the research questions and selecting the rest of the research design and methodology (Mertens, 2005; Collis & Hussey, 2009; Rubin & Babbie, 2010). The following components of a paradigm helped guide the choice of the research approach adopted by the researcher in this study: the reality of the research (ontology), the nature of knowledge and the relation between what is known and how to critically interpret additional knowledge (epistemology); how the knowledge was acquired for better understanding (methodology); and what procedures were used (methods) (Thomas, 2010). The selection of all these aspects of the research is depicted in Table 3.1.

**Table 3.1** Research paradigm, approach and methodology used for this study (adapted from Thomas, 2010:298)

<b>Feature</b>	<b>Description</b>
<b>Purpose of the research</b>	<ul style="list-style-type: none"> <li>To identify the social cognitive and social functioning challenges experienced by three AS/HFA learners;</li> <li>To explore how three AS/HFA learners' social cognitive and social functioning challenges influenced their behavioural adaptation in Grade 3;</li> <li>To identify how teachers assisted their AS/HFA learners in their Grade 3 classes in preparation for Grade 4;</li> <li>To explore how three AS/HFA learners' social cognitive and social functioning challenges influenced their behavioural adaptation in Grade 4; and</li> <li>To develop a framework which supports teachers of AS/HFA learners in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges.</li> </ul>
<b>Ontology</b> What is the reality to be studied?	<ul style="list-style-type: none"> <li>There are multiple realities concerning individuals with AS/HFA; and</li> <li>The reality of the three learners and their personal interactions were explored.</li> </ul>
<b>Epistemology</b> What is known, and how do you know it?	<ul style="list-style-type: none"> <li>Using existing knowledge, experience, views, critical interpretations of observations and interviews to acquire knowledge of the reality to be studied; and</li> <li>Gained knowledge through experiencing real life experiences of learners in natural school settings.</li> </ul>
<b>Methodology</b> How can one go about obtaining knowledge for understanding?	<ul style="list-style-type: none"> <li>A critical interpretive qualitative case study design and approach was chosen to reflect on the research questions.</li> </ul>
<b>Methods</b> What procedures can be used?	<ul style="list-style-type: none"> <li>Data collection instruments used to obtain the data: observations of each AS/HFA learner; non-structured interviews and probing questions to gain a better understanding of the teachers' perspective on their AS/HFA learners in their classrooms.</li> </ul>

- A critical interpretive paradigm

This study deployed a critical interpretive paradigm: according to Henning et al. (2007:20) knowledge is gained through observation as well as "... descriptions of peoples' intentions, beliefs, values and reasons, meaning making and self-understanding". A critical interpretive paradigm was used since this research focuses upon examining and critically interpreting how three AS/HFA learners functioned in their respective school environments. As a critical-interpretivist, the researcher could critique and make informed decisions about critically interpreting everyday happenings (events), experiences and social structures: as well as the values that the three learners and their teachers attached to everyday occurrences during their school attendance (Rubin & Babbie, 2010).

As a critical-interpretivist, the researcher was able to secure a deep level of understanding of how the three selected learners interacted within their classrooms. According to Eisner (2017:34) "... the way in which we respond to a situation and how we interpret what we see will bear our own signature". He argues that our response to a situation should not be regarded as a liability but as a means of providing insight into a situation to gain evidence and reason (Eisner, 2017). By using a critical-interpretivist approach, presentation of results includes a detailed explanation of the three learners' classroom experiences. The "voices of the participants" (teachers), the "reflexivity of the researcher", a "description and interpretation of the problem", and the "contribution to the literature" all contributed to answer five basic research questions set in this thesis in a critical interpretive way (Creswell, 2003:44).

### **3.3 RESEARCH APPROACH**

The nature and special focus of this research investigation was particularly well suited to the use of a qualitative approach which assisted in understanding how the three selected learners' social, cognitive and social functioning challenges influenced their behavioural adaptability. The rationale for choosing and employing a qualitative approach is that "...qualitative researchers are interested in understanding how people interpret their experiences, how they construct their world, and what meaning they attribute to their experiences" (Merriam & Tisdell, 2016:6). Creswell and Poth (2017:8) state that a qualitative approach is adopted in order to "...inquire and collect data in a natural setting, while being sensitive..." to the learner being observed as well as teachers and other learners in the classroom. The researcher collected data in a natural setting in an attempt to understand how the three learners and their teachers interacted socially in a classroom environment.

A qualitative research approach was particularly apt and effective because it was necessary to establish at the outset how the three learners in this study interacted socially and behaviourally while attending school. Similarly, it was essential to explore when incidents happened, how they happened, and why they happened in the manner in which

they did (Henning et al., 2007:3). A qualitative approach was used to collect data which were inductively analysed to answer the research questions.

According to Antieno (2009:14), there are certain assumptions related to using a qualitative approach: 'process', the researcher's focus upon the process, rather than the outcomes and products; 'meaning', the interest of the researcher focused upon how individuals make meaning and sense of their lives, and experiences of the world; 'fieldwork', the researcher went in person to meet, observe and interview individuals on site, at the designated institutions, to collect data in a natural setting; 'descriptive', the researcher described the results through word or visual representation to display the data; and 'inductive', the researcher analysed data inductively through building abstractions, concepts and theories from raw data. In this study, these assumptions were employed using a qualitative approach. The researcher:

- selected and observed three learners only; each of whom had already been diagnosed with AS;
- studied these learners in their natural school environment setting;
- personally observed the three learners, and interviewed their teachers;
- used multiple sources of evidence by observing the behaviours of the three learners, the teachers' responses and by noting the conditions in the classrooms;
- used inductive data analysis by starting with a specific observation to begin to detect patterns, develop categories and themes;
- searched for the meaning of, and connections between, the different sets of data; used inductive logic: moving from specific raw behavioural responses to a general view of all the observed behavioural adaptation challenges and their connections with the various themes (Willis, 2008; Delport & de Vos, 2011; Yin, 2011; Kumar, 2011).

This study has three chapters (Chapters 4 - 6) which reflect and organise the results in answer to the research questions set. Chapter 4 deals with Research Questions 1 and 2; Chapter 5 covers Research Question 3; Chapter 6 answers Research Question 4; Chapter 8 deals with the last question, 5. The researcher employed a qualitative approach to collect the data. During the analysis, results of research questions 1 to 3 were qualitatively analysed using textual representation only to present the results. The data used to answer research questions 4 and 5 include both textual and visual representations. Antieno (2009:17) states that, although qualitative data typically consists of "words", quantitative data consists of "numbers": he continues his argument by stating that "... all qualitative data can be coded quantitatively, and ... anything that is qualitative

can be assigned meaningful numerical values”. These approaches worked together to “... allow insights, develop an elaborate understanding, or appreciate new knowledge” (Verinelli, & Scagnoli, 2013:360). The meaning of the data in this study is portrayed in more than textual representation alone (Yin, 2011; Verinelli et al., 2013). By combining both textual and visual approaches to present the data, overall connections between the data are obtained (Verdinelli et al., 2013). The following section introduces the Research Design for this study.

### **3.4 RESEARCH DESIGN**

A case study design was selected as the research design for this study. The term ‘case study’ is defined as an “... in-depth exploration from multiple perspectives of the complexity and uniqueness...” of a particular phenomenon within its real-life context (Simons, 2009:21). This method is a popular research approach within social sciences and education which can provide “... rich insights into particular situations, events, classrooms or even persons” (Rule & John, 2011:1).

The research design for this study comprised three independent case studies. Although all three learners shared the same autistic character traits, they were observed individually, since “... everyone is unique and should be studied as such” (Pietkiewicz & Smith, 2014:7). A case study is defined by Yin (2014:16), as “... an empirical inquiry that investigates an existing phenomenon (the ‘case’) in depth, and within its real-world context”. Employing a case study design afforded rich insights into how these three learners with AS/HFA functioned behaviourally.

A case study design was particularly suited for this study, since the researcher needed to obtain rich insights into the complexity and uniqueness of how the learners interacted with their worlds within their natural environment. According to Rule and John (2011), using a case study includes strengths of: depth and manageability. The following section discusses how these two concepts related to the study:



- Depth

A case study is an in-depth investigation focusing upon "... a single entity, or a single instance of the phenomenon under study (Rubin & Babbie, 2010:309). The researcher used three learners only in the case study design to generate an in-depth understanding of each learner's individual social and behavioural adaptation challenges. The focus fell upon the complex relations within each of the three learners' lives as they made sense of their experiences in their own classrooms.

- Manageability

To provide a context for, and an understanding of, the case study, both before and during the research process, the researcher needed to reflect upon how to manage the data through specific ways of collection, analysis and interpretation. Van den Eynden, Corti, Woollard, Bishop and Horton (2011:6) stress that data management "... helps researchers consider, when research is being designed and planned, how data will be managed during the research process and shared afterwards with the wider research community."

The researcher managed the data by collecting and organising the qualitative data by "...using the word processing programme Microsoft Word..." on her laptop computer (Johnson & Christensen, 2012:520). For additional information to answer Research Question 4, a Microsoft Excel (2013) programme was used to analyse the data.

To provide security of the managed data, a laptop computer was installed with passwords, power surge systems, and Avira antivirus (Avira Software Company). All the transcribed data were stored on an external hard drive and a flash drive. These devices were used for additional safekeeping of all information relating to this research study. The researcher's supervisor was provided with original copies of all chapters which the supervisor kindly stored on her computer as well.

Dissemination of data is yet another way of managing data collected for a research project. This research project provides important resources for further education, training and research (Van den Eynden et al., 2011; Michener, 2015). Once the research has been completed, a hardcopy as well as a pdf copy of the study, will be given to the university

library. This will be uploaded onto the library repository for the broader research and educator community to access. Additionally, a journal article was recently published on part of this research study (De Jager & Condry, 2017), since "... journals increasingly require data that form the basis for publications to be shared..." (Van den Eynden et al., 2011:3). Future journal articles may be considered for publication from this study.

In the course of this case study various challenges were experienced: including limited availability and suitability of AS/HFA learners; commitment of schools; collection of data that was time consuming; absenteeism of learners; last-minute cancellation and re-scheduling of an interview with a teacher; securing an appropriate space in which to conduct the observations and interviews, and the Hawthorne effect. These challenges are discussed below in more detail.

- The difficulty of locating the correct number of AS/HFA learners whose profile suited the requirements of this research project.

For the purposes of this research project it was a challenge to identify AS/HFA learners who had already been diagnosed. Many learners with some traits of autism are accommodated within mainstream schools yet have not been diagnosed by a psychologist or psychiatrist. Originally, the researcher intended to observe four learners for the study. After numerous attempts at contacting most of the government and private mainstream schools in the Western Cape, six potential AS/HFA learners could be identified in five schools.

- Commitment of schools.

Once the researcher had identified these six learners, she contacted the schools to request permission to observe four learners. Only two schools were willing to accommodate the researcher. In the end only three learners could be observed in this study: two learners attended the same private school and one learner attended a mainstream school.

- The research process was time intensive.

Research projects of this kind are by definition known to be time-intensive even when one case-study alone is the focus of the investigation (Anderson, 2010). Undertaking three individual case studies in this particular kind of qualitative research was especially time-consuming. The volume of data to be collected, interpreted and analysed became immense. Data were collected within a period of one year (August/September 2013; February/March 2014 and August/September 2014). Data analysis became increasingly time consuming because each of the three learners' results had to be interpreted individually and analysed before final findings could be drawn and documented.

- Given the nature of the learners' challenges and the pressures placed upon teachers, it was impossible to guarantee or expect that learners and teachers would always be able to keep appointments.

Gill, Stewart, Treasure and Chadwick (2008) stress that collecting qualitative research data can sometimes be difficult because there is always the risk that participants may cancel or simply be absent at the appointed time. Although pre-arranged dates for data collection were scheduled and confirmed in advance with the principals and teachers, the researcher could not assume in this particular learning environment that cancellations would not occur at the last minute; and they did. Four observation time slots had to be cancelled due to absenteeism of two of the learners in the study. One teacher cancelled the interview at the last minute. Since there were no other dates available to conduct this interview in the third term, and since the WCED does not permit any research to be conducted at its schools in the fourth term, the teacher agreed to re-schedule appointments for after the closing date of the fourth and final school term (December 2013). This interview date was decided upon so as not to disrupt any preparation or teaching time for teachers at this school. See Appendix 1, in which the teacher grants her permission to be interviewed after the closing date of school.

- Securing an appropriate environment for observation and interviews

In some instances the researcher found it impossible to secure an appropriate space in which to collect the observation and interview data. Sometimes no more than a chair in the doorway of a classroom was available. In theory, researchers require a place of

observation that is “comfortable, private and quiet” (King & Horrocks, 2011:42). Given the large number of learners in each classroom (between 25 and 35 learners), and limited floor space, the researcher could not always observe the learner within a suitable, comfortable location in the class. Other challenges were experienced while conducting two of the interviews. Because interviews were semi-structured and conducted in the teachers’ classrooms, disruptions and disturbing noise from outside could not be avoided. Two of the interviews had to be postponed for minutes at a time, to allow for these interruptions to abate.

- Hawthorne effect.

This is the effect by which certain individuals change their behaviour when they are aware they are being observed (Wickström & Bendix, 2000; Kumar, 2011; Riazi, 2016). To limit the Hawthorne effect, the researcher chose to be a non-participant observer. Through pre-arranged verbal agreements with the principals and teachers at the schools, the learner in question was not allowed to know that s/he was the one under observation in the class. AS/HFA learners are especially susceptible to the Hawthorne effect: even the slightest intrusion or change in routine may cause such learners to over-react (Brooks, 2016). Despite the agreement with the schools and the care taken to avoid any manifestations of the Hawthorne effect, there still remained the danger that learners’ behaviours had been slightly influenced by the researcher’s presence in the classroom. The next section focuses on the research methodology.

### **3.5 RESEARCH METHODOLOGY**

In this section the research sites, sampling, data collection, data analysis, trustworthiness and ethical aspects are discussed.

#### **3.5.1 Research sites**

The research sites that were chosen for this study were three schools in the Western Cape in South Africa. Table 3.2 shows that in August and September 2013, at the commencement of the research, two schools were used to collect data. One school was a private mainstream school (School P), and the other a government inclusive

mainstream school (School M). The private school had two learners, Learner T and L, in separate Grade 3 classes. Learner E attended a government inclusive mainstream school in Grade 3. The third school (School R, a private (remedial) school, was added to the study in August 2014 since Learner T relocated to School R in April of 2014. For ethical and confidentiality purposes, an agreement was reached that the names of schools, teachers and learners would not be identified in this study. Therefore the schools, teachers and learners are referred to by initials only.

In February and March 2014, data were collected from the same schools using the same three learners, then in Grade 4. That year, however, Learner T and Learner L were in the same Gr 4 class. In August and September 2014, more data was collected. In April, Learner T was re-located to a smaller private (remedial) school (School R) where he could receive more one-on-one attention. Table 3.2 shows the sites, schools and learners.

**Table 3.2** Research sites, schools and learners

2013 August/September	School P Grade 3 Private mainstream school Learner T and L	School M Grade 3 Government mainstream school Learner E
2014 February/March	School P Grade 4 Private mainstream school Learner T and L	School M Grade 4 Government mainstream school Learner E
2014 August/September	School P Grade 4 Private mainstream school Learner L	School M Grade 4 Government mainstream school Learner E
2014 August/September	School R Grade 4 from 2 <sup>nd</sup> term Private (remedial) school Learner T	

### 3.5.2 Sampling

Purposive sampling was the technique chosen and employed throughout this research study. This sampling technique is "... the deliberate choice of a participant due to the qualities the participant possess" (Etikan, Musa & Alkassim, 2016:2). The method of "homogeneous" purposive sampling was used since, according to Etikan et al. (2016:2) this form of purposive sampling focusses on individuals with specific characteristics and in similar circumstances. Table 3.3 explains the demography of the three learners who

fitted the two criteria required for this project: (i) learners had to have been formally and clinically diagnosed with AS by three independent psychologists, and (ii) had to be attending Grade 3 classes in 2013. Table 3.3 shows the details of the three learners, their teachers and the data collected.

**Table 3.3** Details of the three learners, their teachers and the data collected

Learners who were observed	Teachers who were interviewed	
Learner T Gender: Male Age: 9 years old (2013) Clinically diagnosed with AS	2013 Teacher SM School P Interview	2014 Teacher JM School P Interview  2014 Teacher AJ School R Interview
Learner L Gender: Female Age: 9 years old (2013) Clinically diagnosed with AS	2013 Teacher GR School P Interview	2014 Teacher JM School P Interview
Learner E Gender: Male Age: 9 years old (2013) Clinically diagnosed with AS	2013 Teacher CJ School M Interview	2014 Teacher JT School M Interview

### 3.5.3 Data collection

Data were systematically collected using observations and interviews to gather information to answer the research questions 1 – 4 (Burns & Grove, 2003). During June and July 2013, the researcher pre-tested the observation and interview schedules. A discussion of this process follows.

#### Pre-testing

Copies of the observation and interview schedules were given to one principal and a psychologist for pre-testing of content accuracy. Pre-testing as a practice is regarded as an effective way of establishing credibility of observation and interview schedules (Brown, Lindenberger & Bryant, 2008). The principal and psychologist were individually contacted and meetings were set up: interviewees were asked to highlight ambiguities or unclear questions on the observation and interview data schedules. During follow-up visits, consensus was reached between the researcher and both the participants of the pre-

testing procedures. Pre-testing the data alerted the researcher ahead of time to the need to change or adjust any content prior to collection of data (Hurst, Arulogun, Owolabi, Akinyemi, Uvere, Warth & Ovbiagele, 2015). These adjustments and changes are explained in Tables 3.4 – 3.6.

**Table 3.4** Adjustments to the original observation schedule and notes

Initial statements	Amendments made
<b>The observation schedule</b>	
<p>Each observation sheet had four columns with titles at the top of the page. The four columns were titled: Subject descriptions; Environmental settings; Learners' responses; and Teachers' immediate responses.</p> <p>(A suggestion was made to adjust the observation schedule to include another column focussing the researcher's attention upon positive responses and comments from both teachers, additional staff and learner).</p>	<p>Positive responses from both teachers, additional staff and individual learner could be included since the original observation schedule had one column only for negative responses.</p> <p>An additional column was added: "Relevant positive comments from learner, teacher and additional staff".</p>
<b>Focus during observations</b>	
<p>Look at learners' behavioural responses in the learning environment to identify what behavioural adaptation challenges s/he experienced.</p> <p>(One principal suggested that this statement was too limited and should be open to include positive responses).</p>	<p>The researcher observed positive behavioural responses (verbal, physical comments from the learner, as well as positive responses for teacher and additional staff) the original observation schedule mentioned negative responses on one page only.</p> <p>The researcher added an additional sentence and wording to include positive responses and comments:</p> <p>"Learners' positive responses – verbal and non-verbal; and teachers and additional staff members' positive responses and intervention strategies".</p>
<b>A list of the social cognitive and social functioning challenges that can cause behavioural adaptation responses</b>	
<p>"Not seeing others' point of view"</p> <p>(A psychologist suggested that this statement was too limited).</p>	<p>Although there are challenges with general understanding, they show understanding of finer details of significance.</p> <p>Added response: "Ability to see finer detail in a situation that often can be overlooked."</p>
<p>"Challenges with hypo-and-hyper sensitivity of all senses"</p> <p>(A psychologist suggested removing the words "all senses" since not all AS learners experience hypo-and hyper sensitivity challenges of all senses)</p>	<p>Although there are challenges with hypo-and-hyper sensitivity of senses, some learners with AS can experience superior and heightened sense reactions that can be seen as positive.</p> <p>Added response: "Learner experience focussed upon sensory experiences, for example in visual and auditory ways that can be beneficial to a given situation."</p>
<p>"Challenging skills of origination and planning, goal-directed persistence, sustained attention"</p> <p>(A psychologist suggested that this statement was too limited).</p>	<p>Although AS/HFA learners experience EF challenges, they do not show any observable lack of these skills when focussing on their own interest.</p> <p>The researcher added a response: "Often a learner is focussed, organised and</p>



	shows sustained attention to complete a task of specific interest.”
<p>“Challenge with imaginary play”</p> <p>(A psychologist suggested removing the words “challenge with imaginary play” and adding “cannot do social imaginary play”. Another suggestion was to include a positive statement relating to imaginary play).</p>	<p>Although challenged with social imagination learners do not lack imagination.</p> <p>The researcher added a response: “Learner often involved in imaginary play when focussed on own interest.”</p>

The revised and final observation schedule can be found in Appendix 2. Tables 3.5 and 3.6 show the changes made to the main interview questions and the probing questions to encourage a more conversational response from participants.

When discussing the questions to be used in the interviews, the psychologist suggested that the terms WCC, ToM, SP and EF be removed. The psychologist observed that the researcher might include detailed discussion of such terms rather than assuming teachers are fully familiar with them. The psychologist’s timely observation exposed a major gap in the research area. Table 3.5 presents the format of questions as they stood before the psychologist’s assistance and critique, compared with the current form of questions in which the terms WCC, ToM, SP and EF do not appear. The psychologist prompted a crucial insight into the research and began the theoretical genesis of this investigation. In many cases teachers are unfamiliar with the terms WCC, ToM, SP and EF: teachers are, however, usually familiar with less specialist equivalents. Instead of WCC, teachers frequently understand ‘adherence to change’; instead of ToM they often know about the criterion of ‘social reciprocity’; teachers seldom grasp the specialist term SP but do recognise the notion of ‘sensory overload’; where few teachers know about EF many may know of ‘impulsivity’. Because so few teachers are aware of the importance of terms such as WCC, ToM, SP and EF, the researcher suddenly realised that it was essential to provide support for them by explaining such concepts in terms that were comprehensible: a foundational responsibility of this investigation. If teachers are helped to understand terms such as WCC, ToM, SP and EF in a context familiar to them, they are then able to identify such conditions in learners in their classrooms and know how to react; pre-empting manifestations of what would otherwise be inappropriate and incomprehensible

behaviour from AS/HFA learners. Table 3.5 shows the structure of questions set out before and after the psychologist's key intervention:

**Table 3.5** Changes made to the main interview questions

<b>Previous question</b>	<b>Current question:</b>
"Does your learner experience Weak Central Coherence (WCC), which can result in flexibility of thinking and responses?"	"Has your learner always understood what to do next to complete a sequence of events, and do they adhere to new routines and changes?"
"Does your learner experience Theory of Mind (ToM), which is the inability to impute others' beliefs, intentions and desires?"	"Could you comment on your learner's ability to determine the intentions of others; do they understand social reciprocity; and can they make sense of abstract ideas?"
"Does your learner experience Sensory Processing (SP) challenges, which can result in hypo-or-hyper sensitivity?"	"Does your learner show the ability to adapt to a changed social setting, express personal thoughts in a socially acceptable manner, and show appropriate social non-verbal and verbal communication?"
"Does your learner experience Executive Function (EF) challenges, which is needed for your learner to respond in a socially appropriate manner?"	"Does your learner show the following challenges: the inability to think before reacting, not giving in to his basic drive of emotions and thoughts and responding in a socially appropriate manner?"

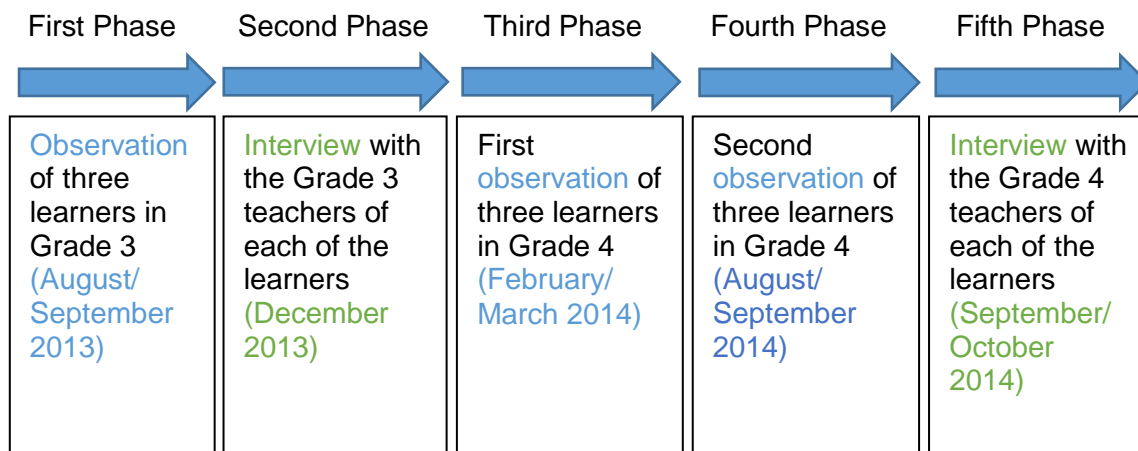
Some of the interview questions elicited answers that could be answered only by a 'Yes' or 'No'. Further probing questions were added to encourage a more conversational response (Brenner, 2006).

**Table 3.6** Probing questions for conversational response

<b>Probing questions</b>	<b>More specific probing questions:</b>
"Does your learner adjust easily to unexpected change to routine?"  "Did it affect the class?"	"How did you give assistance and support to help your learner with a sudden change of routine, or setbacks?"
"How did you support your learner to make sense of their environment during social interaction?"	"How did you assist your learner with understanding that others have different ideas and feelings on issues?"
"How did you support your learner when he/she experienced gustatory and olfactory sensitivity?"	"How did you assist your learner with managing sensory challenges such as taste and smell?"
"Did you use more than one support to assist your learner with sensory overload situations?"	"What did you do and say to assist your learner express their feeling in a more socially acceptable way during sensory overload?"

After the changes were implemented, the researcher was assured by the educational psychologist and principal of the private school that, according to them, there were no ambiguous interview questions or any questions that could reflect negatively upon the learners or teachers. They felt comfortable that no unnecessary or unauthorised information about the school and learners was included in either the observation or interview schedules (Oliver, 2003). The final interview schedule can be found in Appendix 3.

The following section discusses the exact sequencing procedures of data collection which occurred in five phases, as indicated in Figure 3.2. Phases 1, 3 and 4 refer to observations while Phases 2 and 5 comprise descriptions of the actual interviews themselves.



**Figure 3.2** Phases of data collection

### Observations

Collecting observation data allowed the researcher to gain first-hand information that answered research questions and met objectives in this study (Flick, 2009). The researcher observed learners during their classroom interaction and events, as they naturally occurred. This study adopted a non-participant observation approach in which the researcher neither interacted with participants nor became involved in classroom activities; remaining at all times as a passive observer (Kumar, 2011). These non-participant observations were “conducted purposefully and systematically” by carefully respecting three steps in accordance with Liu and Maitlis (2010:610).

Step one: a “descriptive observation” setting in which the observed behaviour that occurred was noted (Fox & Bayat, 2007:45). By using a pre-planned observation schedule, the researcher made notes of the classroom environment and settings that “... describe the situation more completely...” and which she felt could have a bearing on the observed learner’s behavioural responses (Fox & Bayat, 2007:45).

Step two: After observing the environment, the researcher moved to a more ‘focussed observation’. She began to focus on the learner’s interaction within the classroom, and the behavioural responses that the learner experienced. The researcher observed and noted both phenomena in detail. Using ‘focussed observation’, allowed the researcher to narrow her focus upon the specific learner she was observing and to note all responses from the relevant learner. This process permitted a more “... intensive, rather than extensive” viewing, to allow for a more focussed observation (Rule & John, 2011:7).

Step three: After observing the environment and the learner, the researcher conducted a ‘selected observation’ (Liu & Maitlis, 2010) which involved “... finding additional evidence and examples ...” to answer the research questions. Once the behavioural challenges of each specific learner were noted, responses from both teacher/s and peer/s were recorded on paper to provide a fuller description and a clearer understanding of each learner’s social behaviour (Liu & Maitlis, 2010).

The three observation phases are discussed in the following paragraphs. These phases were all conducted according to the three steps explained above. Table 3.7 provides the scheduled dates of the three observation periods in which the three learners were observed. These observation days (39 in total) were conducted during the first phase, third phase and fourth phase of data collection; as described in Figure 3.2.

**Table 3.7** Observation timeline of the three learners

<b>OBSERVATION TIMELINE FIRST PHASE</b>	<b>LEARNER T</b> School P Teacher SM	<b>LEARNER L</b> School P Teacher GR	<b>LEARNER E</b> School M Teacher CJ
Grade 3 August /September 2013	13, 19, 23, 28 August 5 September	15, 21, 30, August 3 September 26 August (Absent)	14, 27, August 2, 6 September 12 August (Absent)
<b>OBSERVATION TIMELINE THIRD PHASE</b>	<b>LEARNER T</b> School P Teacher JM	<b>LEARNER L</b> School P Teacher JM	<b>LEARNER E</b> School M Teacher JT
Grade 4 February/ March 2014	25 February 3, 7, 13, 19 March	21, 27, February 5, 17 March 11 March (Learner left early)	26, February 4, 10, 20 March 14 March (Absent)
<b>OBSERVATION TIMELINE FOURTH PHASE</b>	<b>LEARNER T</b> School R (New school since April 2014) Teacher AJ	<b>LEARNER L</b> School P Teacher JM	<b>LEARNER E</b> School M Teacher JT
Grade 4 August/ September 2014	14, 26 August 1, 5, 11 September	15, 27, 28 August 3, September 8 September (Absent). (Learner went for Interview and orientation week at new school for 2015)	15, 27 August 9,15 September 4 September (Absent).

- Observation data collection in the first phase: August and September 2013. These observations, five days for Learner T and four days for Learner L and E (due to illness and other unforeseen circumstances), were carried out while these learners were in Grade 3. These observation periods and dates were pre-arranged and approved by the WCED, the researcher's university, principals and teachers of the three schools. The researcher observed each of the learners on the pre-arranged days from 8am - 2.30 pm; in their respective learning environments. Because these learners were at times involved in different activities that did not happen in their own classrooms, the researcher would accompany them to their new venues. At these venues, the researcher followed the same three steps of descriptive, focussed and selective observation procedures (explained earlier) that she used when observing them in their Grade 3 classrooms.

- Observation data collection in the third phase: February and March 2014

The data collection in the third phase transpired in February and March 2014, when the learners were in Grade 4. Although both Learners T and L were allocated to the same class in Grade 4, the researcher focused upon only one learner per allocated day. Similar observation procedures were followed that were used in the first observation phase [descriptive, focused and selective].

- Observation data collection in the fourth phase: August and September 2014

The data collection in the fourth phase comprised the second observation period while learners were still in Grade 4. Since Learner T changed schools in April 2014 (second term), the researcher obtained permission to observe him in his new school (School R). Similar observation procedures were followed.

### Interviews

Interviews, as a means of data collection, can be used to "... explore the views, experiences, beliefs and/or motivations of individuals on specific matters (Gill et al., 2008:292). A semi-structured interview was used to explore teachers' own understandings, experiences, beliefs, and motives, in their own words: how they supported and assisted AS/HFA learners in their classrooms.

Mason (2006) and Edwards and Holland (2013:3) agree that qualitative and semi-structured interviewing have certain common features:

- The interactional exchange of dialogue (between two or more participants, in face-to-face or other contexts);
- A thematic, topic-centred, biographical or narrative approach in which the researcher has topics, themes or issues they wish to cover, but with a fluid and flexible structure;
- A perspective regarding knowledge as situated and contextual, requiring the researcher to ensure that relevant contexts are brought into focus so that situated knowledge can be produced; and
- Meanings and understandings are created during interaction, which is effectively a co-production, involving the construction or reconstruction of knowledge.

The following section explains how these common features suggested by Mason (2006) and Edwards and Holland, (2013), were included during interviews with teachers in this current study. Individual, audio-taped interviews were chosen which permitted "... face-

to-face ... interactional exchange of dialogue” between the researcher and the teachers (Edwards & Holland, 2013:2). This procedure had the advantage of providing social cues: voice and intonation could be recorded, while body language could be noted on the interview schedule. This nuance added a more in-depth interpretation of the dialogue between researcher and teacher (Opdenakker, 2006).

The researcher focussed the questions in the interviews upon the social, cognitive and social functioning challenges which these AS/HFA learners experienced and how teachers supported and assisted learners with issues of behavioural adaptation. Although these pre-determined ‘topic-centred’ questions were set according to the precepts of semi-structured questionnaires, they remained open-ended; allowing more probing questions and greater flexibility. The open-ended questions provided teachers the opportunity to respond and contribute their own meanings and understandings, experiences, beliefs, and motives, in their own words; all of which granted an alternative perspective to the topic of discussion (Szombatová, 2016). The reason for including probing questions was to encourage teachers to elaborate upon answers (Babbie, 2013). This versatile mode of questioning assisted teachers to think and reflect more deeply about the issues at hand; enabling them to stay focussed upon the topic proposed (Hammell, Carpenter & Dyck, 2005).

The two interview phases, as described earlier in Figure 3.2, are discussed in the following paragraphs. These two interview phases were completed in December 2013 with the learners’ Grade 3 teachers, at their request, and in September and October 2014 (the second phase of data collection), in September and October 2014 (the fifth phase of data collection), with their Grade 4 teacher. Table 3.8 provides the scheduled dates of the two interview periods in 2013 and 2014, where the respective class teachers were interviewed.

**Table 3.8** Interview schedule with teachers

<b>INTERVIEWS 2013</b>	School M Teacher CJ 3 December 2013	School P Teacher GR 5 December 2013	School P Teacher SM 5 December 2013
<b>INTERVIEWS 2014</b>	School M Teacher JT 9 September 2014	School P Teacher JM 13 October 2014	School R Teacher AJ 31 October 2014

- Interview data collection in the second phase.

During the second phase (December 2013), individual face-to-face interviews were conducted with the three Grade 3 teachers. Each of these interviews took place at their school, in their individual classrooms. The first scheduled interview with the teacher (Teacher CJ) of the government mainstream school, was cancelled by her; due to unforeseen circumstances. Since there was no other available time to conduct the interview in the third term, and no data collection is allowed to be gathered in a government school during the fourth term (October till December), it was agreed by both the researcher and the teacher to reschedule the interview to the final official school day of 2013 (3 December 2013). The teacher signed a consent form stating that because it was the last official school day of the fourth term, the interview would not interfere with any of her teaching or preparation schedules in 2013. The two remaining interviews were conducted at the private school. Although this school allowed data collection in the fourth term, the researcher originally decided to conduct both the interviews on 5 December, 2013. The two teachers were still attending school to finalise last minute administrative duties.

- Interview data collection in the fifth phase.

The second set of interviews was scheduled with the Grade 4 teachers during September and October 2014. This constituted the fifth and final phase of the data collection process. Similarly to the previous interviews with the Grade 3 teachers of each learner, these interviews were conducted after school hours in the respective classrooms. As already mentioned, Learner T attended a new school (School R) from April of 2014.

According to Rule and John (2011), there are specific techniques that assist with conducting a successful interview. The researcher was guided by the following techniques:

- The researcher arrived 15 minutes early to set up the audio recorder and to establish a relaxed and comfortable atmosphere;
- The researcher informed the teacher of the interview procedure;
- The researcher adopted a conversational rather than an inquisitorial style; to build rapport;
- The researcher listened carefully and gave the teacher enough time to answer the questions;



- At all times, the researcher was respectful and sensitive to the information that the teacher was contributing; and
- The researcher used probing questions when the teacher indicated that she was not sure how to respond, or that more information was needed to confirm her understanding of the questions.

#### 3.5.4 Data analysis

The researcher started the analysis process with some "...knowledge and initial analytical thought and interest" in the research topic by engaging in prior literature readings (Braun & Clarke, 2006:16). To bring order, structure and meaning to the 39 individual observation days and six individual interviews, the researcher systematically transcribed, organised, and refined the data (Henning et al., 2007). She started the process of analysis by transcribing the observations and interviews within days of collection of the data (August 2013 to October 2014). The data were typed into word-processing documents. By immediately transcribing the data, "... it can be seen as an 'interpretive act', where meaning was created, rather than simply a mechanical one of putting words and spoken sound to paper" (Braun & Clarke, 2006:17; Lapadat & Lindlay, 1999). The researcher was able to develop a general understanding of the argumentative contours of the material after transcribing all the data: she started analysing the content data of each of the three case studies individually (First Learner T, then Learner L and lastly Learner E).

The researcher continued the analysis process by reading through the entire data content starting with the first case study (Learner T). Her focus during reading the data was to search for comparisons in the data so that she could "... build and refine categories, define conceptual similarities and discover patterns" (Henning et al., 2007:127) within the data content. This process of refining categories was conducted through 'open coding' by which she colour-coded all the data; categorising the phenomena (social cognitive and social functioning challenges), through close examination of the data (Henning et al., 2007:131). The data were broken down into discrete parts which were grouped together to form "units of meaning" (Henning et al., 2007:105).

As the researcher systematically went through, and colour-coded, all the data sets, multiple codes were apportioned to some segments of text, and repeated patterns were identified. An example is given in Table 3.9.

**Table 3.9** Example of multiple codes used in some segments of text

Subject	Environment	All responses	Categories General information WCC and GIP ToM and SIM SP and SC EF and SI
Language/Literacy	<p><u>Spelling test</u> Teacher explains what she expects from learners. Teacher makes sentences of words they need to write in test. "Money" "I spent my money on cheap meat and honey". (Teachers uses rhyming word to explain sound in word "money").</p>	<p>Learner E gets upset and interrupts test. Shouts out: "One does not eat meat and honey together". Teacher tells him. "E remember this is a test and one must focus on just the words you need to write and not interrupt me." And I am only showing you how honey rhymes with money."</p>	<p>EF and SI</p> <p>ToM and SIM</p>

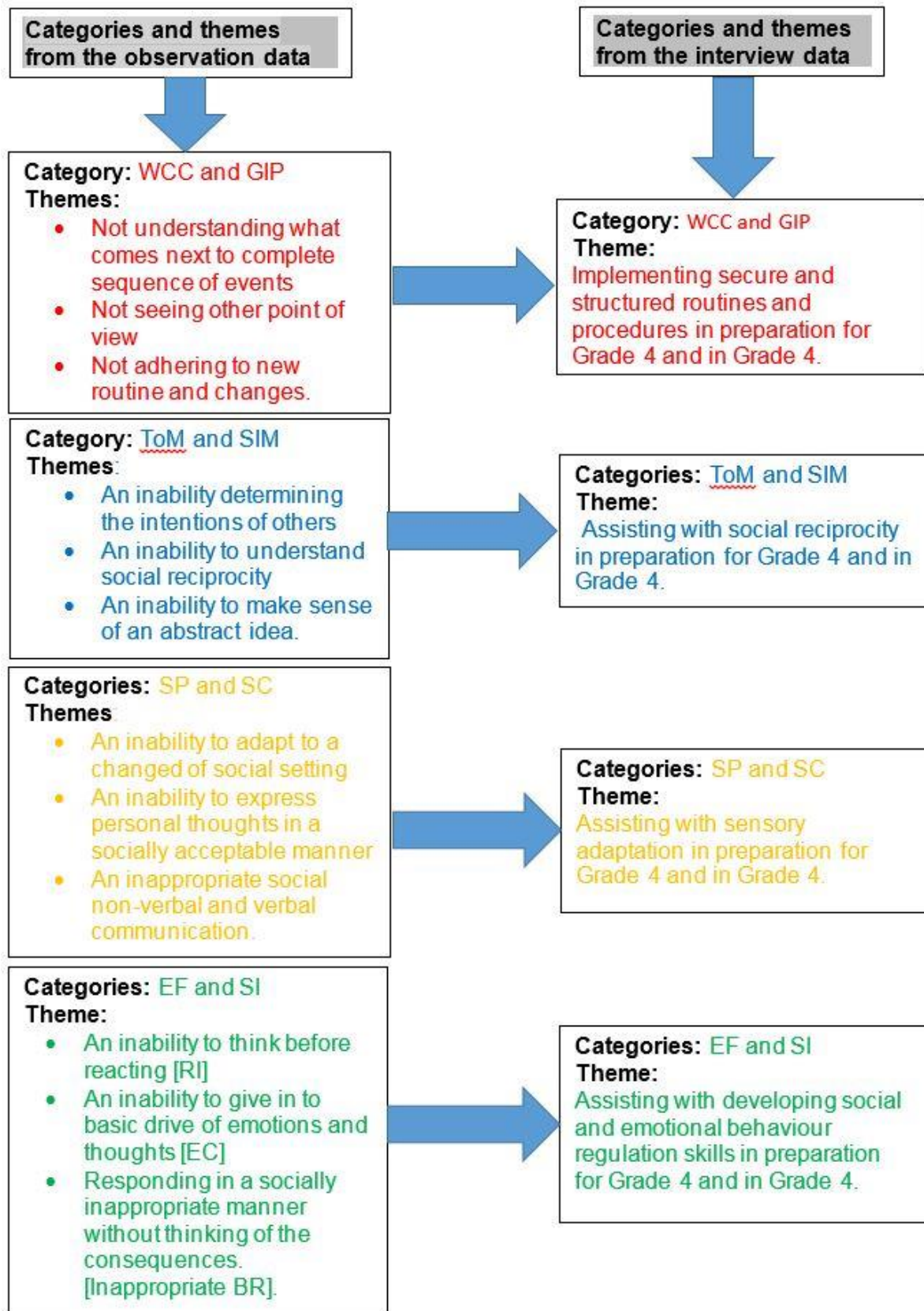
Once the colour codes were allocated to the entire data sets; the related codes were grouped into categories and named (Table 3.10).

**Table 3.10** Colour coding and naming of categories

Social cognitive and social functioning challenges	Colour coding
Weak Central coherence and global information processing challenges (WCC and GIP)	Red – (WCC and GIP)
Theory of Mind and social imagination challenges (ToM and SIM)	Blue – (ToM and SIM)
Sensory processing and social communication challenges (SP and SC)	Yellow – (SP and SC)
Executive functioning and social interaction challenges (EF and SI)	Green – (EF and SI)

After naming the four groups of categories, the researcher embarked on identifying coherent patterns within each of the categories by using an analytical process (Daly, Kellehear & Gliksman, 1997). She deployed 'selective coding' to group and colour-code

the data into selected related categories (Henning et al., 2007:116). Four related categories were identified with three themes in the observations. One theme was identified in each of the four connected interview categories (De Vos, Strydom, Fouche & Delpont, 2005). Figure 3.3 illustrates the four related categories and themes identified from the observation and interview data.



**Figure 3.3** Categories and themes identified from the observation and interview data

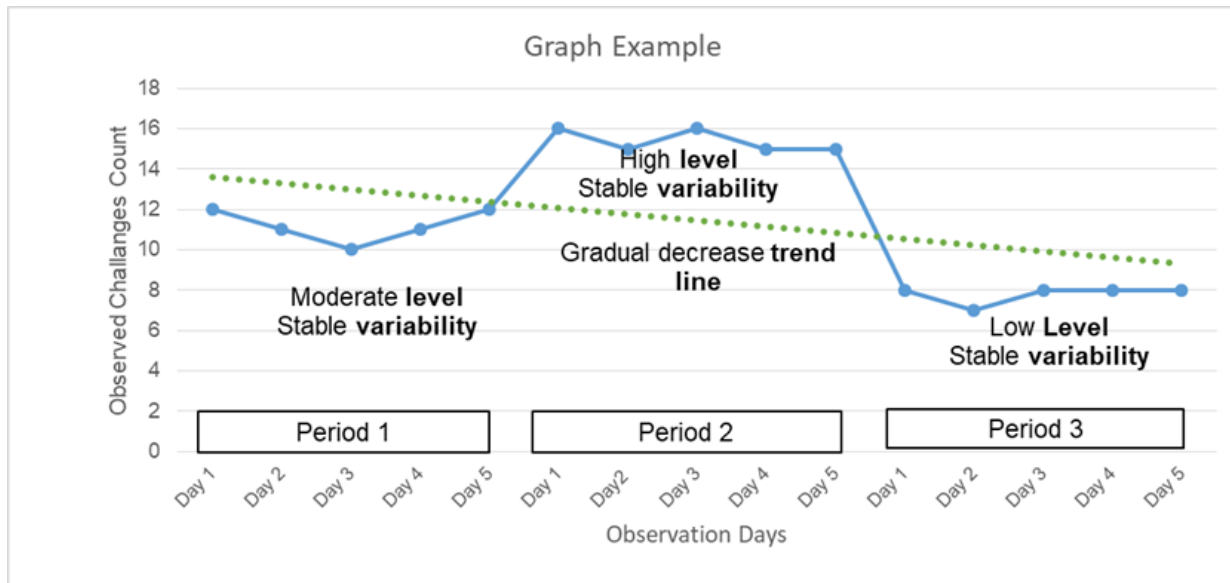
After the qualitative analysis of the data had taken place as described, the researcher converted the qualitative data of the observations into quantitative data (i.e. the frequency of the behaviour patterns) to provide a visual representation of the central themes that emerged from all the observation data of the three learners when they came to be analysed as three case studies. The researcher grouped these new quantified data sets from 2013 and 2014 of each case study, using the Microsoft Excel programme (2013), to display the visual representations of each case. To "... assign meaningful numerical values" (Antieno, 2009:17) to all the data of each case study, the following four analytical steps were followed:

Step 1: The degree to which each learner was observed to have progressed in terms of behavioural adaptation was recorded. This observation data was entered in tabular form according to the year, months and days of occurrences. See Tables 6.1, 6.4 and 6.7.

Step 2: Utilising the tables in step1, Microsoft Excel's graph plotting function was used to generate line graphs showing three properties: level of behavioural adaptation, variability of behavioural adaptation and trend of behavioural adaptation. See Figures 6.1, 6.4 and 6.7. These numerical graphs were then qualitatively analysed to assign meanings to the numerical values (Antieno, 2009).

Cooper, Heron and Heward (2014) describe the three properties and Figure 3.4 shows an example of how the properties of 'level', 'variability' and 'trend line' are displayed on a graph. 'Level' (blue line), may be defined as: "... the value on the vertical axis around which a series of behavioural measures converge ..." (Cooper et al., 2014:10). The level of data relates to the position of dataset taken from the horizontal axis that indicates the quantifiable and measurable degree to which behavioural adaptation had taken place. The level can vary between high levels which indicate that the plotted data points are in the top section of the graph. The moderate level is plotted in the middle section of the graphs; the low level is plotted at the bottom section of the graph (Cosgrave, 2016). 'Variability' (blue dots on blue line), may be defined as: "... the frequency and extent to which multiple measurements of behaviour yield different outcomes ..." (Cooper et al., 2014:19). Figure 3.4, indicates the frequency and degree of adaptation in the data, and

how differently and dispersed the scores are from each other (Cosgrave, 2016). ‘Trend’ (green dotted line), may be defined as: “... the overall direction taken by a data path. It is described in terms of (increase, decrease, or zero trend), and degree (gradual or steep) ...” (Cooper et al., 2014:19).



**Figure 3.4** Graph example to display properties: ‘level’, ‘variability’ and ‘trend line’

Step 3: The data from Step 1 and 2 were further numerically tabulated into year, month and days of occurrence; according to the social cognitive and social functioning challenges. See Tables 6.2, 6.5 and 6.8.

Step 4: From the numerical values of Step 3’s Tables, (Figures 6.2, 6.5 and 6.8), bar charts (Figures 6.3, 6.6 and 6.9) and summary tables (Tables 6.3, 6.6 and 6.9) were generated. These graphs, bar charts and summary tables were then analysed and presented in Chapter 6.

### 3.5.5 Trustworthiness

Babbie and Mouton (2001:276) stress that the “... central consideration regarding objectivity in a qualitative research process is trustworthiness”. The researcher relied upon certain recognised criteria of trustworthiness which included: credibility, transferability, dependability and confirmability, to ensure objectivity in the qualitative findings of this study (Guba, 1981, Schwandt, Lincoln & Guba, 2007). These criteria were

employed to present the true and complete study under investigation, provide sufficient detail of the environmental settings, and enable future researchers to be able to repeat the study and to demonstrate that the findings were not determined in any way according to the researcher's predispositions (Shenton, 2004). These criteria of trustworthiness are: credibility, transferability, dependability and confirmability.

### Credibility

According to Lincoln and Guba (1985), credibility is one of the most important factors to establish trustworthiness. To ensure credibility in this study, triangulation and member checking methods were used as follows:

- Triangulation

Cohen and Manion (2000:254) define triangulation as "... an attempt to map out, or explain more fully, the richness and complexity of human behaviour, by studying it from more than one standpoint". To explain this definition and in an attempt to establish credibility, the researcher employed data source triangulation. The researcher employed a methodological triangulation technique which involved using two methods of data collection (observations and interviews) (Denzin, 2006). By using both these different methods of triangulation to collect and check information, the researcher was able to explain more fully the richness and complexity of the processes by which the three AS/HFA learners made sense of their worlds and interacted socially and behaviourally within their school environment (Cohen, Manion & Morrison, 2008). These methods were implemented in various ways: the researcher observed the learners separately in their individual classrooms in different school locations (School P, School M and School R), and on different days and times for each learner.

- Member checking

According to Babbie and Mouton (2001, 2007), it is important for the researcher to provide participants in the study with the data material, so that they can reflect upon its accuracy and confirm that it was indeed a true reflection of their contributions. To provide credibility for the observation and interview data, the researcher pre-tested the draft observation schedule and interview questions with an independent psychologist and principal of

School P. The researcher acknowledged and implemented their suggestions. After the actual data collection and the interviews transcribed, the teachers were given copies, so that they could verify what was transcribed to be a true reflection of what they had said in the interviews. By using member checking methods, the researcher ensured credibility: the data were a true and accurate reflection of the participants' contributions towards this study.

### Transferability

Transferability is "... the degree to which the phenomenon or findings described in the study are useful to theory, practice and future research... and transferable to other contexts" (Moon, Brewer, Adams, Januchowski-Hartley & Blackman, 2016:3; Lincoln & Guba, 1985). In this study, the researcher established transferability first by using the methods of purposive sampling and acquiring thick and rich descriptions of all the contributing factors during data collection (Guba, 1981; Babbie & Mouton, 2001). The information gleaned from using these methods contributed significantly to theory and practice. Second, during observations, the researcher took notes concerning the behavioural responses of the three learners and recorded all the contributing factors. By using the methods of purposive sampling and thick rich descriptions of observation data, the researcher provided findings that could be transferred to similar contexts and situations (Lincoln & Guba, 1986) and used by other researchers in other similar contexts and situations yielding the same or equivalent results.

### Dependability

Dependability "... denotes reporting the study process in detail; enabling a future researcher to be able to replicate the process with similar participants and in similar environments" (Guba, 1981; Shenton, 2004:71). In this chapter, the researcher provided detailed representations of the research design, research approach and the research paradigm employed. Step-by-step description of the methods followed during data collection, and data analysis were provided in this chapter. This study process allows other researchers to be able to repeat similar studies in the future, using similar paradigms, approaches, designs and methods in similar contexts and with reference to comparable participants.



### Confirmability

Confirmability was established by providing an audit trail which signified that the findings in this study were reflected through the data, and not through the personal or privately held motivations, interests, and perspectives of the researcher. By using a “data-orientated approach” the audit trail showed physical evidence of how the data were gathered and processed during the course of the study (Shenton, 2004:72). This pattern included the following elements: instrument development material (observation and interview schedules); data and analysis information (typed and transcribed data documents); data reconstruction (themes, findings, conclusions and final report) and process reports (ethical clearance letters). The reported findings in this thesis can be traced back to their original sources (Guba, 1981; Shenton, 2004; Moon et al., 2016).

### 3.5.6 The role of the researcher

The researcher was a non-participant observer in the research process; to prevent any possible interference in the trustworthiness of the data collection process, the data obtained and the findings of the research. The researcher ensured that “... the findings of the study are solely of the participant and conditions of the inquiry and not that of the motivations, interests, and perspectives of the researcher” (Moon et al., 2016:2). As a non-participant observer during the observation collection process, ensured that the researcher had no influence on the outcome of the behaviour and social interaction of the learners. During the observations continuous notes were written down to ensure a thick description of what occurred in the learning environment. Not only the behavioural responses of the learners were recorded, but the researcher included information of the environment to reflect on the context within which the behaviour occurred. The teachers’ responses toward the specific behaviour from the learners and the interviews contributed to the true reflection of events that took place during data collection phases. During the data analysis standard procedures were followed; all the data were organised, dated and coded. The data were grouped and colour-coded to take into account not only the behaviour that took place, but all the contributing factors within the school environment and responses and contributions of the teachers and additional staff members. The researcher ensured the trustworthiness of the research process through all the steps as

described above in the trustworthiness section, and adhered to all the ethical procedures as described.

### 3.5.7 Ethical considerations

The researcher received permission to conduct the research from the Research Ethics Committee of the Cape Peninsula University of Technology (CPUT) (Appendix 4). The researcher also obtained ethical approval from the Western Cape Education Department (Appendix 5) to conduct the research in the government mainstream school. The acting principal of the government mainstream school gave permission (Appendix 6), after she was assured of the ethical approval from the WCED. For confidentiality reasons this school was referred to as School M, the learner as Learner E and teachers as Teachers CJ and JT.

For the purposes of consent, the one government school participating in this investigation was referred to the WCED: the other two schools were private schools, so permission had to be sought directly from the principals of these schools (Appendices 7 and 8). The principal of one private school produced a letter for the researcher to sign: the researcher agreed not to mention the name of the school, the teachers or the learners in her study

To honour the agreement of confidentiality, this school was referred to as School P, the teachers were referred to as Teachers SM, GR, JM and the learners were referred to as Learner T and E. The second private school was referred to as School R, the teacher was referred to as Teacher AJ, and learner was identified as Learner T.

After receiving permission from both principals and the WCED, teachers completed consent letters. In 2013 the three Grade 3 teachers' consent forms were received (Appendices 9, 10 and 11). In 2014 the three Grade 4 teachers (Appendices 12, 13(a), (b) and 14) completed similar consent forms. In these consent letters, the researcher informed the teachers of the purpose of the study and explained the benefits of the study to provide teachers with information that could support them in understanding and working with AS/HFA learners in their classes. The researcher assured them that they had the right to withdraw from the study at any time, that private information revealed

during the research process would be treated with confidentiality, and assured them that at any time they could ask questions regarding the research (Willig, 2001; Cohen et al., 2008).

The mothers of the three learners and one of the fathers signed permission letters (Appendices 15, 16 and 17): all were assured that strict confidentiality procedures would be adhered to regarding the observation of their children. Assurance was given that their children's identity would not be revealed in the study, and that during the non-participatory observation process their children would not be aware that they were being observed.

### **3.6 CONCLUDING COMMENTS**

The qualitative critical interpretive research paradigm and case study design employed in this project allowed the researcher to focus on the emphases of qualitative methodology cited by Antieno (2009:14): process, meaning, fieldwork, descriptive and inductive. The interview questions were designed not to produce a set of definite quantitative results but rather to outline the process of information gathering. Interviews were linked to observations: categories and themes were developed from observing learner behaviour first then relating these observations to categories and themes in the interviews. Emphasis upon the process allowed the researcher to move from phase to phase (Figure 3.2). Because so little empirical research has been conducted in this field (Schriber et al., 2014), the researcher had to assume uncertainty and work from the unknown towards greater certainty through this gradual and painstaking process of one phase leading to the next. Only after each phase of information gathering was successfully concluded, was the researcher in a position to formulate the direction of the following phase.

In terms of Antieno's consideration of meaning as an aspect of qualitative research, the researcher sought to infer how the AS/HFA learners under observation made sense of their lives and the world around them. So, for instance, in establishing that all three learners were challenged in not being able to see others' points of view, a qualitative method enabled the researcher to discern nuances between the learners' individual challenges and even discrepancies in the researcher's own initial assumptions. The researcher at first detected that these learners were unable to appreciate others' points

of view but after the following phase of interview questions, it became apparent that the learners in fact were able to see finer detail in a given situation. This level of information allowed the researcher to assess the way in which such AS/HFA learners make sense of their world in a more precise and definable manner.

The aspect of fieldwork was of particular relevance to this research project. Observing learners and interviewing teachers in their natural settings enabled the researcher to note how learners interacted with their peers and how teachers managed the classroom which had to be adapted to facilitate the needs of such AS/HFA learners. In qualitative research it is possible to attend more to words than numbers: the actual words of learners and teachers gleaned through fieldwork allowed the researcher to compose a reliable and credible reconstruction of the dynamics, challenges, effective strategies, crises and resolutions observed and recorded. Fieldwork presented a range of information in depth and breadth which, though often contradictory or inconsistent in nature, captured the complexity and vitality of the lives that these three AS/HFA learners lived.

Antieno's concern with the descriptive nature of qualitative research is significant in that the findings of this kind of research cannot be reflected accurately through numerical means: words and visual representations provide a more coherent and verifiable view of the research subjects' unique predicaments, own solutions and adaptations to a world which often appears at odds with their own impulses, spontaneous responses and concerns. The aspect of inductive scrutiny is sustained throughout this thesis. The danger of basing insights and conclusions too fully upon exact words and phrases from interviews or observation in the learning environment is offset by reference to the larger sphere of research into the peculiar challenges of these learners. It is important to note, however, that because of the different ages of learners generally admitted to primary school in South Africa, much of the research findings from overseas is not exactly applicable in South Africa. The lateness and inconsistency with which AS/HFA learners are diagnosed in South Africa as opposed to many other countries further renders much valuable research conducted overseas inadmissible locally. These factors strongly influence the

choice of method best suited for acquiring relevant information and endorse the selection of a qualitative methodology, a critical-interpretive paradigm and a case study method.

Chapters 4, 5 and 6 present the results of this study.

## CHAPTER 4

### RESEARCH QUESTION 1 AND RESEARCH QUESTION 2

1. What social cognitive and social functioning challenges did the three learners diagnosed with AS/HFA experience during Gr 3?
2. How did the social cognitive and social functioning challenges influence the behavioural adaptation of the three learners during Grade 3?

#### 4.1 INTRODUCTION

As set out in Chapter 3, this study is grounded in a qualitative case study approach and conducted in a critical interpretive research paradigm. The study focusses on examining how AS/HFA individuals make "... sense of their life experiences ... while actively engaging in the events, objects, and people in their lives" (Pietkiewicz & Smith, 2014:8). This is not a comparative study, so it was determined to present the findings of the three learners with AS/HFA separately – first Learner T, then Learner L, and finally Learner E. Chapter 4 consists of a detailed discussion and analysis of the results of Research Question 1 and Research Question 2 of the three AS/HFA learners. The results for these two questions were obtained by observing learners' behaviour in various situations: in the classroom, a school hall, at the swimming pool and on sports fields. This observation allowed the researcher to assess what social, cognitive and social functioning challenges learners faced. Observing learners in a school environment permitted the researcher to gauge teachers' immediate responses to these challenges as they arose.

To answer Research Questions 1 and 2, the researcher has purposefully arranged this chapter into two sections, as shown below:

- 4.2 Results of Learners T, L and E
  - 4.2.1 Learner T
  - 4.2.2 Learner L
  - 4.2.3 Learner E
- 4.3 Summary of the results

When presenting the results of each learner, discussion begins with Tables providing evidence of examples of social cognitive challenges: Weak Central Coherence (WCC), Theory of Mind (ToM), Sensory Processing (SP), and Executive Functions (EF). EF consists of many cognitive ability skills needed to control our thoughts, emotions and actions. The three social behavioural concepts of EF to which this study was limited include: Response Inhibition (**RI**), Emotional Control (**EC**) and appropriate Behavioural Response (**BR**), as these EF concepts focus upon skills relate to behavioural adaptation (Dawson & Gaure, 2012). The social cognitive challenges were paired with certain social functioning challenges: Global Information Processing (GIP), Social Imagination (SIM), Social Communication (SC) and Social Interaction (SI).

Each table has three columns: the first column provides information regarding the environment in the classroom; the second column provides evidence of responses and behaviours from learners; and the third column provides evidence of the immediate responses of the teachers and support staff. These columns have been numbered to indicate the sequence in which the observations took place. The findings are first presented followed by a discussion paragraph which juxtaposes the theory of the results of the challenges with appropriate data from interviews with the learners' Grade 3 teachers.

The final section, 4.3, provides a summary of the results concerning all three AS/HFA learners in their respective Grade 3 classes, and the influence of social cognitive and social functioning challenges upon learners in terms of behavioural adaptation.

## **4.2 RESULTS OF LEARNERS T, L AND E**

### **4.2.1 Learner T**

The discussion that follows provides evidence of how social cognitive and social functioning challenges experienced by Learner T influenced his behavioural adaptation in Grade 3.

Tables 4.1 – 4.4 provide selected examples of each concept; as observed in Learner T's Grade 3 classroom environment. Each group of social cognitive and social functioning

challenges is described and then followed by a discussion of how these challenges influenced the behavioural adaptation in Grade 3. To conclude the results of Learner T, a final summary of the results is provided.

- WCC and GIP challenges

Table 4.1 provides three examples. The first example is a Mathematics lesson focussed on adding and subtracting methods. The next two examples are Life Skills lessons: an introduction lesson on a new season of Spring, and a listening lesson on a story of White Sharks.



**Table 4.1** Examples of WCC and GIP challenges experienced by Learner T (Grade3)

Private school Grade 3 environment	Observations August - September 2013 Responses of Learner T	Teacher SM's and the librarians' immediate responses to that specific behaviour
<p><b>Below are three examples of challenges that include three concepts linked to WCC and GIP inability to:</b></p> <ul style="list-style-type: none"> <li>• understand how to complete a sequence of events;</li> <li>• see other's point of view; and</li> <li>• adhere to new routines and changes.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner T relating to WCC and GIP</b></p>		
<p><b>1. Mathematics: Adding and subtracting method:</b> inability to understand how to complete the sequence of events of a Mathematics exercise.</p>		
(1) Adding and subtracting in columns. Longitudinal division. Do sums in own mathematics book.	(2) Learner T's response: "I can do all this adding in my head. I don't need to show you if I know the answer is correct."	(3) Teacher SM explains: "When you do maths in the higher grades you get marks for showing the method and how you got to the answer."
	(4) "Yes, but you know that I know the answer. It's boring."	(5) Teacher SM had to show Learner T an example of the method to arrive at the answer.
	(6) Kept rocking back and forth showing his frustration.	(7) Teacher SM responds: "I know you know the answer mentally, but now show me on paper how you derived your answer."
<p><b>2. Life Skills: Season Spring:</b> inability to see Teacher SM's point of the view during a discussion on Spring.</p>		
(1) Teacher SM asked the learners to bring some cut flowers for Spring day to celebrate new life and growth after winter.	(2) The researcher overheard Learner T's comment to Teacher SM: "If I bring in picked flowers, it means I am bringing dying flowers. As you mentioned, is Spring not about new blossoms and flowers?"	(3) Teacher SM's response was: "If you so wish you can bring a growing plant in a pot. As long as you are prepared to look after it, water it every other day when you come to school, to keep it healthy."
<p><b>3. Life Skills Library period:</b> inability to adhere to a new routine and change during a reading done by the librarian in the library.</p>		
(1) Listened to a story being told by the librarian in the library.	(2) Learner T expressed his frustration about the story on White Sharks: "Why do they mention all the shark species when it has to do with White Sharks? The book is incomplete. Sharks are all the same inside anyway. I am not listening to this anymore."	(3) The librarian stops the story and explains that even though the book starts off by mentioning sharks in general, the book chooses to focus only on the White Shark.
	(4) Started to page through his own book and disengaged himself from the rest of the story reading.	

## Discussion

Research studies (Frith, 1989; Happé & Booth, 2008; Pellicano, 2010) suggest that individuals on the autism spectrum may experience areas of “superior” processing, or differences in cognitive style, such as WCC and GIP (Happé & Frith, 2006:22). Happé and Frith (2006), however, stated that when young learners on the autism spectrum are overly focused on details at the expense of the global perspective, this over focusing may adversely affect their ability to integrate environmental stimuli into a coherent whole.

The three examples (Table 4.1) show that Learner T experienced WCC and GIP challenges: he focused on specific details that made sense to him alone while he disregarded the main focus of the lessons. To explore how the above WCC and GIP challenges affected Learner T’s behavioural adaptation, the researcher interviewed Teacher SM.

Researcher: Has Learner T always understood what to do next to complete a sequence of events, see others’ point of view, and does he adhere to new routines and changes?

Teacher SM: No, not always. He often got stuck on the finer details that were valid and would not be able to move beyond that and refuse to see the whole picture or main outcome of the discussion or lesson [WCC]. He would for example, during a maths lesson, refuse to adhere to the rules of the lesson as they did not make sense to him [GIP]. He would then do the exercise his way and refuse to even consider changing his method of problem solving.

This interview indicates that Learner T was often rigid and inflexible in his routine: he could not tolerate change and could not, or would not, see different points of view or alternative courses of action.

From the evidence collected, it is clear that these repetitive behaviours posed a challenge, and inhibited his learning and social interaction (Boyd et al., 2012).

- ToM and SIM challenges

Three examples of Learner T experiencing ToM and SIM difficulties occurred during the following three lessons: an English oral lesson in which Learner T was required to present

the news and weather as a television presenter; a writing lesson to add words to cartoon pictures; and a Life Skills discussion on families and homes.

**Table 4.2** Examples of ToM and SIM challenges experienced by Learner T (Grade3)

Private school Grade 3 environment	Observations August - September 2013 Responses of Learner T	Teacher SM's immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to ToM and SIM:</b> inability to:</p> <ul style="list-style-type: none"> <li>• determine the intentions of others;</li> <li>• understand the use of appropriate social reciprocity; and</li> <li>• make sense of abstract ideas.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner T relating to ToM and SIM</b></p>		
<p><b>1. English oral presentation:</b> inability to determine the intentions of Teacher SM.</p>		
<p>(1) Learner T had to present the news and weather of his choice as a TV presenter. Instructions to present this oral were given to the Grade 3 class as a formal invitation as part of their theme on communication. The researcher observed Learner T, where he could not understand the reason why he had to present his oral while pretending to be a TV presenter.</p>	<p>(2) Learner T responded by declining this invitation as follows: "I kindly decline this invitation, as I have a choice, like when there is a birthday party I can accept or decline the invite. So, in this instance I decline to come and present the news and do the weather."</p>	<p>(3) Teacher SM's response was: "I could have just told you all to come and do the oral, but as we are learning about the correct social communication methods, I decided to invite you formally to come and present the news and do the weather. This is called 'role play'. This however does not mean that you have the option of not doing your oral."</p>
	<p>(4) Learner T got upset and argued that he did not like 'role-play' and was definitely not going to dress up, sit in a pretend TV frame, and pretend to be someone he was not.</p>	<p>(5) Teacher SM's response was that he had to find a way to present his oral.</p>
		<p>(6) During the next observation day Teacher SM told the researcher that he did present his oral the following day by following <i>his</i> rules and method of presentation, after he was persuaded by his parents.</p>

<b>2. English written work:</b> inability to use appropriate social reciprocity during an English written activity.		
(1) Teacher SM gave learners a range of cartoon pictures with no words attached. These pictures were of two people having a supposed conversation and birds eating seeds at their feet with bird-droppings everywhere. They were asked to give (in their own words), the interpretation of what was said by the characters in each cartoon picture.	(2) Learner T used very literal comments for his understanding of the cartoon pictures “I need to poo. My penis needs to pee now, so get finished. Do you need a present? Yes, but I peed on the toilet seat.”	
	(3) It made some of the peers giggle, and some of the female learners showed some embarrassment.	(4) Teacher SM asked him to think of other sayings. She mentioned that she knew he thought that his interpretation was very funny as a cartoon picture, but she felt that it could be a bit offensive to other peers, especially the girls in the class.
<b>3. Life Skills – Families and home:</b> inability to make sense of an abstract idea.		
(1) During a discussion on families and home environment, Teacher SM asked: “Can I have all your eyes on the board please.”	(2) Learner T immediately mumbled out loud: “That is impossible to do. Who would come up with such a stupid phrase?” His response made the learners around him giggle.	(3) Teacher SM’s response was: “Please pay attention now. Are you all looking to the front with your eyes focussed on what I have written on the board?”

### Discussion

ToM is the ability to gauge other peoples’ emotions and thoughts. It is a skill that, according to Baron-Cohen et al. (1985) is a deficit in children on the autism spectrum. The criteria stipulated in the DSM-V (2013:50) state that “... developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behaviour to suit various social contexts ... and ... deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation...” During the lessons on the weather, cartoons and Life Skills, Learner T could not comprehend the social signalling and behaviour of Teacher SM or his peers in class. Learner T experienced ToM and SIM challenges. He found it difficult to adjust his behaviour: he could not make sense of what Teacher SM was saying and could not converse normally.

To explore further how the ToM and SIM challenges that Learner T experienced affected his behavioural adaptation, the researcher asked Teacher SM the following question during the interview:

Researcher: Could you comment on Learner T's ability to determine the intentions of others – does he understand social reciprocity and can he make sense of abstract ideas?

Teacher SM: Learner T does not always show understanding of what was said or done in class. He would make literal interpretations of what people had said, everything was fact based, and the emotions and feelings of others never played a role in his thought patterns [ToM]. He often did not understand why he had to participate in 'social imaginary role play' [SIM].

Bandura (1999:169) proposes that individuals "... function as contributors to their own motivation, behaviour, and development within a network of reciprocally interacting influences". Since learning is affected by learners' "... own thoughts and self-beliefs and their interpretation of the classroom contexts" (Denler et al., 2014:20), Learner T experienced difficulties with "social reciprocity", and "social play" (van Ommeren, Begeer, Scheeren & Koot, 2012:1001). This inability to interact affected the way in which he behaved personally and socially in his classroom environment.

- SP and SC challenges

Table 4.3 provides three examples: a Life Skills lesson while watching a 'movie'; a Social Science lesson on 'Women of the past'; and an English lesson on 'Compound words'.

**Table 4.3** Examples of SP and SC challenges experienced by Learner T (Grade 3)

Private school Grade 3 environment	Observations August - September 2013 Response of Learners T	Teacher SM's and Physical Education teacher's immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to SP and SC:</b> inability to</p> <ul style="list-style-type: none"> <li>• adapt to a changed social setting;</li> <li>• express personal thoughts in a socially acceptable manner; and</li> <li>• use appropriate social non-verbal and verbal communication.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner T relating to SP and SC</b></p>		
<p><b>1. Life skills:</b> inability to adapt to the changed social setting.</p>		
(1) Physical Education (PE) It is raining outside – so the class is allowed to watch a movie.	(2) Comments: "I've seen this movie a thousand times". Keeps chatting to his peers without making eye contact. Cannot sit still and keeps giving facts about what is going to happen in the movie and why.	(3) Peers complain to the PE teacher that he is spoiling the movie for them.
	(4) Continues to talk about his own views on submarines that are part of the movie.	(5) PE Teacher tells him to stop talking.
	(6) "But I am not telling them about the movie, just about cool submarines."	(7) Some of the peers move away from him and the rest of his peers ignore him completely.
<p><b>2. Social Sciences:</b> inability to express his personal thoughts in a socially acceptable manner.</p>		
(1) The researcher observed Learner T being sent back to amend work he did in his Social Science book.	(2) His response to being sent back was: "But it is the truth. If you go back in history you can see that."	(3) Teacher SM told him to find an additional phrase for 'Women in the past used to suck', to describe the way he felt about women of the past.
	(4) He went back to his desk, but could not settle down, mumbled to himself and showed signs of involuntary 'tic' movements.	
<p><b>3. English Literature:</b> inability to display appropriate social non-verbal and verbal communication.</p>		
(1) Compound words exercise in work book.	(2) Learner T sat and mimicked all the sounds around him and made grunting noises while he was working. Turned around and poked a peer with his pencil to get his attention. Sat and played shooting games with a Lego gun that he had made. Interrupted peers around him with imitating shooting noises.	(3) Teacher SM asked him three times to please focus on his own work and not disturb his peers.
	(4) His response: "It's anyway too noisy outside to do anything that requires thinking."	

## Discussion

Sensory difficulties were originally reported by Asperger (1944) and Frith (1991), and unusual patterns of sensory processing and reactions have been seen as a key clinical indicator of individuals on the autism spectrum (Rogers & Ozonoff, 2005; Minshew & Hobson, 2008; Lane et al., 2010). Learner T experienced SP and SC challenges across all educational and social settings: Isaacs (2017) suggests that it is important to recognise differences in sensory processing among learners with autism and the effect this challenge can have upon their behaviour in a school environment setting.

The three examples implied that Learner T could not easily adjust to a change of environment and social setting. He moved his body in ways that were “unfamiliar to the norm” (Donnellan, Hill & Leary 2012:124), displaying ‘tic’ movements of his head and shoulders, and grunting noises as if blocking out external environmental disruptions.

During the interview, Teacher SM was asked the following question to understand how, according to her, SP and SC challenges experienced by Learner T influenced his ability to adapt his behaviour:

Researcher: When experiencing sensory processing challenges does Learner T have the ability to adapt to a changed social setting due to sensory challenges, express personal thoughts in a socially acceptable manner, and show appropriate social non-verbal and verbal communication?

Teacher SM: I would like to confirm that Learner T often experienced sensory overload and then would not be able to adapt to his immediate environment [SP]. He often experienced ‘tic’ movements during unfamiliar or stressful situations. He would also ‘mimic’ and make grunting noises if he was not sure what to do, or felt frustrated with his surroundings [SC]. He often lacked judgement in what he said and did when he experienced sensory overload. He would then react in a socially immature manner [SC]. As I have a lot of immature and emotionally young boys in my class they would (not purposefully), ‘get swept up’ in what he was saying or doing, and they have now become ‘the group of boys that behave badly’.

When learners personally engage in a SCT environment, they begin to “...recognise the communicative function of speech, and their expressive language is influenced by different influencing factors” (Bandura, 1989:19). These “... different sources of influences are not of equal strength and may be stronger than others and they do not all occur

simultaneously” (Wood & Bandura, 1989:362). The examples show how Learner T expressed sensory overload in his school environment. He displayed inappropriate social responses when he tried to adjust his “communication and behavioural difficulties”, in an attempt to cope with the discomfort of experiencing sensory overload (Lane et al., 2010:112).

- EF and SI challenges

Table 4.4 provides three examples of EF and SI challenges experienced by Learner T. The first example focussed upon cursive writing of the letter ‘f’. The second example occurred was during English oral presentations: the third example manifested during a Life Skills period while taking the register.



**Table 4.4** Examples of EF and SI challenges experienced by Learner T (Grade 3)

Private school Grade 3 environment	Observations August - September 2013 Learner T's response	Teacher SM's immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to EF, (Response Inhibition (RI) and Emotional Control (EC), inappropriate Behavioural Response (BR):</b> inability to:</p> <ul style="list-style-type: none"> <li>• think before reacting [RI];</li> <li>• not give into his basic emotional drive [EC]; and</li> <li>• respond in a socially appropriate manner [BR].</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner T relating to EF and SI</b></p>		
<p><b>1. English Literacy:</b> inability to think before verbally reacting to Teacher SM's instruction [RI].</p>		
(1) Teacher SM mentioned that they were going to practise words starting with the sound 'f' in cursive writing.	(2) He responded by saying: "Oh! We are going to do the 'f...' word today."	
	(3) This caused some of his peers to burst out laughing which disrupted the flow of the lesson.	(4) Teacher SM ignored his outburst and after she got the class to focus, she mentioned words starting with the sound 'f' such as fruit, friends etc. She asked the class to contribute words as well.
<p><b>2. English Oral:</b> inability to not give into his basic emotional drive (EC), during an oral presentation by his peer.</p>		
(1) During an oral presentation by a peer on 'space', Learner T got upset because he felt that the peer did not give the correct information on the topic 'space'.	(2) He responded by calling the learner offensive names and calling him an outright liar.	(4) Teacher SM asked him to leave the room to calm down: she said she would speak to him after class about his behaviour.
	(3) His response to leaving the classroom was by shouting out: "But I can prove to you he is lying."	
<p><b>3. Life Skills:</b> inability to respond in a socially appropriate manner without thinking of the consequences during register and news time [inappropriate BR].</p>		
(1) During register and news time the Teacher SM would call out their names to record that they were present.	(2) Learner T responded to a peer whose name was called out by saying: "Oh! But he is also called 'Puke', and he listens when I call him that."	(3) The teacher reprimanded him and told him that that was not a nice thing to say and that she will speak to him about his behaviour after 'register'.
		(4) She took the offended learner to one side and spoke to him to make sure he was 'OK'.
		(5) She told the class that 'name-calling' can hurt peoples' feelings and is not cool and is seen as a kind of bullying, and that this behaviour was not tolerated in their school.

## Discussion

According to Dawson and Guare (2012:04) the term EF refers to "... the cognitive processes required to plan and direct activities, so humans can perform tasks or interact appropriately". The three social behavioural concepts of EF to which this study was limited include: Response Inhibition (**RI**), Emotional Control (**EC**) and appropriate Behavioural Response (**BR**).

The three examples in the table, an English literacy lesson, an oral lesson and a life skills lesson verify that Learner T experienced challenges with all three of these concepts. He experienced **RI** challenges when he showed "impulsivity" or when he interrupted others or called out in class before he had a chance to evaluate the situation (Greenstone, 2011:103). He could not resist the urge to shout out and did not stop to consider the impact his response would have upon the class.

Showing a lack of EC skill, according to Greenstone (2011:105), may manifest in "... sudden/frequent mood changes, be emotionally reactive and show periods of excessive emotional upsets". Learner T experienced an **EC** challenge during the oral lesson mentioned above: he could not control his frustration when given the incorrect information (according to him). He continued to show a lack of EC through his verbal outburst, even after he was sent out of the classroom to calm down.

Learner T gave into his basic emotional drive and insulted a peer; which resulted in an inappropriate **BR** experience. He responded without thinking of the effect his verbal outburst may have had upon his peer during a class discussion. Birtwell et al. (2016:22) state that ASD children and adolescents "... commonly present with co-occurring behavioural difficulties, including behavioural deregulation and adaptive skills deficits."

To validate that Learner T was experiencing EF challenges, the researcher asked Teacher SM the following question during the interview:

Researcher: Did Learner T show the following challenges: the inability to think before reacting, not giving in to his basic emotional drive and responding in a socially appropriate manner?

Teacher SM: Yes, on a regular basis. He does not recognise that others are allowed to have different ideas and feelings on issues and will get upset if others do not recognise his point of view or frame of reference. He will respond by verbally lashing out and saying something that affects others negatively, without thinking it through.

In SCT Bandura (1991:248) argues that human behaviour is "... extensively motivated and regulated by the ongoing exercise of self-influence". Bandura believes that an individual is able to control behaviour through a process known as self-regulation. This self-discipline, according to Hoffman (2013:1), is "... the ability to adapt your energy, emotions, thinking skills, social skills, and the ability to care about others according to the needs of a situation or problem". The following section provides a summary of Learner T's results.

#### A summary of Learner T's results

The results provided show that Learner T's social cognitive (WCC, ToM, SP and EF) and social functioning challenges (GIP, SIM, SC and SI) influenced his behavioural adaptation in the Grade 3 school environment.

According to the results of the data relating to WCC and GIP, Learner T experienced the following behavioural challenges:

- Learner T found it difficult to understand how to complete a sequence of events;
- He could not see others' points of view; and
- He found it challenging to adhere to new routines and changes.

These WCC and GIP challenges influenced Learner T's behavioural adaptation in the following manner. Learner T often had a valid argument but he found it difficult to move beyond that argument, follow new routines and changes, and show understanding for the views of the discussion held by Teacher SM. Happé and Frith (2006:5) assert that having a fixated and narrow focus of attention, which is a known criterion for experiencing WCC "... may represent an outcome of superiority in local processing, and may be a processing bias, rather than a deficit. Yet, having WCC and GIP challenges is mostly seen as a disadvantage, as the world is set up for a social global processing style of information processing". This would prove that Learner T experienced WCC and GIP challenges and that they directly influenced his behavioural adaptation in Grade 3.

According to the results of the data relating to ToM and SIM, Learner T experienced the following behavioural challenges:

- Learner T could not determine the intentions of others;
- He showed inappropriate social reciprocity when interacting with others; and
- He found it difficult to make sense of abstract information.

Baron-Cohen et al. (1985:43) strongly support the hypothesis that "... children on the autistic spectrum as a group fail to employ theory of mind". This assertion indicates "... the inability to recognise and understand the thoughts, beliefs, desires and intentions of other people in order to make sense of their behaviour and predict what they are going to do next" (Attwood, 2007:112). These behaviours were similar to those displayed by Learner T.

According to the results of the data relating to SP and SC, Learner T experienced the following behavioural challenges:

- Learner T could not adapt to a changed social setting;
- He could not express personal thoughts in a socially acceptable manner; and
- He showed inappropriate social non-verbal and verbal communication.

According to Attwood (2007:271) there has been no satisfactory explanation as to why individuals with AS have "... an unusual sensory sensitivity", or a range of "... effective strategies to modify sensory sensitivity". These coping strategies are often not socially acceptable; especially in unfamiliar surroundings, or what they perceive as stressful situations. The examples relating to SP and SC demonstrate that Learner T lacked these skills.

According to the results of the data relating to EF and SI, Learner T experienced the following behavioural challenges:

- Learner T often lacked the ability to think before reacting in a social environment;
- He would give into basic emotional drive; and
- He would respond in a socially inappropriate manner.

Greenstone (2011:100) explains that "... although educators may be aware of EF skills they may be overlooking their important implication in the foundation of both academic and behaviour problems". Learner T experienced these behavioural challenges while socially interacting in his Grade 3 school environment.

### 4.2.2 Learner L

The discussion that follows provides evidence of how the social cognitive and social functioning challenges experienced by Learner L influenced her ability to adapt her behaviour in Grade 3.

Tables 4.5 – 4.8 provide selected examples of each concept as observed in Learner L's Grade 3 environment. The structure of the results follows a similar pattern to Learner T. Each group of social cognitive and social functioning challenges is described and then followed by a discussion; linking the theory of the results of the challenges with appropriate data from an interview with Learner L's Grade 3 teacher (Teacher GR). To conclude the results of Learner L, a final précis of the results is provided.

- WCC and GIP challenges

Table 4.5 provides three examples: an Afrikaans lesson focussing upon writing words as part of a revision exercise; an English lesson focussing upon writing the week-end news in an essay format; and partaking in an obstacle course as part as a Physical Education (PE) lesson.

**Table 4.5** Examples of WCC and GIP challenges experienced by Learner L (Grade 3)

Private school Grade 3 environment	Observations August - September 2013 Responses of Learner L	Teacher GR, facilitator and PE Teacher's immediate responses to that specific behaviour
<p><b>Below are three examples that include three concepts linked to WCC and GIP:</b> inability to:</p> <ul style="list-style-type: none"> <li>• understand how to complete a sequence of events;</li> <li>• see others' point of view; and</li> <li>• adhere to new routines and changes.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner L relating to WCC and GIP</b></p>		
<p><b>1. Afrikaans revision exercise:</b> inability to understand how to complete a sequence of events during a comprehension exercise.</p>		
(1) Learners are filling in Afrikaans words to complete a comprehension exercise.		
(2) Teacher GR asks the class to complete an Afrikaans exercise in their book, as part of revision for their test.	(3) Learner L's response: "I refuse. Why do I have to do this work again? I know all of this and I hate to have to repeat what I know."	(4) "I do not know what Afrikaans words everyone is struggling with. We are all doing revision, so I can make up a list of words for all to practise." The facilitator who sits with Learner L throughout the day, convinces her to do her work.
	(5) Learner L rushes through her work and finishes quickly. "Can I now continue to draw the fairies in my garden?"	
<p><b>2. English writing exercise:</b> inability to see Teacher GR's point of view of doing the English language exercise.</p>		
(1) Teacher GR explains to the class that they have to write down their news of the week-end in a few sentences.	2 Learner L's response: "Why must I now write down what I have already explained in detail during our discussion time? Did you not listen to what I have had to say the first time?"	(3) Teacher GR's response: "I did listen to your news contribution, but now we are doing English writing and therefore you need to write down your news as well."
<p><b>3 Life Skills: PE lesson:</b> inability to adhere to a new routine and change of doing an obstacle course on the field.</p>		
(1) Physical Education (PE) on sports field. Learners have to partake in an obstacle course.	(2) Learner L refuses to participate. Responds: "I am not good at physical exercises, so I'd rather not take part."	(3) PE Teacher: "You need to at least try". Learner L does not get asked again to participate.
	(4) Learner L wanders off and gathers some lavender flowers. She engages in a conversation with the facilitator about the distinct smell of lavender and its many uses.	

## Discussion

According to Lawson (2011:90) individuals on the autism spectrum "... focus on local information and fail to understand the intentions and actions of others". This self-concern means children with ASD prefer to fixate upon specific aspects of stimuli; which can lead to "... over selectivity, enhanced discrimination, poor generalization, and poor categorization" (Brown & Bebko, 2012:734). The examples of the three lessons in Table 4.5 indicate that Learner L experienced WCC and GIP challenges when she displayed the following two behaviours: challenges with excessive adherence to routine, and not seeing global intentions during social interaction (DSM-V, 2013). She preferred to attend to one specific aspect of what was said and refused to change or conform to what was expected of her.

To provide further understanding of how WCC and the lack of GIP influenced Learner L's ability to adapt her behaviour, the researcher asked Teacher GR the following question during the interview:

Researcher: Has Learner L always understood what to do next, to complete a sequence of events, see others' points of view, and does she adhere to new routines and changes?

Teacher GR: No, not without help. Not from me or from the facilitator. She does not adjust readily to sudden changes [WCC]. Learner L became upset once when I told the class that their Art lesson had been cancelled because the teacher was absent. She insisted that someone else could take the class, since Art is an enjoyable and important lesson [GIP].

SCT (Bandura, 1986) is based upon assumptions about learning and behaviour. One of these assumptions is that personal, behavioural and environmental factors influence one another in a bidirectional, reciprocal fashion, and learning can be affected within the academic environment. Learner L's learning was affected by her own thoughts, beliefs and interpretation of the classroom context (Denler et al., 2014).

- ToM and SIM challenges

Table 4.6 below cites instances of when Learner L manifested ToM and SIM challenges. The first and second examples comprise English lessons: making a sentence with rhyming words and listening to peers offering their oral presentations. The third example occurred during a Natural Sciences lesson where she socially interacted with her peers and facilitator by telling them a riddle.

**Table 4.6** Examples of ToM and SIM challenges experienced by Learner L (Grade 3)

Private school Grade 3 environment	Observations August - September 2013 Responses of Learner L	Teacher GR's and facilitator's immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to ToM and SIM:</b> inability to:</p> <ul style="list-style-type: none"> <li>• determine the intentions of others;</li> <li>• understand the use of appropriate social reciprocity; and</li> <li>• make sense of abstract ideas.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner L relating to ToM and SIM</b></p>		
<p><b>1. English literature:</b> inability to determine the intentions of Teacher GR during an English writing exercise.</p>		
<p>(1) Teacher GR read them a story with rhyming words that sounded silly and made no sense. She asked the class to write a similar sentence with rhyming words about a boy called Jack.</p>	<p>(2) Learner L does not see the humour in the exercise.</p>	<p>(3) Teacher GR: "This is just a fun exercise to see if you can make up sentences with rhyming words using the 'a' sound.</p>
	<p>(4) Learner L's response: "Why must I write a sentence that makes no sense, about a boy that I don't know?"</p>	<p>(5) "If you prefer you can choose a name you know. You can write a sentence that makes sense as long as you include the 'a' sound and your words rhyme."</p>
<p><b>2. English oral presentation:</b> inability to use appropriate social reciprocity during oral presentations by peers.</p>		
<p>1 Learner L has to offer an oral presentation using props. All the learners sit on the floor to listen to the presentations.</p>	<p>2 Learner L listens to two presentations while drawing a picture in a book, sitting on the floor with the rest of the group.</p>	
	<p>3 Learner L's response: "I have had enough of listening to all of you, as it is getting boring. I am going to my desk now to do interesting work."</p>	<p>4 Teacher GR responds: "They sat listening to your oral, so it is very rude not to listen to theirs. Please stay where you are."</p>
	<p>5 Learner L sits down abruptly and is clearly not happy. She continues with her drawing on the floor without showing any interest in the orals that</p>	



	were presented.	
<b>3. Natural Sciences:</b> Learner L's inability to make sense of the abstract meaning behind a riddle which she recited during group work.		
(1) Teacher GR divides learners into groups to work on their Natural Science project on recycling and decomposing waste matter to make compost.	(2) Learner L asks her peers and facilitator in her group if she could tell them a riddle and if they could try and solve it. She asks: "If Mozart was alive and suddenly died today, what would he be doing right now?"	(3) Facilitator's response: "Composing music for the angels."
	(4) Learner L's response: "Don't insult my intelligence". He would be decomposing of course."	(5) Peers giggle, as they think it is funny.
	(6) Learner L's response: "What is so funny? It is true, and you are now being disrespectful to the dead."	

### Discussion

ToM is a term which is currently used to explain "... a related set of intellectual abilities that enable us to understand that others have beliefs, desires, plans, hopes, information, and intentions that may differ from our own" Korkmaz (2011:101). According to an earlier study, conducted by Baron-Cohen et al. (1985:43) most individuals experiencing autism "... are unable to impute beliefs to others and are thus at a grave disadvantage when having to predict the behaviour of other people". The three examples identified that Learner L was unable to present acceptable social reciprocity: she did not understand the intention and desire of Teacher GR and was also unable to appreciate the abstract meaning of the riddle which she recited. To explore whether Learner L experienced ToM and SIM challenges, the researcher asked Teacher GR the following question during the interview:

Researcher: Could you comment on whether Learner L can determine the intentions of others: does she understand social reciprocity, and can she make sense of abstract ideas?

Teacher GR: Yes, I have experienced that Learner L finds it difficult to understand that others may have different ideas or opinions than herself [ToM]. She would be insistent that she is right and then get very argumentative and not listen to anybody else's point of view [SIM].

According to Green et al. (2008:1212) social cognition is "... the process of how we draw inferences about other peoples' beliefs and intentions and how we weigh social situational factors in making these inferences". Learner L showed ToM and SIM challenges, which

applied to "...both mental and non-mental representation" (lao & Leekam, 2014:2) in that she struggled to "... draw inferences from other people's beliefs". This resulted in her not showing appropriate social reciprocity, difficulties with problem solving, abstract, symbolic play and understanding (Knott & Dunlop, 2007).

- SP and SC challenges

Table 4.7 gives three examples: a Life Skills lesson while attending assembly in the hall, a discussion on English literature, and an English oral preparation.

**Table 4.7** Examples of SP and SC challenges experience by Learner L (Grade 3)

Private school Grade 3 environment	Observations August - September 2013 Responses of Learner L	Teacher GR's and facilitators immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to SP and SC:</b> inability to:</p> <ul style="list-style-type: none"> <li>• adapt to a changed social setting;</li> <li>• express personal thoughts in a socially acceptable manner; and</li> <li>• use appropriate social non-verbal and verbal communication.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner L relating to SP and SC</b></p>		
<p><b>1. Life Skills:</b> Inability to adapt to the changed social setting during assembly.</p>		
(1) Morning assembly in the hall with the whole school.	(2) Learner L is upset. She insists that she wants to keep her hat on, since according to her, it keeps her thoughts together.	
	(3) Learner L sits with her knees under her chin with her head on her knees, rocking back and forth. She shows no interest in what is happening on the stage.	(4) The facilitator asks her to sit properly, but she refuses.
(5) Learners have to stand to sing the school song.	(6) Learner L refuses to get up and puts her hands over her ears.	(7) The facilitator sits down next to her and speaks to her quietly and convinces her to get up from her seat.
<p><b>2. English literature:</b> inability to express her personal thoughts in a socially acceptable manner before a literature lesson.</p>		
(1) Teacher GR informs the class that they will stay in at break time if they do not settle down.	<p>(2) Learner L's response: She jumps up and throws her book down. "I refuse to give up my lunch break!"</p> <p>(4) Learner L's response: She ignores the facilitator and shouts out: "This is totally ridiculous and unfair! I was on the mat on time, so why do I have to stay in if I did what was asked of me? It's not my fault that my group does not respond or ignore you."</p>	<p>(3) The facilitator tells her to pick up her book and asks her if she wants to go outside for a walk to calm down.</p> <p>(5) Teacher GR and facilitator calm her down. Teacher GR's response: "If everyone now focusses and works, it might not be necessary." The facilitator helps her compose herself by talking to her quietly and helps her focus on the task she had to complete.</p>
<p><b>3. English Oral:</b> inability to display appropriate social non-verbal and verbal communication during preparation of oral.</p>		
(1) Learners are informed to prepare for their oral presentation by making memory flash cards to assist them in presenting their oral.	<p>(2) Learner L's response: "I have an excellent memory. I don't need memory cards."</p> <p>(4) Learner L's response: "But you just don't understand. I need to walk and pace myself and keep my hat on to keep my thoughts together, and being barefoot helps to keep me grounded."</p>	<p>(3) Teacher GR: "You need to take your hat off and put your shoes on and go and sit down and not disturb the rest of the class."</p> <p>(5) Facilitator fetches Learner L and takes her outside to go for a walk, and tries to persuade her to conform.</p>

## Discussion

The latest DSM-V (2013) included sensory challenges as a criterion because this behaviour had been consistently reported in children on the ASD spectrum (Baker et al., 2008; Minshew & Hobson, 2008; Schoen et al., 2009). An individual with AS experiencing sensory sensitivity can become "... hyper vigilant, tense and distractible in sensory stimulating environments such as the classroom, and be unsure where the next painful sensory experience will occur" (Attwood, 2007:273).

In all three examples (Table 4.7: oral presentation, literature lesson and life skills lesson), Learner L experienced SP and SC challenges: she was tense, distractible and showed painful sensory experiences. Her discomfort and awkwardness were observed when she could not adapt to the change in various social settings. Learner L communicated her dissatisfaction by responding in a socially unacceptable manner: she displayed inappropriate non-verbal communication because of her sensory overload. Teacher GR and the facilitator had to intervene on numerous occasions; to assist Learner L to manage these challenges in a socially acceptable manner. These intervention strategies are analysed and discussed in Chapter 5 which reports on how the teacher addressed these challenges.

To substantiate the findings of SP and SC challenges faced by Learner L, the researcher asked Teacher GR the following question during the interview:

Researcher: Does Learner L have the ability to adapt to a changed social setting [SP], express personal thoughts in a socially acceptable manner, and show appropriate social non-verbal and verbal communication [SC]?

Teacher GR: No, not always. Learner L would get distracted by what was happening around her [SP]. Examples were when something new was added to the classroom, or something was happening outside on the playground, she would always get up and go and investigate. It would then take a while for her to sit down and focus on the lesson being presented [SP]. Learner L would often respond by not following class rules [SC]. For example, insisting on not putting her shoes back on, or wearing her sunhat in class [SP]. She would also get upset with other people's responses that did not make sense to her, or them acting in a way she did not understand [SC].

There has been growing support for both social cognitive and social communication explanations in research into autism: specifically in the areas of non-social cognitive impairments in representational understanding, attention allocation and sensory processing (Leekam, 2015).

Lane et al. (2010) and Watson et al. (2011) have shown a negative relation between sensory challenges and social communication among children with autism. Since Learner L was often overwhelmed by her sensory stimuli [SP], she engaged in a range of inappropriate behaviours and social environmental communication strategies [SC] in order to protect herself from overstimulation.

- EF and SI challenges

Table 4.8 provides three examples of Learner L experiencing EF and SI challenges. The first example occurred during a Mathematics revision lesson. The second example occurred during Learner L's Social Science oral presentation, and the third example took place during a Life Skills lesson when Teacher GR asked the class to write down their homework.

**Table 4.8** Examples of EF and SI challenges experienced by Learner L (Grade 3)

Private school Grade 3 environment	Observations August - September 2013 Learner L's response	Teacher GR's and facilitators immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to EF: (Response Inhibition (RI), Emotional Control (EC), inappropriate Behavioural Response (BR):</b> inability to:</p> <ul style="list-style-type: none"> <li>• think before reacting [BR];</li> <li>• not give into her basic drive of emotions [EC]; and</li> <li>• respond in a socially appropriate manner [BR].</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner L relating to EF and SI</b></p>		
<p><b>1. Mathematics:</b> Inability to think before reacting during a Mathematics demonstration lesson [RI].</p>		
(1) Teacher GR explains the rules of how to undertake problem solving of sums.	(2) Learner L responds by shouting out the answers before Teacher GR had time to explain the rules.	(3) Teacher GR's response: "Please don't shout and interrupt the lesson. I know you can do these sums, but the others still need explaining on how to do them."
	(4) Learner L's response: She shouts out again. "Yes I know I am a Maths boffin. It's because I listened in class the first time and went home and practised, as practice makes perfect."	(5) Facilitator reprimands Learner L and asks her to keep quiet and focus so others can listen to Teacher GR's explanation of the sums.
<p><b>2. Social Sciences:</b> Inability to not give into her basic emotional drive at the end of her oral presentation [EC].</p>		
(1) Oral presentation of a project on Sea Vessels that sunk off the South African coast. Learner L is asked to present her oral presentation to the class.	(2) Learner L's response: "I really do not need to use memory cards."	
	(3) Learner L presents very formally. "Dear class. Thank you for attending my presentation..." Uses formal words and gives many facts without showing emotion while presenting.	(4) After a while Teacher GR asks Learner L to complete her oral. "Sorry to interrupt Learner L, but you need to finish your presentation now."
	(5) Learner L's response: She gets upset and cries. "But I have so much more to contribute and it does not seem like the class is listening."	
	(6) Learner L runs out of class shouting and crying: "You are not a very responsive audience and just plain rude."	(7) The facilitator follows her outside to help her calm down and encourages her to re-join the class.
<p><b>3 Life Skills:</b> The lack of ability to respond in a socially appropriate manner without thinking of the consequences when asked to write down her homework [inappropriate BR].</p>		
(1) Writing down homework. Teacher GR told the students to write down their homework from the board for the next few days.	(2) Learner L's response: "I am busy with finishing off this picture and really don't have time to write down the homework right now."	
	(3) "I anyway have a photographic memory and you have already explained to us in detail what you want us to do for homework."	(4) Teacher GR's response: "Learner L, write it down anyway just in case you have a lapse in memory."
	(5) Learner L: "I am not stupid and I know how to do all this work"	(6) Teacher GR's response: "Learner L, you write this down"

	anyway. And by the way, I have an excellent memory and seldom forget.”	- your homework, or you will stay at school till you do.”
	(7) Learner L opens her book and reluctantly starts to write down the homework, moaning to herself.	

### Discussion

It is confirmed by Kana et al. (2007) that inability to exhibit context-appropriate behaviour is typical of high functioning individuals with autism. The three examples, a Mathematics lesson, Social Science lesson and Life Skills lesson listed in Table 4.8 show the influence that the lack of the three EF skills (RI, EC and inappropriate BR) and her inappropriate social interaction had on Learner L’s ability to adapt her behaviour; which resulted in Learner L displaying inappropriate SI behaviour.

Individuals with ASD are associated with “... pre-potent response inhibition difficulties” (Kuiper et al., 2016:1124) and these RI difficulties influence their behavioural adaptability. Learner L demonstrated a RI challenge when she was unable to inhibit her response; making her behave without thinking of the consequences of her verbal interaction.

Learner L lacked appropriate **EC** when she was unable to control her emotions when uttering her disappointment towards Teacher GR. Learner L behaved in a socially unacceptable manner towards her peers. A diagnostic character trait of ASD individuals includes the “... lack of spontaneous seeking to share enjoyment, emotions, affect, interests, or achievements” with other people, and a lack of appropriate emotional responses (DSM-V, 2013:50). Since ASD is characterised by “... persistent difficulties in social communication and social interaction, coupled with restricted, repetitive patterns of behaviour or interest” (Fitzpatrick et al., 2016:1525), Learner L did not respond in a socially acceptable manner and gave into her basic emotions by trying to guess what she had to do [inappropriate **BR**]. This is an example of her not taking responsibility for her behaviour and the effect it might have upon the rest of the class.

To explore the influence EF and SI challenges had on Learner L's behavioural adaptation, the researcher asked the following question of Teacher GR during the interview:

Researcher: How did Learner L show the following challenges: the inability to think before reacting, not giving into her basic drive of emotions and responding in a socially appropriate manner?

Teacher GR: Yes, these are challenges for her. Learner L struggled to stop herself from saying something that comes to mind, without internalising the information first. For example she screamed at a peer last week: "Don't be stupid, can't you see you are doing it wrong?", as she felt she was not following the rules of the game. Learner L cannot control her unpleasant feelings of anxiety. She would verbally and physically express how she feels without thinking of the consequences, or how it would affect others around her. She often cries out of frustration, when she feels she is not understood. She will then be insistent that she is right and refuse to listen to anyone else's point of view.

SCT, according to Bandura (2012), provides a framework for learning that takes into account social environment, personal factors such as affect and cognition of the learner and behaviour. As discussed in Chapter 2, these factors of environment, personal and behaviour are influenced by "... enactive and observational learning from one's environment, personal motivation or self-efficacy, and the ability to self-regulate" (Bembenutty et al., 2016:217). Learner L's behavioural responses show that an influence in one area can impact performance in another. The following section provides a summary of Learner L's results.

#### A summary of Learner L's results

The evidence from the data collected suggests that Learner L's social cognitive (WCC, ToM, SP and EF) and social functioning challenges (GIP, SIM, SC and SI) influenced her behavioural adaptation in her Grade 3 class.



According to the results of the data relating to WCC and GIP, Learner L experienced the following behavioural adaptation challenges:

- Learner L found it difficult to understand how to complete a sequence of events;
- She could not see others' point of view; and
- She found it challenging to adhere to new routines and changes.

A research study conducted by Pina, Flavia and Patrizia (2013:13) reveals that the "...unusual perceptual and cognitive style of children with autism is characterised by an inability to integrate information in a relevant context, a segmented processing experience, an inability to experience wholes, and a persistent preoccupation with parts of objects". There is evidence that in all three examples of lessons listed in Table 4.8 Learner L had difficulty understanding the meaning of instructions and directions for participation in activities (Baron-Cohen et al., 1985 & Kimhi, 2014). Learner L frequently failed to understand the main reason behind what was said or had to be done in class by Teacher GR or her peers. She would then be stuck on one detail only and not see their point of view. She found it difficult to adhere to changes in routine and follow of general class rules. According to the examples given to identify WCC and GIP challenges, these difficulties compromised her ability to adapt her classroom behaviour in Grade 3.

According to the data relating to ToM and SIM, Learner L experienced the following challenges:

- Learner L could not intuitively apprehend the intentions of others;
- She lacked social reciprocity when interacting with others; and
- She found it difficult to make sense of abstract information.

Having an impaired ToM and SIM can manifest itself in various ways: in an inability to grasp the conventions of social reciprocity, and a difficulty in problem solving and symbolic play (DSM-V, 2013). The three examples given to identify ToM and SIM indicate that Learner L often failed to understand that Teacher GR or her peers held points of view different from her own, and she made literal interpretations of what was said. She became upset when others interpreted her verbal and non-verbal contributions as amusing. Such misunderstandings showed that she experienced ToM and SIM challenges that influenced her behavioural adaptability in Grade 3.

The data relating to SP and SC revealed that Learner L experienced the following challenges:

- Learner L could not adapt to a changed social setting;
- She could not express personal thoughts in a socially acceptable manner; and
- She showed inappropriate social non-verbal and verbal communication.

Sensory processing problems in children with ASD are believed to be one of the “... underlying factors related to behavioural and/or faction performance problems” (Case-Smith et al., 2014:2). All three examples relating to SP and SC proved that Learner L often became distracted with what was happening around her and would then behave in a socially inappropriate way. She found it difficult to show appropriate social reciprocity due to her experiencing sensory overload. This indicates that she experienced SP and SC challenges that had an influence on her behavioural adaptability in Grade 3.

According to the data relating to EF and SI, Learner L experienced the following challenges:

- Learner L often lacked the ability to think before reacting in a social environment;
- She would give into her basic emotional drive and
- She would respond in a socially inappropriate manner.

Research has identified that in addition to communication and social challenges, and restricted patterns of behaviours and interests, ASD individuals commonly encounter behavioural challenges that include the lack of EF skills (Szatmari, Tuff, Finlayson, & Bartolucci, 1990; Ozonoff & McEvoy, 1994; Lopez et al., 2005.). The three examples of lessons listed in Table 4.8 identify three EF and SI challenges; indicating that Learner L found it challenging to think before reacting, gave in to her basic emotional drive and at times responded in a socially inappropriate way. These factors indicate that Learner L experienced three EF and SI challenges which influenced her ability to adapt her classroom behaviour in Grade 3.

### 4.2.3 Learner E

The discussion that follows provides evidence of how social cognitive and social functioning challenges experienced by Learner E influenced his behavioural adaptation in Grade 3.

Tables 4.9 – 4.12 provide selected examples of each concept as observed in Learner E's Grade 3 environment. The structure of the results follows a similar pattern as set out for Learner T and L. Each group of social cognitive and social functioning challenges will be described and then followed by a discussion; linking the theory of the results of the challenges with appropriate data from an interview with Learner E's Grade 3 teacher (Teacher CJ). To conclude the results of Learner E, a final summary of the results is provided.

- WCC and GIP challenges

Table 4.9 provides these three examples: an Afrikaans lesson where the class had to write their own sentences using the sound 'ui', a Mathematics exercise practising examples on shapes, and an English discussion on traditional foods of South Africa.

**Table 4.9** Examples of WCC and GIP challenges experienced by Learner E (Grade 3)

Government mainstream school Grade 3 environment	Observations August - September 2013 Responses of Learner E	Teacher CJ's immediate responses to that specific behaviour
<p><b>Below are three examples that include three concepts linked to WCC and SGU: inability to:</b></p> <ul style="list-style-type: none"> <li>• understand how to complete a sequence of events;</li> <li>• see others' point of view; and</li> <li>• adhere to new routines and changes.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner E relating to WCC and GIP</b></p>		
<p><b>1. Afrikaans:</b> inability to understand how to complete a sequence of events during an Afrikaans writing exercise.</p>		
<p>(1) Making sentences with words. Teacher CJ writes on the board some Afrikaans sentences pertaining to the 'ui' sound. She asks the class to make up their own sentences.</p>	<p>(2) Response by Learner E: "Ma'am what must we do?"</p>	<p>(3) Teacher CJ explains again that he may use the 'ui' word she used, but had to make up his own sentences.</p>
	<p>(4) Response by Learner E: "But why can't I just use your sentences, as they are correct? And I like them. I think I am doing just that."</p>	
	<p>(5) Learner E copies the sentences down from the board word-for-word.</p>	<p>(6) Teacher CJ leaves him to write the sentences from the board.</p>
<p><b>2. Mathematics:</b> inability to see Teacher CJ's point of the view during a Mathematics exercise.</p>		
<p>(1) Hexagon and octagon shapes. Teacher CJ explains in detail (with visual props) the different shapes and asks the class to complete the exercise in their book.</p>	<p>(2) Learner E kept calling Teacher CJ: "Ma'am I am stuck and can't do this question. What do they want and what does this mean?"</p>	<p>(3) Teacher CJ's responds: "As I explained. Only do the questions you can do – first. Then we will discuss all the sums afterwards together as a class and learn from each other."</p>
	<p>(4) Response from Learner E: "But I <u>want</u> to do the 1<sup>st</sup> question first, so I don't get confused. I always start at the beginning."</p>	<p>(5) Teacher CJ goes and sits at his desk to assist him to do question 1, so he could continue.</p>
<p><b>3. English:</b> inability to adhere to a new routine and change during a group discussion on traditional foods.</p>		
<p>(1) Discussion on traditional foods. Teacher CJ tries to involve Learner E in the discussion and asks him what his food preference is.</p>	<p>(2) Response from Learner E: "I like to eat what I eat and right now I am not hungry and would like to draw the whale that I started to draw in Art." He continues to do his drawing without looking up.</p>	<p>(3) Teacher CJ's response. She goes to him and takes his drawing away. "You can get this back when you have listened and finished your work and only if there is time."</p>
	<p>(4) Response from Learner E: "But I am not interested in talking about food, and I am not disturbing anyone while I am drawing."</p>	<p>(5) Teacher CJ's response: "You are at school now and here to learn about different traditional foods. So please pay attention, even if you do not want to contribute."</p>

## Discussion

ASD individuals process information "... 'piece by piece' ... and ... the information obtained are isolated and fragmented, due to a 'weak' capacity of central coherence" (Filippello et al., 2013:3). These three experiences showed that Learner E's WCC and GIP were challenges that influenced his behavioural adaptation in the Grade 3 class. He could not understand the sequence of events and became fixed upon on one detail that made sense to him. He could not follow Teacher CJ's reasoning and intentions during class discussions. This obstacle resulted in him not being able to adhere to a new routine or change in activity; he could not understand why he had to participate in a discussion that did not interest him.

The researcher interviewed Teacher CJ to explore how she experienced Learner E's WCC and GIP challenges in her class:

Researcher: Has Learner E always understood what to do next to complete a sequence of events, see others'; point of view, and does he adhere to new routines and changes?

Teacher CJ: Learner E had trouble transitioning from one task to another, and he did not always adhere to change [WCC]. He would switch off and just continue what he was doing. For example, working on a drawing that he was busy with. When he did do work, he would insist on doing it his way and would often get stuck and not understand, for example, how to answer the questions in an exercise [GIP].

Since SCT (Bandura, 1986) emphasises learning from the social environment, which postulates reciprocal intentions among personal, behavioural and environmental factors, self-efficacy skill is a critical influence upon motivation and "... affects tasks choices, effort, persistence, and achievements" (Schunk & Usher, 2012:13). Learner E lacked the skill of self-efficacy which influenced his motivation when it came to engaging in class activities effectively. The Mathematics example showed that Learner T lacked confidence since he did not believe he could follow Teacher CJ's instruction.

- ToM and SIM challenges

Table 4.10 provides three examples of lessons: an English test, collecting of homework notices during a Life skills lesson, and a drawing lesson during creative Art, to show Learner E's ToM and SIM challenges.

**Table 4.10** Examples of ToM and SIM challenges experienced by Learner E (Grade 3)

Government mainstream school Grade 3 environment	Observations August - September 2013 Responses of Learner E	Teacher CJ's and Art teachers' immediate responses to that specific behaviour
<p><b>Below are three examples that include three concepts linked to ToM and SIM:</b> inability to:</p> <ul style="list-style-type: none"> <li>determine the intentions of others;</li> <li>understand the use of appropriate social reciprocity; and</li> <li>make sense of abstract ideas.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner E relating to ToM and SIM</b></p>		
<p><b>1. English test:</b> inability to determine the intentions of Teacher CJ during a spelling test.</p>		
(1) Teacher CJ uses a rhyming sentence to help the class write the word 'money'. She says: "You need money to buy some cheap meat and honey."	(2) Learner E's response. He interrupts the spelling test. "Ma'am that is such a stupid sentence. One does not eat meat and honey together."	(3) Teacher CJ's response: "Please do not interrupt, as this is a test and you need to focus."
		(4) Teacher CJ's response: "I am only showing you that money rhymes with honey to help get the spelling correct."
<p><b>2. Life Skills:</b> inability to understand appropriate social reciprocity during discussion about missing notices in homework book.</p>		
(1) Teacher CJ notices that Learner E has not brought back notices and that his homework book was not signed.	(2) Learner E's response: "Don't blame me. I can't help it that I was sick and that it was not put back into my book signed. Call them (parents) and blame them for getting me into trouble for not doing their job."	(3) Response from Teacher CJ: "I know you have been sick and therefore I am checking what notices you are missing. I will give you another notice and write a note to explain to your parents."
<p><b>3. Art Lesson:</b> inability to make sense of an abstract idea of drawing a cat creatively.</p>		
(1) The Art teacher asks the class to draw a 'creative cat' using many different colours and patterns.	(2) Response from Learner E: He drew a ginger cat as he insisted that you don't get cats with all the given colours.	(3) Response from Art teacher: "You are not doing what I have asked. You are supposed to use all the colours given and use different shapes.
	(4) Response from Learner E: "Have you ever seen any of these cats with all these colours? I don't think so!"	
	(5) Response from Learner E: "To please you I will draw the inside of my ginger cat to show shapes."	
	(6) Learner E drew the inside skeleton and skull using shapes. He showed the fish bones, in shapes, inside the cat's stomach in minute detail.	(7) Art teacher accepts his drawing that is very close to 'picture perfect' when it comes to real 'life size' detail.

## Discussion

Kimhi's (2014) study illustrates that ToM deficits impede the daily social and academic life of individuals on the autism spectrum. ToM refers to a learner's ability to represent and understand other's mental state, such as goals, emotions and beliefs (Bauminger-Zviely, 2013). When referring to SIM, children on the autism spectrum do exhibit imagination, but it is not socially conditioned (Wing et al., 2011). Learners diagnosed with ASD find it difficult to imagine others' perspectives and are seldom able to show empathy [although they may well feel it.

The three examples of lessons in Table 4.9 show how Learner E expresses his confusion and misunderstanding while he was experiencing ToM and SIM challenges. Learner E kept interrupting the class activities and discussions because he could not understand the reasoning given by Teacher CJ. Because he felt misunderstood and confused, he was unable to reciprocate socially with Teacher CJ in the classroom. He could not see the reason for completing a task and did not adhere to instructions given. To substantiate Learner E's ToM and SIM challenges, the researcher interviewed Teacher CJ:

Researcher: Could you comment on Learner E's ability to determine the intentions of others, does he understand social reciprocity, and can he make sense of abstract ideas?

Teacher CJ: Learner E is very opinionated on what he wants and does not want to do. He would often show inappropriate social reciprocity to try and get across his reasoning for doing what he wants. I have to often motivate the reason for doing something for him, before he would even attempt to start. He found it difficult to show understandings of thought, desires and intentions of others, and would make literal interpretations of what others were saying [ToM and SIM].

A closely related assumption within SCT (Bandura, 2001) is that individuals have the ability to influence their own behaviour and the environment in a "... purposeful, goal-directed fashion and that individuals can learn, but not demonstrate that learning until motivated to do so" (Denler et al., 2014:20). Learner E experienced difficulty with ToM and SIM and had to be motivated to participate on a regular basis: something which affected the way he personally and socially interacted in his school environment.



- SP and SC challenges

Table 4.11 provides examples of the following three lessons: a Social Science experiment, a Mathematics lesson on fractions and an English lesson while writing sentences for a comprehension. All three lessons revealed Learner E's SP and SC challenges.

**Table 4.11** Examples of SP and SC challenges experience by Learner E (Grade 3)

Government mainstream school Grade 3 environment	Observations August - September 2013 Responses of Learner E	Teacher CJ's and Science teacher's immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to SP and SC:</b> inability to:</p> <ul style="list-style-type: none"> <li>• adapt to an altered social setting;</li> <li>• express personal thoughts in a socially acceptable manner; and</li> <li>• employ appropriate social non-verbal and verbal communication.</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner E relating to SP and SC</b></p>		
<p><b>1. Social Sciences:</b> inability to adapt to a changed social setting because he was distracted by an odour from an experiment.</p>		
<p>Social Sciences experiment on Alexander Fleming and penicillin. (1) The Science teacher asked the class to smell a jelly-like substance during an experiment.</p>	<p>(2) Response from Learner E: "I feel I want to vomit. This smell is gross". Learner E goes and sits back at his desk.</p>	<p>(3) The Science teacher ignores him and continues with the experiment.</p>
<p>(4) The Science teacher instructs the class to write the experiment and the results in their books.</p>	<p>(5) Learner E's response: "How am I supposed to focus and do work with this smell in the classroom?"</p>	<p>(6)The Science teacher response: "Why are you always the only one that can't tolerate smells and textures during our experiments?"</p>
		<p>(7)The Science teacher explains to him what he needs to do at his desk, since he missed out on the demonstration.</p>
<p><b>2. Mathematics:</b> inability to express his personal thoughts in a socially acceptable manner during a Mathematics demonstration by a peer.</p>		
<p>Maths lesson on fractions. (1) Teacher CJ does fractions on the board and chooses a learner who had her hand up to offer to do the "working out" of the answer on the board.</p>	<p>(2) Learner E immediately bumps his hand on the desk and moans: "I had my hand up first and you never choose me!"</p>	<p>(3) Teacher CJ ignores his outbursts and continues with the lesson.</p>
	<p>(4) Learner E's response: "I must object! I can also do that sum, but you ignore me, as you always choose the girls as they seem to be your favourite!"</p>	<p>(5) Teacher CJ tells him that if he does not keep quiet she is going to send him to sit outside the classroom till they are done.</p>

<sup>2</sup> This Science teacher was not Learner E's usual teacher: she responded in an unsympathetic manner largely because she was unfamiliar with the required modes of expression for dealing with a AS/HFA learner. The fact that she responded poorly is of great significance to this study which emphasises the need to inform, support and enlighten teachers as to the necessary didactic modes for including AS/HFA learners in a mainstream class.

<b>3. English:</b> inability to use appropriate social non-verbal and verbal communication responses		
English test – answering a comprehension exercise by writing 10 sentences in two paragraphs. (1) Teacher CJ explains that it is a test and that they must work independently and quietly.	(2) Learner E keeps calling Teacher CJ. “Is this right?” He makes grunting noises and keeps bumping the peer next to him with his elbow. He drops his pencil and crawls under the desk disturbing his peer again.	(3) Teacher CJ asks the class assistant to take him to the library to complete his test.
	(4) Response from Learner E: “But it’s not library time so why do I have to go there right now?”	(5) Teacher CJ explains: “It’s quieter in the library for you, so you can focus and finish your test.”

### Discussion

It was noted by Menzinger and Jackson (2009) that a hyper-sensitive child often finds noise and smells distressing or offensive in the classroom and withdraws from social contact which leads to poor communication and interaction. When referring to AS/HFA learners, Casanova (2016:16) reasons that: “... individuals on the autistic spectrum disorder do not respond in the way we expect them to, because they have different systems of perception and communication”. The three examples of lessons listed in Table 4.11 above revealed that Learner E experienced SP and SC challenges and used his own adaptive coping and compensatory strategies to communicate verbally and non-verbally that he was experiencing sensory overload. Learner E showed hyper-sensitivity to a certain smell in the class and withdrew from social contact which evidenced poor communication skills and interaction with the group. He found it difficult to express his discomfort when he felt overwhelmed by what was happening in class: he responded by being disruptive; showing inappropriate non-verbal and verbal responses.

During the interview, Teacher CJ was asked the following question to explore the SP and SC challenges experienced by Learner E.

Researcher: Does Learner E have the ability to adapt to a changed social setting, express personal thoughts in a socially acceptable manner, and show appropriate social non-verbal and verbal communication skills?

Teacher CJ: He found all of these things difficult. Learner E is highly reactive to unusual tastes and smells in his environment [SP]. He would immediately remove himself from the stimuli. He often does not process the information given by me when it comes to performing tasks. He can also not tolerate waiting his turn. When he gets overwhelmed with the activities in the classroom he

gets disruptive [SC]. I would then ask the class assistant to remove him so he could compose himself or complete a task.

According to SCT (Bandura, 1999:169), individuals "...function as contributors of their own motivation, behaviour and development within a network of reciprocally interacting influences". The "... atypical sensory processing abilities" (Hochhauser & Engel-Yeger 2010:746) that Learner E experienced account for the way in which these three lessons affected Learner E.

- EF and SI challenges

Table 4.12 provides examples of three lessons listed below which exposed EF and SI challenges experienced by Learner E. The first lesson occurred during an English listening and writing exercise while the second took place during a Mathematics micro-lesson. The third example transpired after a lunch break, when Teacher CJ discussed a confrontation Learner E had with a peer learner.

**Table 4.12** Examples of EF and SI challenges experience by Learner E (Grade 3)

Government mainstream school Grade 3 environment	Observations August - September 2013 Learner E's response	Teachers CJ's immediate response to that specific behaviour
<p><b>Below are three examples that include three concepts linked to EF (Response Inhibition (RI), Emotional Control (EC), inappropriate Behavioural Response (BR):</b> inability to:</p> <ul style="list-style-type: none"> <li>• think before reacting [RI];</li> <li>• not give into his basic emotional drive [EC]; and</li> <li>• respond in a socially appropriate manner [BR].</li> </ul>		
<p><b>Behavioural adaptation challenges experienced by Learner E relating to EF and SI</b></p>		
<p><b>1. English:</b> inability to think before he reacted [RI] during an English listening and writing exercise.</p>		
<p>English listening and writing answers. (1) Teacher CJ reads a story and asks them to write down what they think is going to happen next in the story.</p>	<p>(2) Learner E's response: He ignores Teacher CJ's request and shouts out what he thinks will happen next: "He is in the bank so he is a bank robber and a thief!"</p>	<p>(3) Teacher CJ's response: "Don't spoil it for everyone. You were supposed to write down the answer and we will then listen to everyone's answers afterwards."</p>
	<p>(4) Learner E's response: "Yes I did write it down. I just wanted to make sure others also got it too."</p>	
<p><b>2 Mathematics:</b> inability to not to give into his basic emotional drive during a Mathematics lesson [EC]</p>		
<p>Maths micro-learning on clocks and time. (1) Teacher CJ takes a small group on the mat to discuss the concept of time and clocks. She asks them questions.</p>	<p>(2) Learner E's response: "I know, I know. I'm good at telling the time."</p>	<p>(3) Teacher CJ's response: "I am aware you can tell the time, but please don't interrupt all the time. Give others a chance too."</p>
	<p>(4) Learner E responded by slamming his book closed. When his peer gets the answer right he mumbles to himself: "But I said that."</p>	
	<p>(5) Learner E responded by jumping up and saying: "Seeing that you are ignoring me, can I please go and wee now?"</p>	<p>(6) Teacher CJ gives him permission to go to the boys' restroom.</p>
<p><b>3 Lunch break:</b> inability to: respond in a socially appropriate manner without thinking of the consequences of his actions during lunch break [Inappropriate BR]</p>		
<p>Lunch break confrontation. (1) Teacher CJ calls all five boys involved in a confrontation for an explanation as to why Learner E and an older boy fought during break.</p>	<p>(2) Learner E grew upset since he claims that the older boy was teasing him, because he was pretending to be a character he read in a book. Learner E responds to being asked why he was fighting: "I just wanted to beat him up for teasing me."</p>	<p>(3) Teacher CJ's response: "But why did you not go and tell the ground monitor?"</p>

	(4) Learner E's response: "I am big enough to sort out my own problems and they won't believe me anyway."	(5) Teacher CJ's response: "But you can't go hurting your peers just because you don't agree with them. That means you are also going to get into trouble, like right now. In future rather play with your own classmates."
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### Discussion

EF skills are seen as "... the building blocks of various age salient competencies" and can affect young child's social, emotional and cognitive development" (Obradović, 2016:66). EF consists of many cognitive ability skills needed to control our thoughts, emotions and actions, however. The reason for narrowing the focus on these three sub-concepts was because these concepts focus on behavioural responses which is the focus of this research study.

RI is an EF skill that is important in resisting the urge to say or do something before being given the chance to evaluate the situation (Greenstone, 2011). The lessons used to identify RI challenges experienced by Learner E reveal that Learner E lacked the capacity to manage his RI inhibition and chose to engage in impulsive behaviour instead (Guare et al., 2013).

Attwood (2007) states that young learners with AS clearly find it difficult to understand emotions within themselves and others: such learners find it taxing to express emotions at a level appropriate to the situation. Since Learner E displayed "... sudden mood changes, was emotionally reactive and showed excessive emotional upsets" (Greenstone, 2011:105), he was unable to exercise the skill of **EC**.

It is important for learners to have the capacity to show appropriate **BR**; so as not to engage in impulsive and risky behaviour (Gaure et al., 2013). The example of the teacher's discussion of Learner E's confrontation [listed in Table 4.12] demonstrated that Learner E had become overly upset when he had to deal with perceived 'unfairness': Learner E found it difficult to "... act with restraint in response to teasing and a disagreement" (Dawson & Guare, 2009:207).

To explore the influences of EF and SI challenges experienced by Learner E the researcher interviewed Teacher CJ:

Researcher: Did Learner E exhibit the following challenges: the inability to think before reacting, not giving in to his basic emotional drive and responding in a socially appropriate manner?

Teacher CJ: These are huge problems for him. Partly this is due to the fact that Learner E is very honest and sincere. He would often go into his own world and pretend to be a character out of a book. He would then just say what comes to mind without thinking of the consequence of what he had just said or done [RI]. Learner E struggles with compromise and conflict resolution and this would result in him getting emotionally worked up and then lashing out in a socially unacceptable manner [EC]. He is still very immature in how he expresses himself compared to his peers, who are more aware of what to say and do at appropriate times [inappropriate BR].

Individuals possess "... self-reflective and self-reactive capabilities" which enable them to exercise a measure of control over their thoughts, feelings, motivations, articulation and actions (Bandura, 1991:249). EF skills are "... critical for both school and personal success, but have been traditionally under-addressed in academic settings" Greenstone, 2011:101). The lessons relating to Learner E's challenges with EF reveal that he could not exercise control over his thoughts, feelings and lacked motivation. The lack of these EF skills restricted his ability to offer appropriate behavioural responses. A summary of Learner E's results is now presented.

A summary of Learner E's results

It was identified during the data collection that Learner E experienced social cognitive (WCC, ToM, SP and EF) and social functioning challenges (GIP, SIM, SC and SI) which compromised his behavioural adaptation in the Grade 3 classroom.

According to the lessons listed in Table 4.9, Learner E faced the following WCC and GIP challenges:

- Learner E found it difficult to understand how to complete a sequence of events;
- He could not see others' points of view; and
- He found it challenging to adhere to new routines and changes.

According to Filippello et al. (2013:3) having WCC and GIP challenges can explain social impairments in children with autism and can "... affect a wide range of psychological functions: perception, language and social skills". From Learner E's performance in the lessons listed in Table 4.9, it became evident that he could focus on only one detail of an instruction or discussion that made sense to him. Experiencing WCC and GIP challenges caused him to disregard the main focus of general classroom discussion and instruction: this disregard for others conditioned how he socially and behaviourally interacted in his Grade 3 school environment.

According to the data relating to ToM and SIM, Learner E experienced the following challenges:

- Learner E could not intuit the intentions of others;
- He was unable to interact with others in an appropriate, socially reciprocating, way; and
- He found it difficult to make sense of abstract information.

Attwood (2007:120) mentions that, in some situations, AS learners "... find it difficult to justify why someone would find some incident or scenario embarrassing, just as they would rate some situations as embarrassing, where their peers would not". The lessons listed in Table 4.10 expose ToM and SC challenges; indicating that Learner E could not understand others' points of reference and would easily become upset if they found his contributions and responses amusing. These shortcomings indicate that Learner E faced ToM and SIM challenges which constricted behavioural adaptation in his Grade 3 class.

From observations of Learner E's performance during the lessons listed in Table 4.11, Learner E experienced the following SP and SC challenges:

- Learner E did not always adapt successfully to an altered social setting;
- He found it challenging to express personal thoughts in a socially acceptable manner; and
- He showed inappropriate social non-verbal and verbal communication on a regular basis.

Hochhauser and Engel-Yeger (2010:746) confirm that the behaviour of young learners diagnosed with high functioning spectrum disorders' "... sensory processing patterns were correlated with lower participation; specifically in social, physical and informal activities. These activities are known to test learners' performance and participation". The lessons specifically relating to SP and SC listed in Table 4.11 indicated that Learner E experienced sensory and perceptual challenges: he would often have to be removed from the class when he experienced sensory overload. Because he found it difficult to communicate appropriately due to these sensory overload experiences, it can be asserted that his SP and SC challenges had an influence upon his social adaptation in Grade 3.

According to the lessons in Table 4.12, Learner E experienced the following three EF and SI challenges:

- Learner E often lacked the ability to think before reacting in a social environment;
- He would give into his basic emotional drive; and
- He would respond in a socially inappropriate manner.

According to Attwood (2007:234), children with AS are "... notorious for being impulsive, and respond without thinking of context, consequences and previous experiences." Learner E found it difficult to exhibit appropriate social behaviour: he was not personally motivated to control his thoughts, feelings and actions. He found it difficult not to react impulsively, to show emotional control and not to respond without thinking of the consequences of his actions. These examples, shown in Table 4.12, indicate that Learner E experienced three EF, and SI challenges that compromised his behavioural adaptation in Grade 3.



### 4.3 SUMMARY OF THE RESULTS

The observations of lessons as listed in the various tables above and interviews conducted with teachers comprise substantial evidence which answers Research Question 1 and Research Question 2. A general conclusion to be drawn from this body of evidence is that all three learners' social cognitive and social functioning challenges compromised their behavioural adaptation in Grade 3. A summary is provided which sets out these social cognitive (WCC, ToM, SP and SC) and social functioning challenges (GIP, SIM, SC and SI) and their influence upon AS/HFA learners' behavioural adaptation in Grade 3.

First, WCC and GIP challenges that influenced all three learners' behavioural adaptation are confirmed. Happè and Frith (2006) point out that, when picking out extreme detail from surrounding masses, ASD individuals excel over mainstream learners and are actually at an advantage. However, if a task requires an individual to extract global meaning from many details, AS/HFA learners are often at a distinct disadvantage. From observations of how all three learners performed during the lessons, it became clear to the researcher that all three learners found it difficult to adhere to new routines and changes or show understanding of the all-inclusive views of the discussion held by their Grade 3 teachers. The lessons purposefully designed and set indicate that because these three learners experienced WCC and GIP challenges they were unable to proceed past smaller details of interest to them: they were unable to show an appreciation of the global understanding.

The two particular challenges experienced by all three learners were social cognitive (ToM) and social imagination (SIM). Gillberg (2002) and Attwood (2007) note that AS learners do not understand that other people think differently than themselves which may cause difficulty in socially interacting with others: such learners may, as a result, often appear to be self-centred, eccentric or uncaring. The diagnostic lessons suggest that all three learners had difficulty in: apprehending the intentions of their teachers and peers, showing social reciprocity and making sense of abstract ideas. These shortcomings

resulted in the three learners displaying inappropriate social reciprocity during communication and inappropriate social behaviours.

Social cognitive (SP) and social communication (SC) challenges are discussed next. According to Attwood (2007), sensory and perceptual experiences can cause discomfort to a learner with AS: s/he then develops a range of adaptive coping and compensatory strategies. These coping strategies are often not socially acceptable; especially in unfamiliar surroundings or what they perceive to be stressful situations. The examples relating to SP and SC indicated that all three learners lacked the ability: to adapt to changes in social settings, express personal thoughts in a socially acceptable manner, and show appropriate verbal and non-verbal communication skills, due to their SP challenges experienced in their school environment.

Attwood (2007:234), states that "... in the early years the main signs of impaired EF are difficulties in inhibiting responses ..." (i.e. showing RI, EC, and exhibiting inappropriate BR). After observation of lessons relating to three EF skills and SI it became clear to the researcher that all three learners often did not think before reacting, would give in to their basic emotional drive and would respond in a socially inappropriate way. Without acquiring and implementing EF skills (RI, SC and inappropriate BR) and appropriate social interaction (SI), the three learners found it difficult to exhibit social behavioural adaptation skills in their Grade 3 classroom environment.

Chapter 5 provides a detailed discussion and analysis of the results of evidence gathered to answer Research Question 3. The investigation demonstrated how, despite a lack of formal instruction in dealing with AS/HFA learners, Grade 3 teachers generally assisted learners to cope with behavioural adaptation challenges; in preparation for Grade 4.

## CHAPTER 5

### RESEARCH QUESTION 3

How did the Grade 3 teachers assist the AS/HFA learners with behavioural adaptation challenges in preparation for Grade 4?

#### 5.1 INTRODUCTION

Chapter 5 consists of a detailed discussion and analysis of the results of Research Question 3 which include all three AS/HFA learners. During observations, three months prior to the interviews with the relevant Grade 3 teachers, the researcher noticed social behaviour challenges experienced by all three learners. The focus of the questions during the interviews was on how the three teachers assisted their AS/HFA learners to overcome their social challenges and improve behaviour, in preparation for Grade 4. Research articles dating back to 1980 onwards describe the character traits associated with ASD individuals; referring to categories such as: Weak Central Coherence; Global Information Processing; Theory of Mind; Social Imagination; Sensory Processing; Social Communication; Executive Function and Social Interaction. Since many teachers in South Africa are not formally trained to teach AS/HFA learners in inclusive classrooms, interview questions focus more heavily upon the outcome of these terms than the terms themselves.

Chapter 3 describes the analysis process by which the researcher first analysed the observation data into three themes in each of the four categories. To answer Research Question 3 pertaining to this chapter, the interview data were divided into four themes. One theme emerged from each of the four categories. The results pertaining to each learner are presented in Tables 5.1, 5.2 and 5.3; according to the four themes. Each learner is discussed in turn: juxtaposing the four themes with evidence from both the interviews and observations.

The final four themes to emerge:

- Implementing secure and structured routines and processes to assist with behavioural adaptation challenges [category: Weak Central Coherence, Global Information Processing];
- Assisting with appropriate social reciprocity skills during moments of confusion and/or misunderstanding [category: Theory of Mind and Social Imagination];
- Assisting with sensory adaptation during sensory overload [category: Sensory Processing and Social Communication]; and
- Assisting with developing social and emotional behaviour regulation skills [category: Executive Functioning Skills and Social Interaction].

As with Research Questions 1, and 2, the results of Research Question 3 are presented in sequential order (Learner T, Learner L and Learner E). The researcher has purposefully divided this chapter into the following sections as shown below:

- 5.2 Results of Learners T, L and E
  - 5.2.1 Learner T
  - 5.2.2 Learner L
  - 5.2.3 Learner E
- 5.3 Summary of the results

## **5.2 RESULTS OF LEARNERS T, L AND E**

### **5.2.1 Learner T**

From each of the four themes which are explained above, several examples of each were identified. Due to limited space, however, the researcher will explore, analyse and discuss only one example (labelled as Example) as in Table 5.1. The other examples can be found in Appendix 18.

**Table 5.1** Results of how Teacher SM assisted Learner T with his behavioural adaptation challenges

Four themes	Evidence of assistance by Teacher SM
1. Theme 1: Implementing secure, structured routines and processes to assist Learner T deal with behavioural adaptation challenges.	Example: Teacher SM had regular meetings with a psychologist to assist her in understanding Learner T's challenges and was given advice (as mentioned during the interview with Teacher SM below) on how to implement a secure and structured school environment.
2. Theme 2: Assisting Learner T with appropriate social reciprocity skills during moments of confusion and misunderstanding.	Example: Teacher SM acknowledged Learner T's contributions, when he showed misunderstanding or confusion.
3. Theme 3: Assisting with sensory adaptation due to sensory overload experienced by Learner T.	Example: Teacher SM immediately responded when she noticed Learner T was experiencing a sensory challenge;
4. Theme 4: Assisting Learner T with the development of social and emotional behaviour regulation skills.	Example: Teacher SM encouraged Learner T to use more appropriate behavioural regulation responses to control his emotions in a socially acceptable manner.

When answering the four themes, the following structure follows: evidence from the interview, evidence from the classroom observation, and finally a discussion linking the results to the theory and international literature. To conclude the results of each learner, a summary of their results will be provided.

- Theme 1: Implementing secure, structured routines and processes to assist Learner T deal with behavioural adaptation challenges.

During the interview, Teacher SM was asked how she prepared Learner T to cope with changes in routine. Her *verbatim*, but grammatically corrected responses, include:

Researcher: I have noticed that Learner T experiences behavioural issues such as resistance to change of routine. What adjustments did you have to make to assist and support him in change of routine or unexpected setbacks?

Teacher SM: I run a very organised and structured daily classroom routine which I keep constant throughout the week. To assist him in this challenge of understanding the big picture and adapting from one situation to the next, I had mainly established a routine in advance, so he would know what was coming next, and it would not be such a big unexpected surprise for him.

Researcher:  
(Probing question) How did you help him adjust to changes made in the daily routine?

Teacher SM: I would also try and let him know in advance if we would be doing something different from the normal routine. For example: "... we would be first doing this, and then we will continue with that ...". This way he would understand that he needs to follow the rules and sequence of events for the day.

Researcher:  
(Probing question) How did you give assistance and support to help him with a sudden change of routine, or setbacks?

Teacher SM: Yes I agree, he struggles with any changes. Not that he does not accept it. He questions it. He would for example question why the routine has changed today and I would explain and he would accept that. But where it affects him, when I explain that he cannot continue to do what he is doing right now, he would then see this as punishment, especially if he wants to first finish what he is doing.

### Example

Teacher SM had regular meetings with an educational psychologist to assist her in understanding Learner T's challenges and was given advice on how to implement a secure, structured and constant private school environment.

The researcher noted that Teacher SM was regularly in contact with the educational psychologist. Teacher SM confirmed that the psychologist assisted her in understanding Learner T's challenges and gave guidance to what she could do to implement secure, structured routines and procedures to help Learner T develop to his full potential in the classroom environment. An example of her implementing a structured environment was where she insisted that every item had one specific place where it must be placed or stored in the classroom. The rules and routine of the classroom had to remain constant, and adhered to by the learners in the class. The only exception was when unexpected changes occurred.

Regular meetings with the educational psychologist and herself gave her confidence in assisting Learner T to manage the challenges of resisting change of routine. Teacher SM knew how to intervene immediately and personally inform Learner T of any sudden changes; allowing time to complete what he was doing and to understand the reason for the change. She would assist him with making these changes, to manage his behaviour and reduce his level of frustration.

### Discussion

School psychologists are becoming increasingly involved in facilitating the inclusion and integration of ASD learners (Williams, Johnson & Sukhodolsky, 2005). Teacher SM worked closely with an independent educational psychologist who formerly diagnosed

Learner T as being on the autism spectrum. From the observation and interview data, it became apparent that Teacher SM had an understanding of what she as a teacher could do to assist Learner T, in his cognitive development and social/behavioural adaptation challenges.

Happé and Frith (2006:5) refer to WCC as “...the detailed-focussed processing style proposed to characterise autism spectrum disorders”. It is necessary for AS/HFA learners to have as much consistency and as little change as possible in their environment; in order to feel comfortable, because “... transitions that occur without preparation and proper support almost always result in frustration and possible disruptive behaviour” (Radunovich & Kochert, 2008:2). In preparation for Grade 4, at which level there would be more regular movement between the different subject areas such as drama, physical education and computers, Teacher SM was advised to familiarise Learner T with how to manage his daily routine. Observation and interview data showed that, by keeping the daily routine and processes constant and transparent, Learner T could familiarise himself with, and form an understanding of, what was expected of him during the regular school day.

- Theme 2: Assisting Learner T with appropriate social reciprocity skills during confusion and/or misunderstanding.

Teacher SM was asked how she prepared and assisted Learner T to develop appropriate social reciprocity skills when experiencing confusion and/or misunderstanding.

Researcher: I have noticed that Learner T experiences behavioural issues such as using improper social reciprocity skills during social interactions. What adjustments did you have to make to assist him with appropriate social reciprocity during times of confusion and/or misunderstanding?

Teacher SM: He has a problem with this. I saw from the beginning of the year that Learner T would make his own interpretations of what was said. He would thus be remarkably honest from his own perspective and insist that his answer was more valid than ones given by others in the class.

Researcher:  
(Probing question) How did you assist him with understanding that others have different ideas and feelings on issues?

Teacher SM: I would acknowledge what he said, and assure him that his answer was not incorrect, but explained that sometimes there can be more than one correct way of saying the same thing.

Researcher:  
(Probing question) What strategy did you use to promote appropriate social reciprocity skills?

Teacher SM: An example of how I assisted him was when we were having a discussion on reptiles. He verbally insulted a peer, and insisted that this peer was lying, as crocodiles did not respond in that manner. I firstly explained that we were referring to reptiles in general. He responded by saying: "Yes, but people should check their facts before talking". I asked him to stay in at break so I could talk about his inappropriate verbal response. During break I explained that his opinion also counted, but how he said it was hurtful and that he should in future think of his choice of words before contributing.

Learner T often found it difficult to follow the to-and-fro of conversational exchanges and would see it from his frame of reference only and respond without thinking of his choice of words. Teacher SM, however felt it was important for Learner T to have the confidence to register his confusion and lack of understanding of other people's points of view, even if it meant that he had to interrupt the discussion. The following example explains how Learner T could not see Teacher SM's point of view and how she allowed him to express his opinion.

### Example

Teacher SM acknowledged Learner T's contributions, when he showed misunderstanding or confusion during discussions.

During a discussion on Simons Town's Naval Base, it was noticed that Learner T struggled to understand why he could not contribute his information about the ancient history of the Navy. Teacher SM explained that they were doing current history only; so bringing in ancient history did not apply. She offered him a compromise and attempted to assist with the skill of social reciprocity by suggesting that when he wrote his essay he could start with the ancient history; as long as he included the current history. Yet he continued to show his frustration by interrupting with comments about ancient history: he



insisted that it is impossible to understand current history without knowing about ancient Roman history.

### Discussion

Kimhi (2014) conducted a study that showed how ToM challenges impact on the daily social and academic lives of ASD learners. ToM challenges can create a lack of appropriate reciprocal communication skills during social interactions (World Health Organization ICD-10, 1992; American Psychiatric Association [APA], 2013). Learner T regularly showed a lack of understanding of social reciprocity and found it difficult to see others' points of view or reference. Locke et al. (2010) explain that a lack of social skills and an inability to connect with others, through social communication and social interaction, can lead to more failure and distress for learners than academic challenges. Data from the observations and interview indicate that Learner T showed "... a decreased capacity to think about and predict the consequences of his own actions and thoughts" for himself and for the rest of the class (Wing, Gould & Gillberg, 2011:769).

- Theme 3: Assisting with sensory adaptation due to sensory overload experienced by Learner T.

While Learner T was observed experiencing Social Processing (SP) and Social Communication (SC) challenges, Teacher SM was asked how she prepared and assisted Learner T to manage and minimise his sensory challenges across educational and social settings.

Researcher: I have noticed that Learner T experiences behavioural issues due to sensory processing challenges and would then not be able to adapt to his immediate environment. How have you assisted him to cope during these challenges?

Teacher SM: When I noticed that he showed signs of experiencing sensory overload, by becoming irritated with what was happening around him, I would find him a task that would remove him from the situation he found himself in. As of the beginning of the year, I would explain to him that I noticed his distress because of the excessive noises around him. I would try and remove him from the noise or try and bring the noise level down.

Researcher:  
(Probing question) When Learner T experienced sensory overload, how have you assisted him in expressing his personal feelings in an acceptable manner?

Teacher SM: Whenever I noticed that Learner T was experiencing sensory overload, which he often displayed in the form of 'tic-like movements' I would ask him if he would like to go and walk and I would give him a task to do for me. I also have a quiet zone that he often uses to page through a book to calm down.

Researcher:  
(Probing question) When learner T experiences sensory challenges which can lead to the use of inappropriate non-verbal and verbal communication, how do you assist him?

Teacher SM: When he used inappropriate non-verbal or verbal communication due to sensory overload, I tried to be sympathetic; as long as it did not involve him being disrespectful or harmful to his peers. I would help him to manage the situation appropriately by removing him from the situation, or changing the situation.

Researcher:  
(Probing question) How did you assist Learner T with managing sensory challenges such as taste and smell?

Teacher SM: I tried to be sympathetic and help him to manage the situation appropriately by removing him from the situation or by changing the situation.

### Example

Teacher SM immediately responded when she noticed that Learner T was experiencing a sensory challenge.

From this interview transcript, it is clear that Teacher SM was aware of Learner T's sensory challenges: with the help of the educational psychologist, she could assist him when these experiences occurred. Teacher SM was attempting to provide him with skills to manage his own sensory adaptation challenges.

The researcher observed that the class was using felt pens given by Teacher SM and that they had to write the answers to the sums on their small white-board. Learner T blocked his nose and then stressed that the smell of the ink of his felt pen made him feel nauseous. Teacher SM immediately allowed him to stop and told him that he was welcome to use his own felt pen, or she offered him a piece of paper to do the exercise with a pencil if he preferred.

This is an example where Learner T felt free to express his sensory distaste. Teacher SM offered him alternative ways of producing his work. By listening to Learner T, Teacher SM was building his confidence to voice his opinions. This communication skill would be needed in Grade 4.

#### Discussion

Research has shown that many young children AS/HFA learners experience sensory processing challenges and often have difficulty regulating responses to sensations of specific environmental stimuli (Roberts et al., 2007). Minsheu and Hobson (2008) mention that AS/HFA individuals are often unable to express themselves verbally or non-verbally when experiencing sensory overload in a socially acceptable manner. This inability to express themselves could render them less able to adapt their behavioural functionality across educational and social settings. Data from the interview and observations showed that Teacher SM intervened and assisted Learner T with "... perceptual overload and subsequent stress" (Attwood, 2007:255). By allowing him verbally to express his sensory challenge to her, Teacher SM allowed Learner T to feel secure and to manage his own sensory challenges independently.

- Theme 4: Assisting Learner T with the development of social and emotional behaviour regulation skills.

During the interview, Teacher SM was asked to describe, in more detail, the procedures she adopted to assist Learner T to develop social and emotional behavioural regulation skills in preparation for Grade 4.

Researcher: I have noticed that Learner T experienced challenges with controlling his impulse to respond out of turn, and at times controlling his emotions in a socially acceptable way. How have you assisted him in developing these coping skills for next year? [Grade 4].

Teacher SM: Learner T's continuous outbursts and interruptions during class have been very disruptive. It is not as if he wants to challenge one, but that he wants to immediately verbalize his thoughts, or acts on what he thinks. I have tried various tactics to assist him in acting in a more socially appropriate manner.

Researcher:  
(Probing question) What are the procedures that you used the most?

Teacher SM: There are three procedures that I have used during the year. First, I would ignore his inappropriate responses; if not relevant or offensive to me or his peers. Second, when he directly insulted or offended me or his peers, I would stop what we were focussing on and ask him to stay in class during lunch break. Together we would then discuss his inappropriate behaviour. Third, when his impulse contribution was relevant, he was asked to wait till I was finished explaining. He would then be given the opportunity to comment and give his contribution.

Researcher:  
(Probing question) What did you say to assist Learner T to express his feelings in a more socially acceptable way?

Teacher SM: During break I would ask: "What should you have rather done differently, or how must you act on these emotions next time?" With this procedure I tried to instil in Learner T alternative ways to express a similar feeling of emotional response in the future.

From this interview transcript, it is clear that Teacher SM was aware of Learner T's social and emotional behaviour regulation challenges and that, with the help of the educational psychologist, she tried to assist him when these experiences occurred. In this way, she was attempting to provide him with skills of how to manage his own social and emotional adaptation skills independently.

### Example

Teacher SM encouraged Learner T to use more appropriate behavioural regulation responses to control his emotions in a socially acceptable manner.

The researcher noticed that Learner T found it difficult to control his impulse to respond out of turn and control his emotions in a socially acceptable manner. An example was observed when during a class debate on 'the boredom of prisoners in jail', Learner T responded impulsively by saying that a peer was 'talking nonsense', and that he [the peer] could not prove what he had just said. This was after the peer mentioned that even with the aid of computers, the prisoners would be bored. Learner T jumped up out of his seat and went to sit in the quiet zone to page through a book. Teacher SM acknowledged that the comment made by Learner T was valid. At the same time, she insisted that he needed to return to his seat, so that she could give him a chance to contribute his view on the matter; after the peer had finished explaining.

The reason given by Teacher SM for allowing him to offer his point of view was:

Teacher SM: ... by using a positive way of not focusing just on his impulse behaviour, but rather asking him to wait till his peer was finished contributing, I would encourage him to wait and think about the contribution he wanted to make. I would then allow him to comment and add his contribution after the conversation.

### Discussion

According to Best and Miller (2010:184), "... inhibition is a fundamental Executive Function (EF) skill". This EF skill refers to the ability to suppress a dominant, automatic or proponent response. Inhibition entails interference control, emotional control and motor control (Nigg, 2000). It was observed that Learner T often lacked the ability to control his response inhibition and emotional outbursts, before engaging in social interactions with his teacher and peers. Kana et al. (2007:198) state that "... the social and emotional inability to exhibit context-inappropriate behaviour, is typical of high functioning autism individuals". This difficulty can lead to socially inappropriate non-verbal and verbal responses.

Teacher SM was asked if she would like to contribute additional information regarding her assistance to Learner T. Her response was as follows:

Teacher SM: Learner T has, during the year, shown quite good emotional control. But, however, I have found of late a change in his emotional well-being. It surfaced when the class had to go and meet their teacher for next year (Grade 4). When I asked him if he was looking forward to moving to Grade 4, he was the only one that said "No". He kept saying that he does not like the school anymore. I know that change from Grade 3 to Grade 4 is an adjustment for any child. When the class went back to meet the teacher for the second time, I saw a behaviour change that I have not really seen during the year. He was very aggressive. They had a class party and he took the eats and just smashed them. When I asked him why, he said: "But they were all broken anyway". I could not punish him for that, because it was not the issue at hand. I had extra fizzers and gave it to the child (who brought the treats) as a replacement.

I have always made sure during my class this year that there were no major stresses, changes or major surprises. I often would make sure, especially with Learner T, that he knew exactly what to expect during the day and if there were unforeseen changes I would personally explain the reason to him. He would often question me, but it would not be an emotional outburst, so I feel my classroom was usually securely run.

Rotheram-Fuller, Kasari, Chamberlain and Locke (2010) hypothesized that ASD children may be able to form and maintain social relations at earlier grades, but encounter more trouble with these relations in later elementary school. They mentioned that learners with AS/HFA are "... only involved in peers' social relationships about half of the time, and appear to be even less connected with increasing grade level" (Rotheram-Fuller et al., 2010:1128). Teacher SM commented that because Learner T was getting older, he was experiencing more social and behavioural problems in class than his peers. According to her, his peers were developing appropriate behaviour and strong emotional growth and social skills. She verbalised the following:

Teacher SM:                   Because of the other children's development, he has become stagnant and I think he will start to look worse every year. As he is getting older I don't know how long he will be able to stay in this environment, because of the continuous changes in the daily routine and often unexpected interruptions. I had parents requesting that they did not want him in their child's class next year. I am not sure if this behaviour is typical of the syndrome he is experiencing. Maybe this is not the right environment and it's not up me to make that decision. This situation can go either way next year. We will have to see.

A summary of the results of Learner T

Teacher SM admitted to not knowing whether this irregular behaviour was 'typical of the syndrome'. What Learner T was experiencing provided strong evidence of the value of this current research investigation which attempts to provide all teachers, at wealthy and under-resourced schools alike, to know about the background, causation and interlinking's that make up the spectrum of challenges generally referred to as ASD.

According to Attwood (2007:258) "... the greatest cognitive and academic progress has been achieved by teachers who show an empathetic understanding ..." of the AS learner. It is therefore important to implement transition support to help assist AS/HFA learners with behavioural adaptation challenges by implementing secure and structured routines from one environment to the next (Hume et al., 2014).

It was noticed that Teacher SM carefully planned and implemented transition strategies to support Learner T with behavioural adaptation challenges during the day. According to Teacher SM, the strategies that she implemented were a collaborative endeavour with

the support and advice from the principal of the school, Learner T's parents and his psychologist. She was informed of the importance of implementing secure routines, structured procedures and social and emotional behavioural regulation skills. She was made aware of the importance of assisting Learner T with sensory adaptation and appropriate social reciprocity in preparation for Grade 4.

Hume et al. (2014:36) state that "... appropriate support increases predictability and creates positive transition routines". They emphasise that supporting AS/HFA learners can "... reduce the amount of time it takes to adapt to transitional situations, increase appropriate behaviour during these transitions, facilitate less reliance on adult prompting, and encourage successful participation in school and community" (Hume et al., 2014:36). Careful planning, appropriate support and regular monitoring of Learner T's progress helped Teacher SM to increase Learner T's independence and confidence to participate in activities during his school day.

### 5.2.2 Learner L

The same four themes emerged during analysis of the observations and interview data for Learner L. The following section uses four themes to describe how Teacher GR assisted Learner L with behavioural adaptation in preparation for Grade 4.

The presentation of the results follows the same structure as used for Learner T. The results are presented in Table 5.2. This pattern will be repeated by providing evidence from the interview and observation data in each theme. Only the most significant example for each theme, labelled as Example, will be explored, analysed and discussed. Other examples can be found in Appendix 18.

Evidence from the interview and observation data with Teacher GR of how she assisted Learner L with behavioural adaptation challenges in preparation for Grade 4.

**Table 5.2** Results of how Teacher GR assisted Learner L with her behavioural adaptation challenges

Themes	Evidence of preparation by Teacher GR
1. Theme 1: Implementing secure, structured routines and processes to assist Learner L deal with behavioural adaptation challenges.	Example: Teacher GR provided a structured learning environment. She was well organised and consistent in her routines and procedures.
2. Theme 2: Assisting Learner L with appropriate social reciprocity skills during confusion and understanding.	Example: Teacher GR insisted on socially appropriate contributions during debates and discussions.
3. Theme 3: Assisting with sensory adaptation due to sensory overload experienced by Learner L.	Example: Teacher GR acknowledged Learner L's sensory challenges and allowed her to verbalise her discomfort.
4. Theme 4: Assisting Learner L with the development of social and emotional behaviour regulation skills.	Example: Teacher GR assisted Learner L when she experienced Response Inhibition (RI) and Emotional Control (EC) challenges.

- Theme 1: Implementing secure and structured routines and processes to assist Learner L deal with behavioural adaptation challenges.

Teacher GR was asked during the interview how she prepared Learner L to cope with changes in routine. She responded:

Researcher: I have noticed that Learner L experiences behavioural issues such as resistance to change of routine. What adjustments did you have to make to assist and support her in change of routine or unexpected setbacks?

Teacher GR: The facilitator was there to help her remain focussed, as Learner L does not like changes. To assist Learner L to adapt to a change of routine, or move from one situation to another, I would advise her in advance that we were doing something different from the normal routine of the day.

Researcher:  
(Probing question) How did you help her adjust to changes made in the daily routine?

Teacher GR: When there was a change of routine, I would approach her and quietly explain to her to go and do her task first; after that she was allowed to read and investigate before starting the next task.

Researcher:  
(Probing question) How did you give assistance and support to help her with a sudden change of routine, or setbacks?

Teacher GR: I would make her aware in advance that we are going to do something different. This gives her the chance to complete what she is doing and prepare herself; not only mentally, but for her to get all her materials and writing utensils in order, as this is very important for her to be totally prepared.



### Example

Teacher GR provided a structured learning environment and was well organised and consistent in her routines and procedures.

Learner L was highly organised when it came to her personal space and learning environment and would become upset if others around her were not organised for the day. To assist Learner L, Teacher GR strictly adhered to the routine of every specific day and would only deviate from what she had planned in advance when deemed necessary. Before starting and commencing with a new task, Teacher GR would remind the class of all the rules, strategies and procedures, and allow them time to check that they had all their learning materials organised and ready. The researcher noticed that, by giving the class time to make sure, they were organised for the next task. Learner L would assess if she had all her learning materials available and organised. Using this time helped Learner L stay focussed on her own tasks while doing what was expected of her.

The researcher observed that Learner L was only allowed to get up out of her seat between tasks, to investigate any visual learning materials such as posters or photographs. Teacher GR allowed Learner L to view visual material between tasks which prevented her from getting out of her seat and disturbing her peers who were still busy with their task. As Learner L got into the routine of first investigating the routine to confirm which task or activities were expected of her next, she managed the daily routine in her own way, without getting out of her seat during task time.

### Discussion

ASD individuals exhibit a particular style of information processing referred to as WCC and GIP (Happé & Frith, 2006). ASD learners often perceive the world as fragmented, disorganized and a collection of disconnected details. For this reason, AS/HFA learners require a structured learning environment so that they know what is expected of them in specific situations, to assist them in anticipating what comes next, and to learn a variety of skills in a sequenced way.

The data in this study show that Teacher GR was aware that Learner L needed a "... well-structured and highly organised learning environment to feel secure..." (Carnahan et al.,

2009:6), and that Learner L showed "... excessive resistance to change ..." (DSM-V, 2013:50). Therefore, she provided a learning environment to make sure that Learner L understood in advance what was required of her and understood the rules, skills, strategies of routines and procedures to follow. The observation data revealed that Teacher GR knew how "... to convey instructions, meanings, routines, schedules and expectations" (Aguirre et al., 2014:225) in order to provide appropriate support to Learner L.

Teacher GR used "... visual support to help bring in structure, routine, and sequence ..." in order for Learner L to continue with her daily activities (Roa & Gagie, 2006:27). Because Learner L was able to rely upon and employ the visual schedule and learning material, Teacher GR did not have to remind or prompt her as regularly as before. Learner L needed to familiarise herself with what was going to happen during the day. She referred to the visual timetable and learning materials to assist her to adjust to changes and manage the transition to a new situation or activity on her own.

- Theme 2: Assisting Learner L with appropriate social reciprocity skills during moments of confusion and/or misunderstanding.

Teacher GR was asked how she prepared and assisted Learner L to develop appropriate social reciprocity skills when experiencing confusion and/or misunderstanding.

Researcher: I have noticed that Learner L experiences behavioural issues such as using improper social reciprocity skills during social interactions. What adjustments did you have to make to assist her with appropriate social reciprocity during times of confusion and/or misunderstanding?

Teacher GR: Yes, Learner L finds it difficult to understand that others may have different ideas or issues than herself. She would be insistent that she is right and then get very argumentative and not listen to anybody else's point of view.

Researcher:  
(Probing question) How did you assist her with understanding that others have different ideas and feelings on issues?

Teacher GR: As she has a photographic memory and reads a lot, she would often recite facts and big words that I am aware she often does not understand the full meaning of. She would say "... that is what I read and heard and it is the truth". I would explain to her that what she is saying is true, but it does not mean that there is not another or even better explanation for the same word or situation.

Researcher:  
(Probing question) What strategy did you use to promote appropriate social reciprocity skills?

Teacher GR: The facilitator and I worked closely together. Often I would ask the facilitator to take Learner L to one side and explain to her that although she is correct, she needs to listen to other explanations without getting upset and argumentative. She would then explain the situation in more detail. The reason for asking the facilitator to give a more detailed explanation, was for Learner L to internalise and gain an understanding of the information that she was disagreeing about, and also to try and let her develop the skill of appropriate social interaction.

### Example

Teacher GR insisted on socially appropriate contributions during debates and discussions.

The researcher observed that when the discussion was about news and Mandela Day, Learner L had information to contribute. However, when one of her peers wanted to contribute her news, she just turned her back on the conversation; saying that this peer's news was not real news and it was boring; she was excusing herself from the conversation. Teacher GR immediately explained to Learner L that her response can be seen as being rude, and that she needed to listen to others' points of reference, as they did to hers. She agreed and apologised to her peer.

### Discussion

According to the Autism Society of Baltimore-Chesapeake (2016:01) social reciprocity is the "...back-and-forth flow of social interaction". It refers to how the behaviour of one person influences, and is influenced by, the behaviour of another person and vice versa. Learner L showed ToM challenges. She lacked the understanding that one individual's perspective may differ from another; thus the inability to distinguish between self and other (Doherty, 2009). Social interaction involves people working together on a common goal of successful interaction to share conventional meanings with words during conversations (Autism Speaks, 2012). Teacher GR did not mind that Learner L gave her opinion on what they were discussing. As long as she understood and acknowledged that others had valid points of view that are just as relevant as hers (Attwood, 2007) and did not become upset or argumentative during these discussions.

- Theme 3: Assisting with sensory adaptation due to sensory overload experienced by Learner L

Since Learner L was observed experiencing Social Processing (SP) and Social Communication (SC) challenges, Teacher GR was asked how she prepared and assisted Learner L to manage and minimize her sensory challenges across educational and social settings.

Researcher: I have noticed that Learner L experiences behavioural issues due to sensory processing challenges and would then not be able to adapt to her immediate environment. How have you assisted her to cope during these challenges?

Teacher GR: Sensory distraction is a challenge for her. When Learner L showed feelings of not coping, I would immediately intervene and explain to her that I acknowledge that she was not coping, and that I understood that she would rather, for example, continue drawing her fairies.

Researcher:  
(Probing question) When Learner L experienced sensory overload, how have you assisted her in expressing her personal feelings in an acceptable manner?

Teacher GR: I would explain to her that she is part of the class and has to conform and listen to instructions, even when she feels overwhelmed. The facilitator would then get Learner L motivated, focussed and do what was asked of her. The reason for me intervening, and the facilitator assisting, was to make her aware that although she was feeling overwhelmed or even just bored, she still had to conform to the classroom rules and partake in the activities.

Researcher:  
(Probing question) When Learner L experiences sensory challenges which can lead to the use of inappropriate non-verbal and verbal communication, how do you assist her?

Teacher GR: When Learner L experiences sensory challenges, she is not shy to verbally or physically express her sensory discomfort, which is often not socially appropriate behaviour. I would then immediately acknowledge that I can see and hear that she is not coping and would ask her if she would like to step outside for a while. Or, if busy with a task or test, I would ask the facilitator to assist her so that she can focus on completing her work, as she was disturbing the class.

Researcher:  
(Probing question) I have noticed that she has tactile processing challenges. How have you assisted her to manage this challenge?

Teacher GR: Yes! She gets irritated by clothing, she has a low pain threshold and because she is hypersensitive, she avoids physical or messy activities. A method that had worked in the past was to ask one of her peers that she regards as a friend to motivate or assist her, especially when it came to physical exercise or messy activities.

From the transcript of the interviews, Teacher GR was well aware of Learner L's sensory challenges, and, together with the facilitator, tried to be sympathetic, yet insistent that they needed to help Learner L develop skills to manage these sensory challenges. An example is provided of how Teacher GR assisted Learner L to manage her sensory challenges with the assistance of the facilitator.

#### Example

Teacher GR acknowledged Learner L's sensory challenges and allowed her to verbalise her discomfort.

The researcher noticed that, although Learner L was assisted by the facilitator to manage her sensory processing challenge appropriately, Teacher GR allowed Learner L to express her discomfort to her personally when experiencing sensory overload. An example of Learner L experiencing sensory challenges was when she grew irritated by the feeling of the label attached to her school top, and the tightness of her socks. She expressed her discomfort by complaining to Teacher GR that she could not focus on her work, by saying: "This label in my neck is irritating me, and my sock seems to be too tight around my ankles". Teacher GR allowed the learners to take off their shoes inside the classroom, which Learner L did.

It was observed that Teacher GR and the facilitator showed empathy and support after Learner L fell outside and scraped her knee. She complained that she could not focus on her work due to the discomfort she was experiencing as a result of her scraped knee. As Learner L could not focus on anything but the fact that she had a minor injury. Teacher GR allowed the facilitator to take Learner L outside so she could compose herself.

## Discussion

Tomchek and Dunn (2007) reported that ninety-five percent of their sample of children with autism, which include children with AS/HFA, demonstrated some degree of sensory processing challenge. The findings of this study confirm that "... children with autism demonstrate difficulty with filtering and changing to sensory stimuli to develop an adaptive response" (Tomchek & Dunn, 2007:197). The data collected from the interview and observations show that Learner L was often not capable of expressing herself in a socially acceptable manner when she experienced a sensory overload.

Attwood (2007:38) states that there is a need to intervene and assist because "...having overwhelming sensations and not being able to identify them can cause confusion and anxiety" in AS children. The data information confirmed that "... unusual responses to sensations can impact upon the daily activities..." for young individuals with ASD (Ashburner, Bennett, Rodger & Ziviani, 2013:171). Teacher GR and the facilitator often assisted Learner L in managing her sensory processing challenges.

- Theme 4: Assisting Learner L with the development of social and emotional behaviour regulation skills.

To explore what procedures Teacher GR used to assist Learner L to develop social and emotional behavioural regulation skills, she was asked the following questions.

Researcher: I have noticed that Learner L experienced challenges with controlling her impulse to respond out of turn, and at times controlling her emotions in a socially acceptable way. How have you assisted her in developing these coping skills for next year?

Teacher GR: Yes, these are challenges for her. This is where the facilitator has been a great help to me in this area, as she finds it difficult to control the urge to jump to conclusions and gets very emotional when she cannot get people to see her point of view.

Researcher:  
(Probing question) What are the procedures that you used the most?

Teacher GR: I noticed that Learner L cannot think on her feet to solve a problem, and this would cause her stress. I would often stop her to assist her to think of other alternatives. I would ask her for instance: "What about that, or have you considered this?"

Researcher:  
(Probing question) What did you say to assist Learner L to express her feelings in a more socially acceptable way?

Teacher GR: When Learner L could not control the urge to jump to conclusions, I would acknowledge that I am aware that she knows the answer, but that we are all here at school to learn. When she had verbally offended a peer, I would immediately stop what we were doing and ask her to apologise and the facilitator would then explain to her quietly that her outburst was uncalled for. If she still did not understand, the facilitator would take her outside and try and explain why she was asked to apologise.

From this interview transcript, Teacher GR showed understanding of Learner L's social and emotional behaviour regulation challenges triggered by sensory overload. With the assistance of the facilitator, they tried to assist her when these experiences recurred. In this way they attempted to provide her with skills of how to manage her own social and emotional adaptation skills.

### Example

Teacher GR assisted Learner L when she experienced Response Inhibition (RI) and Emotional Control (EC) challenges.

It was observed that Learner L lacked the ability to control her RI; something which led to verbalisations that were inappropriate to the time and the circumstances. An example of such impropriety was where Learner L kept shouting out: "This is not fair! I have done this work so many times and it is just a waste of my time. I have more interesting things I would like to do right now." Teacher GR responded when she saw that Learner L was feeling frustrated and upset, and asked: "I know you have done this work correctly, but doing revision forms an important part of our curriculum. If you are not OK with this, you are welcome to go outside to have some time to calm down". Although Learner L was acting on impulse by voicing her frustration, Teacher SM showed an empathy and understanding about her being upset at having to do revision work. She acknowledged Learner L's frustration, who then went outside with her facilitator to compose herself.

The researcher observed that during a computer lesson, Learner L reacted by crying. This occurred after she did not do what was asked of her during the lesson; Teacher GR told her that she was behaving disrespectfully. Learner L responded by shouting:

Learner L: Please don't call me that. It's not right. You are making me blush and I am not being disrespectful. You should know name-calling is not acceptable.

Teacher GR: I was not referring to you as a person. I was referring to your behaviour that was disrespectful. There is a difference between name-calling and mentioning someone's inappropriate or disrespectful behaviour.

She allowed the facilitator to take Learner L outside so she could chat to her about her emotional outburst. Learner L came back and apologised to Teacher GR for her behaviour.

### Discussion

Social awkwardness and lack of emotional control were observable in all the subjects observed in this research project. Such challenges are routinely observed among AS/HFA individuals generally: "... context-inappropriate behaviour is typical of individuals on the autistic spectrum and can lead to actions and verbalizations that are inappropriate in timing or to the circumstances" (Kana et al., 2007:198). When learners lack the Executive Function (EF) skills of Response Inhibition (RI) and Emotional Control (EC) in the classroom, they may display "... sudden/frequent mood changes, be emotionally reactive and show periods of excessive emotional upsets ..." (Greenstone, 2011:105). Because Learner L often responded in a socially and emotionally inappropriate manner, Teacher GR worked closely with the facilitator to assist her in explaining to Learner L that they understood she needed to learn to manage her feelings in a more appropriate way when feeling overwhelmed by confusion and/or misunderstandings.

### A summary of the results of Learner L

Attwood (2007) and Hume et al. (2014) mention that sudden changes in the classroom environments, schedules and routines can cause major stress for learners on the autism spectrum. According to them, the progression from one grade to another can be even more challenging, but can be made less stressful with careful planning and preparation.



Among the many options that professional teachers are developing to assist learners to overcome barriers to learning and reach their full potential, "... co-teaching is emerging as an innovative and potentially effective approach" (Friend, 2008:09). It was mentioned by Teacher GR that she worked closely with the facilitator, mother and grandmother, who looked after Learner L on a regular basis at home.

According to Houff (2010:03), students who are facilitated are held responsible for their own learning through a classroom environment of participation and collaboration, since learning is viewed as an active process that "... promotes critical thinking and problem-solving skills". Although Learner L had a facilitator assisting her to manage her day-to-day life at school, Teacher GR emphasised that Learner L was as much part of the class as everyone else and she did not treat her any differently. She encouraged Learner L to come to her for any advice and that the facilitator was there to assist when she needed to stay focused, or when she indicated that she was overwhelmed by her environment or by the situation she found herself in. The facilitator never interfered with the day-to-day interactions between Learner L and Teacher GR. She would only intervene when asked by Teacher GR, or if she felt that Learner L's behaviour was preventing other learners from focussing on their tasks. Teacher GR stated that the strategies and methods of positive discipline that she implemented formed a collaborative endeavour with the support of not only the facilitator, but the other Grade 3 teachers and principal of the school during school time, and Learner L's mother and grandmother at home. Teacher GR was aware of the importance of secure and structured routines and procedures. She made sure that Learner L had access to information of how her day would progress. When there was a change in day-to-day procedure, Teacher GR made sure that Learner L was informed in advance.

DSM-V (2013:50) states that AS/HFA learners can experience "... deficits in social-emotional reciprocity; ranging from abnormal social approach and failure of normal back-and-forth conversation through sharing of interests, emotions, and effect and response to a total lack of initiation of social interaction". Teacher GR would offer positive encouragement and guidance to help develop appropriate social reciprocity and emotional behavioural skills when she noticed that Learner L was overwhelmed by her

environment. With these support structures in place, Teacher GR carefully planned appropriate support, on a day-to-day basis, to assist Learner L increase her confidence and participation in all activities; in preparation for Grade 4.

### 5.2.3 Learner E

The same four themes emerged during the analysis of the observations and interview data for Learner E. The following section relies upon the same four themes used earlier to describe how Teacher CJ assisted Learner E with behavioural adaptation in preparation for Grade 4.

The presentation of the results follows the same structure used to discuss Learners T and L. The results are presented in Table 5.3. This structure will be followed by the presentation of evidence from the interview and observation data in each theme. Only the one example for each theme, labelled as Example, will be explored, analysed and discussed. Other examples can be found in Appendix 18.

Evidence from the interview and observation data with Teacher CJ of how she assisted Learner E with behavioural adaptation challenges in preparation for Grade 4.

**Table 5.3** Results of how Teacher CJ assisted Learner E with his behavioural adaptation challenges

Themes	Evidence of preparation
1. Theme 1. Implementing secure, structured routines and processes to assist Learner E deal with behavioural adaptation challenges.	Example: Teacher CJ and the assistant worked as a team to provide a secure and supportive learning environment for Learner E.
2. Theme 2: Assisting Learner E with appropriate social reciprocity skills during confusion and understanding.	Example: Teacher CJ encouraged group participation to support Learner E to use appropriate social reciprocity to communicate.
3. Theme 3: Assisting with sensory adaptation due to sensory overload experienced by Learner E.	Example: Teacher CJ encouraged Learner E to verbalise his sensory challenge and assisted him with supportive coping strategies.
4. Theme 4: Assisting Learner E with the development of social and emotional behaviour regulation skills.	Example: Teacher CJ acknowledged Learner E's concerns, but encouraged appropriate social interaction (SI).

- Theme 1: Implementing secure, structured routines and processes to assist Learner E deal with behavioural adaptation challenges.

To establish how Teacher CJ implemented a secure and structured learning environment, she was asked during the interview how she prepared Learner E to cope with his daily routine. She responded:

Researcher: I have noticed that Learner E experiences behavioural issues such as resistance to change and adjusting to changes of routine. What adjustments did you have to make to assist and support him in managing changes of routine or unexpected setbacks?

Teacher CJ: Learner E has trouble with transitioning from one task to the next. He found it especially stressful when he wished to complete what he had started before attempting anything new. This was despite him being on anti-calming medication to help him relax and focus, and not stress out.

Researcher:  
(Probing question) How did you help him to adjust to the daily routines?

Teacher CJ: I mainly established a routine so he knows what comes next by writing what we were going to do during the day on the board every morning before school. If the routine changed, I personally would explain to him that we would, for instance, first complete the work in progress and then we would be doing something different than planned. I would then explain to him the new change of routine.

Researcher:  
(Probing question) How did you give him assistance and support to help him with change of routine, or setbacks?

Teacher CJ: What has worked in the past was to give him less work than the others and more time to complete what he needed to do. As I could not be with him all the time, I have an assistant in the class and I often called on her to assist me in keeping him on track with what he needed to do, help him get organised, and motivated so he could complete his work.

### Example

Teacher CJ and the assistant worked as a team to provide a secure and supportive learning environment for Learner E.

It was noted that Learner E's desk was right up against Teacher CJ's desk and she regularly interacted and gave him positive motivation. This prevented him from panicking when he could not cope with a task, or for him getting out of his seat and disrupting the rest of the class. When she was not at her desk, she made sure to check on him at regular

intervals, or would ask the class assistant to make sure Learner E was managing the task. He was not left without some sort of support.

The researcher noticed that between tasks and class discussions, Teacher CJ or the assistant would make sure that Learner E had all his learning and writing material available. Teacher CJ mentioned: "... often I have to help him find his learning or writing material, or lend him what he needs, as he would not know where he had left his material and then begin to panic".

### Discussion

Findings claim that AS/HFA individuals "... show a disinclination, not a disability in WCC and Global Information Processing" (Koldewyn et al., 2013:2329). It is therefore important to develop a structured environment for a classroom that accommodates ASD learners that will support their unique needs and promote skills development while addressing behavioural needs (Randunovich & Kochert, 2008).

It is quite common for ASD learners to "... require consistency in their environment to feel comfortable" (Randunovich & Kochert, 2008:2). As mentioned in the interview, Teacher CJ had a permanent assistant in her class. According to Giangreco (2013:2) teacher assistants have become almost exclusively "... the way, rather than a way", to support learners with disabilities in inclusive and general education classrooms. The data show that Teacher CJ and the assistant together supported Learner E by implementing secure, structured routines and processes.

- Theme 2: Assisting Learner E with appropriate social reciprocity skills during confusion and/or misunderstanding.

Teacher CJ was asked how she prepared and assisted Learner E to develop appropriate social reciprocity skills during social interactions.

Researcher: I have noticed that Learner E experiences behavioural issues such as using improper social reciprocity skills during social interactions. What adjustments did you have to make to assist him with appropriate social reciprocity during confusion and/or misunderstanding?

Teacher CJ: I have become aware that Learner E had difficulty recalling what he had just heard and then he would panic for not being sure what was expected of him. I would personally make sure that he was focussed on what was said and often made him repeat what I said to make sure he understood.

Researcher:  
(Probing question) How did you assist him with understanding that others have different ideas and feelings on issues?

Teacher CJ: He has shown some improvement since being on the anti-panic medication. It has helped him sit calmly and focus on what was said. He was often in his own world and would easily transform into being what he was thinking about, for example a cartoon character. I would constantly have to ask him for his contribution to whatever was required, and most times he would respond by giving totally irrelevant information that was only from his own point of view.

Researcher:  
(Probing question) What strategy did you use to promote appropriate social reciprocity skills?

Teacher CJ This has not been easy, as it would be very difficult to communicate with him when he was in such a transformed state. I would support him in who he thought he was at that moment, and listen to what he had to say. Even if his contribution was not relevant, it was important to not put too much emphasis on, for instance, the odd use of language or the frame of reference he used. More importantly I made sure that the other children did not tease or make fun of him during these interactions.

### Example

Teacher CJ used group participation to support learner E to use appropriate social reciprocity to communicate.

The researcher observed that Teacher CJ would, on occasion, assign two learners to work alongside Learner E to assist him undertaking a task. Teacher CJ mentioned that when she could not "... get through to him herself ..." or when the assistant was busy, she would ask peers to assist him to understand an instruction or task. It was observed that when Teacher CJ asked Learner E's two peers to assist Learner E, he showed more willingness to continue, then could focus and attempted to complete the task at hand. The peers in question would show satisfaction in assisting Learner E.

Teacher CJ mentioned:

I allowed other peers to assist and support Learner E, as they were often very understanding and supportive. They would motivate him by saying "... it is OK and it's not so bad ...". He would then keep trying to complete what he was doing.

Discussion

Research studies show that after peer-mediated interventions were introduced, there was a significant increase in social communication between the AS/HFA learners and their peers. These interventions resulted in positive outcomes across a variety of social behaviours such as increased frequency of communication behaviours (Kamps, Potucek, Lopez, Kravits & Kemmerer 1997; Morrison et al., 2001; McFadden et al., 2014).

Learner E experienced ToM and SIM challenges: he could not gather enough information from the environmental social, emotional, whole body and facial feature cues, to help him develop an awareness of what Teacher GR or his peers may be thinking, feeling, needing or wanting from him (Baron-Cohen et al., 1985). He often experienced difficulty with "... reciprocal social conversation" and found it stressful when he could not understand what was expected of him (Koegel, Park & Koegel, 2014:1055). Since "... targeted interventions can result in more sustained and meaningful social conversational exchanges" (Koegel et al., 2014:1061), teaching appropriate social reciprocity through mediated role-modelling experiences was a pedagogy that Teacher CJ found to be successful. Choosing peers to socialise and work together with Learner E proved to be beneficial to both Learner E and his peers (Flynn, 2011).

- Theme 3: Assisting with sensory adaptation due to sensory overload experienced by Learner E

Teacher CJ was asked how she prepared and assisted Learner E to manage and minimise his sensory challenges across educational and social settings.

Researcher: I have noticed that Learner E experiences behavioural issues due to sensory processing challenges and would then be unable to adapt to his immediate environment. How have you assisted him to cope during these challenges?

Teacher CJ: Yes. Learner E is highly reactive to unusual tastes and smells in his environment. He would immediately remove himself from the stimuli. He often does not process the information given by me when it comes to performing tasks. He can also not tolerate waiting his turn. When he gets overwhelmed with the activities in the classroom he gets disruptive.

Researcher:  
(Probing question) When Learner E experienced sensory overload, how have you assisted him in expressing his personal feelings in an acceptable manner?

Teacher CJ: I tackled the sensory challenges he experienced on a daily basis as they occurred and would assist and support him to develop independent skills so he could get through these feelings of not coping with his sensory overload.

Researcher:  
(Probing question) When Learner E experiences sensory challenges which can lead to the use of inappropriate non-verbal and verbal communication, how do you assist him?

Teacher CJ: The coping skills that work for him were to encourage him to verbalise to me if he was not coping: for instance, a certain smell, or if the noise outside was disturbing him. The times that he did get worked up and could not cope with the classroom environment, I allowed him to go outside for a walk with the assistant and compose himself and then she would bring him back when she thought he would be able to manage the classroom environment.

[It was acceptable for the assistant to take Learner E for a walk on the field to calm down and compose himself].

### Example

Teacher CJ encouraged Learner E to verbalise his sensory challenges and assisted him with supportive coping strategies.

It was observed that during a Social Science presentation in the courtyard that was presented by an independent group of performers invited by the school, Learner E voiced his concern about the 'fireworks and loud crackers' that were being used. He asked if he could rather not sit with his peers in front but stand at the back since he was feeling stressed. Teacher CJ allowed him to stand next to her at the back with the rest of the

teachers. She offered him another option: "... If you are still not comfortable with the experiment, you are welcome to go and sit in the library and read a book".

### Discussion

Horder et al. (2014:1461) argue that "... as sensory processing abnormalities are commonly experienced by ASD individuals, assisting with the development of social and emotional behavioural regulation skills have become an important prerequisite in assisting these learners". The results from the interview and observation show that Teacher CJ provided affirmation and positive encouragement to motivate Learner E whenever she noticed that he was experiencing sensory challenges.

Because no child with ASD is alike, and there is much variation with respect to sensory responsiveness, teachers need to "... acquaint themselves with their students' specific sensory needs as they present their own unique set of responses, behaviours and needs" (Woronko & Killoran, 2011:214). When Learner E indicated that he was experiencing a sensory overload about a situation, it granted Teacher CJ the opportunity to offer him alternatives which he selected and in this way she helped him develop independent coping skills that would assist him when advancing to Grade 4.

- Theme 4: Assisting with the development of social and emotional behaviour regulation skills.

It was observed that Learner E lacked the ability to control his RI, and had emotional outbursts, and actions and verbalisations that were disruptive and socially inappropriate. To confirm these responses, Teacher CJ was asked the following questions during the interview:

Researcher: I have noticed that Learner E experiences challenges with controlling his impulse to respond out of turn, and at times controlling his emotions in a socially unacceptable way. How have you assisted him in developing these coping skills for next year? [Grade 4].

Teacher CJ: This is where the assistant has been a great help to me, as I noticed that Learner E could not think on his feet to solve a problem. I would often acknowledge his point of view and offer alternatives: "What you are saying might work, but what about this or that? ..."



Researcher:  
(Probing question) What is the process that you used the most?

Teacher CJ: He found it difficult to control the urge to verbally shout out exactly what he was thinking. I have a system of where I use wooden sucker sticks that have all the learners' names written on them and I keep them in a jar. I would pull one out and that is the learner that would have to give me the answer. When Learner E could not control the urge to respond, I would remind him that it was not his turn and that everyone in the class needed to first listen to the peer whose name I had drawn and think if they agree with his answer. I would then ask the class: "Everybody agree?"

Researcher:  
(Probing question) What did you say to assist Learner E to express his feelings in a more socially acceptable way?

Teacher CJ: Learner E would often get very emotional when he could not get his point of view across and at times responded out of turn and offended a peer without realising what he had said. I would immediately stop what we were doing and explain to him that what he said was hurtful and that he needed to apologise. I must stress I have found him very sincere and that he would not deliberately offend someone and only acted out on his feelings when he was unsure or stressed. He would then apologise to the peer that he had offended.

### Example

Teacher CJ acknowledged Learner E's concerns but encouraged appropriate social interaction (SI).

It was observed that Learner E found it difficult to deal with his perception of unfairness without growing overly upset. For example, it was noticed that he found it difficult to wait his turn when he had the correct answer to contribute. He could not control his disappointment when he was overlooked, and acted out by physically banging his hand on the desk, or shouting: "... he stole my answer, and I could have told you that". Teacher CJ immediately acknowledged his concern. She said: "... well done for having the same answer. I am sure the other peers also got the same answer as you, but I don't see them being upset. If you calm down and focus, maybe you can put up your hand when I ask for the next answer".

## Discussion

According to Diamond (2013:38) one of the core Executive Functions is "...inhibitory control, including self-control (behavioural inhibition), and interference control (selective attention and cognitive inhibition) ..." Similarly, an ongoing study by Birtwell et al. (2016) concurs with the DSM-V (2013), in stating that, in addition to communication and social challenges, an AS/HFA learner can encounter behavioural challenges.

The data indicate that Teacher CJ continued to focus on assisting Learner E; controlling and managing his unpleasant feelings such as anxiety, frustration and disappointments, in a socially acceptable manner (Greenstone, 2011), which forms part of EF skills.

### A summary of the results of Learner E

ASD learners face challenges in the area of social functioning (DSM-V, 2013) and research has shown that these impairments in social functioning distinguish these individuals from both typically developing and from other young learners with disabilities (Ingram, Dickerson, Troxell & Calhoun, 2007; McFadden et al., 2014). Therefore, it is important to have support and intervention strategies in place. Without support in place, across contexts, they can display difficulty in "... developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behaviour to suit various social contexts; difficulties in sharing imaginative play or in making friends; to absence of interest in peers" (DSM-V, 2013:50).

Teacher CJ was mindful of Learner E's challenges concerning his everyday interaction with the class environment. According to Giangreco (2013:07) the responsibilities of special educators working in general education classrooms have "... extended beyond direct instruction of students with disabilities to also include consultative and co-teaching roles". Teacher CJ acknowledged that she would not have been able to support and assist Learner E without the advice and support of the school's LSEN teacher, the continuous assistance from her class assistant teacher and the class peers.

The results provide evidence that Teacher CJ provided an environment that was conducive to learning, by realising the importance of implementing a secure and structured routine, and having a class environment that was quiet, not rushed and relaxed; not only for Learner E, but for all the learners. Teacher CJ played soft background music when the learners were busy with their work to create a relaxing atmosphere and mask any external outside disturbances that could be a distraction to Learner E in particular. When the learners had completed their work, they were allowed to sit quietly and knit, draw a picture or read any book of interest that they kept in their desks. The learners were then allowed to drink water and eat an apple. It is important to note that Teacher CJ created a harmonious classroom environment instinctively to benefit all learners. She did not set out to create such a context to assist Learner E. Incidentally, however, Learner E found this harmonious setting of great benefit. This initiative by Teacher CJ points to an important aspect of dealing with ASD learners in an inclusive class.

According to Tureck and Matson (2012:608), "... children with ASD exhibit impairments in social interaction related to speech abnormalities, linguistic conventions, and failure to initiate interpersonal interactions". Often these learners demonstrate poor imitation of both non-verbal and verbal communication. This inability to copy the social behaviour observed about them hinders their ability to develop the appropriate communication skills necessary for social interaction. The results showed that, to assist Learner E to develop his appropriate social and emotional interactional skills, Teacher CJ showed empathy and understanding. She tried to implement support structures to help him develop independent skills to increase his confidence which would benefit him when progressing to Grade 4.

### **5.3 SUMMARY OF THE RESULTS**

Because these learners with ASD experienced social cognitive and social functioning difficulties that hampered their "... adaptive functioning and quality of life ..." (Scarpa, White & Attwood, 2012:xii), the Grade 3 teachers, were specifically asked how they assisted these learners in their classrooms to develop appropriate social and behavioural

skills in preparation for Grade 4. Hume et al. (2014:35), argue that despite the routines that many teachers develop to assist these learners to "... maximize instructional time", many learners with ASD continue to struggle with change during the day. As a result, these students require even more structure and thoughtful planning to be successful. It was evident that all three teachers acknowledged the importance of assisting their learners to cope with changes in the daily schedule. The strategies that were implemented were a collaborative endeavour with the various support teams arranged by the schools, parents and educational psychologists. Together, the professional teams embraced the importance of implementing secure and structured routines, processes, social and emotional behavioural regulation skills. They were aware of the importance of assisting their AS/HFA learners with sensory adaptation and appropriate social reciprocity skills. The three teachers welcomed any assistance and support from the various team players.

Hume et al. (2014:36), state that appropriate support increases "... predictability and creates positive transition routines". By supporting the AS/HFA learners, all the Grade 3 teachers helped to reduce the amount of time it took to adapt to transitional situations, increased appropriate behaviour during these transitions, facilitated less reliance on adult prompting, and encouraged successful participation in their schools. By careful planning, appropriate support and monitoring their AS/HFA learner's progress, the Grade 3 teachers attempted to boost their learners' independence and confidence to participate in activities during the school day and in preparation for their trajectory to Grade 4.

## CHAPTER 6

### RESEARCH QUESTION 4

How did social cognitive and social functioning challenges influence the behavioural adaptation of three AS/HFA learners as they progressed in Grade 4?

#### 6.1 INTRODUCTION

Birtwell et al. (2016) agrees with the DSM-V (2013) that, in addition to social cognitive and social functioning challenges, learners with ASD encounter co-occurring behavioural challenges. As mentioned in Chapter 1, adaptive behaviour is "... the collection of conceptual, social and practical skills that are learned and performed by people in their everyday lives" (The American Association of Intellectual and Developmental Disabilities [AAIDD]). Research Question 4 focusses upon how the three AS/HFA learners experienced social cognitive challenges (WCC, ToM, SP and EF) and social functioning challenges (GIP, SIM, SC and SI) and how the challenges collectively influenced their behavioural adaptation as they progressed from Grade 3 and throughout Grade 4.

There needs to be a baseline interpretation that forms a starting point against which to measure progression (Hampton, Berkowitz & Nagy, 2016). The word 'baseline' is described by Cooper et al. (2014:2) as "... data obtained during baseline [that] are the basis for determining the effect of the independent variable, a control condition that does not necessarily mean the absence of instruction or treatment". A baseline is a starting point (point of departure) and "... provides a benchmark against which to measure the progress and achievements of the project or programs" (Korea International Cooperation agency [KOICA], 2016 8). The results captured in August and September 2013 formed the baseline against which the Grade 4 results were measured. Learners observed for the purposes of this research project were in Grade 3 during August and September of 2013. Research Questions, 1, 2 and 3 were answered during that period and the results of those questions are reflected in Chapters 4 and 5.

As with Research Questions 1, 2 and 3, the results of Research Question 4 are presented in sequential order (Learner T, Learner L and Learner E). The researcher has purposefully divided this chapter into the following sections as shown below:

- 6.2 Results of Learners T, L and E
  - 6.2.1 Learner T
  - 6.2.2 Learner L
  - 6.2.3 Learner E
- 6.3 Summary of the results

## 6.2 RESULTS OF LEARNERS T, L AND E

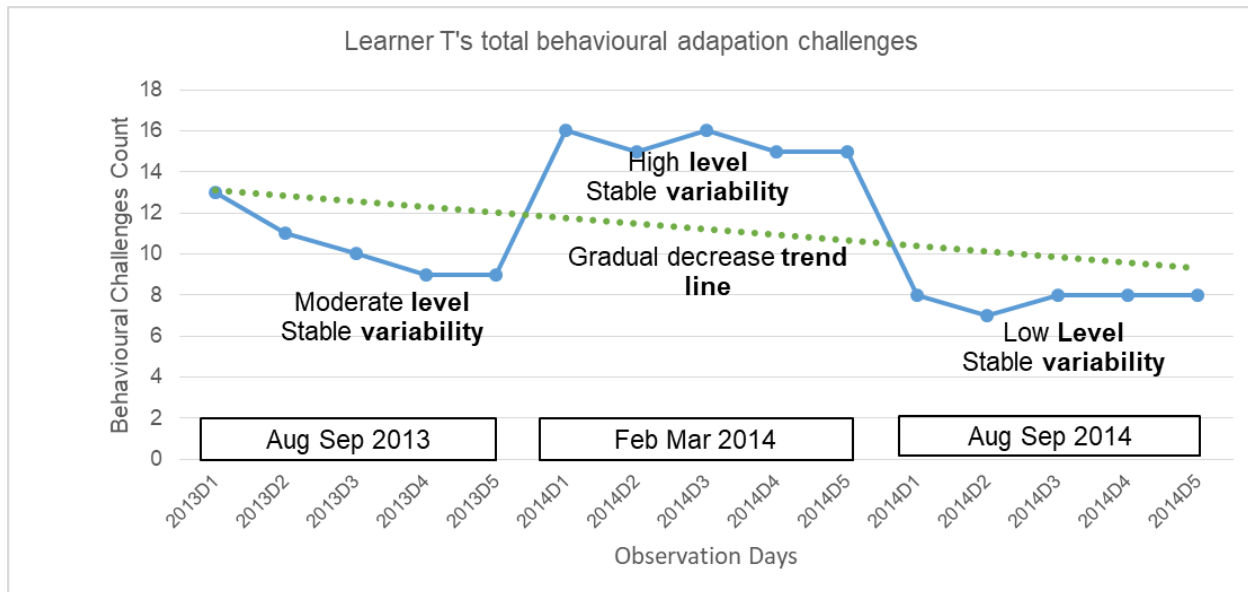
### 6.2.1 Learner T

The observed behavioural adaptation data of Learner T are presented in tabular form (Table 6.1) according to year, months and days to log occurrences of behavioural adaptation challenges. The totals of these challenges show how social cognitive and social functioning challenges influenced his behavioural adaptation in Grade 3 and throughout Grade 4.

**Table 6.1** Learner T's total behavioural adaptation challenges observed

Observation Aug/Sep 2013 Grade 3  <i>Teacher SM School P</i>	Total behavioural adaptation challenges observed per day	Observation Feb/Mar 2014 Grade 4  <i>Teacher JM School P</i>	Total behavioural adaptation challenges observed per day	Observation Aug/Sep 2014 Grade 4  <i>Teacher AJ School R</i>	Total behavioural adaptation challenges observed per day
Day 1	13	Day 1	16	Day 1	08
Day 2	11	Day 2	15	Day 2	07
Day 3	10	Day 3	16	Day 3	08
Day 4	09	Day 4	15	Day 4	08
Day 5	09	Day 5	15	Day 5	08
<b>Total</b>	<b>52</b>	<b>Total</b>	<b>77</b>	<b>Total</b>	<b>39</b>

Table 6.1 above is visually represented as a line graph in Figure 6.1. This figure shows the relation between the changing behavioural adaptation challenges count displayed on the vertical line of the graph, and the observation days displayed on the horizontal line of the graph. To illustrate the relation between the changing behavioural adaptation challenges count and the observation days "... a line or curve connects the series of successive data points" (Murcko, 2016:1).



**Figure 6.1** Learner T's line graph presentation of level, variability and trend of observation data

**Key:**

- Level:** moderate level in August/September 2013 (52); high level in February/March 2014 (77); and low level in August/September 2014 (39).
- Variability:** stable variability in August/September 2013; stable variability in February/March 2014; and stable variability in August/September 2014.
- Trend:** A gradual decrease of trend movement over the 15 individual observation days

Plotted on the line graph are three properties: level (blue solid line), variability (blue dots on blue line) and the trend line (green dotted line). These three properties have been used to identify significant variations and patterns in the data over the 15 individual days of observation and were defined and discussed in Chapter 3 under section 'Data analyses'. In the following section these three properties are discussed: level, variability and the trend line relating to Learner T's findings during the observation and interview data of the Grade 4 Teacher: AJ (School R).

- **Level**

During observation in August/September 2013 (Grade 3), data provided evidence that Learner T experienced a moderate level of behavioural adaptation challenges (52). Data indicated that Teacher SM implemented environmental changes and regular routines to assist Learner T in Grade 3 in acquiring behavioural adaptive skills in preparation for

Grade 4. Research Questions 1, 2 and 3 provide evidence of the Grade 3 Teacher SM assisting Learner T with behavioural adaptation challenges in preparation for Grade 4.

During observations in February/March 2014 (Grade 4) at School P (same private school), data provided evidence that Learner T had a high level of behavioural adaptation challenges (77); suggesting that Learner T found the unpredictability and uncertainty of transitional situations associated with changes in routine or environments more challenging when he moved to Grade 4. For instance, Learner T found the change of routine and environment challenging: he refused to participate in the rehearsal of a drama production.

School P, Grade 4 Teacher JM told Learner T:

If you are not going to join the rehearsal, then you are not allowed to sit in the hall and watch the production. You can sit and read by the entrance of the hall while you wait for your class to finish their rehearsal practice.

During observations in August/September 2014 (Grade 4) at School R, after Learner T moved to a private (remedial) school in April of the same year, data indicate that Learner T had a low level of behavioural adaptation challenges (39). This low level of behavioural adaptation challenges observed in August/September 2014 at School R suggests that in this private (remedial) school environment he managed successfully to acquire behavioural adaptation skills and was implementing them accordingly.

School R, Grade 4, Teacher AJ confirmed with the researcher:

Since the third term of 2014 in Grade 4, Learner T had participated in most of the routines and activities without any refusal. As long as I explained to him exactly the reason for changing the routine and why it was necessary. At times he still insisted on doing tasks the way his was used to. However, I have noticed that he has become more amenable to trying different problem solving methods. I attribute this to me introducing a strategy where I would give alternative methods to solve the same problem. For example, I would ask him to use only one of my examples written on the board that made the most sense to him.

- Variability

When interpreting variabilities from Figure 6.1, the variabilities are shown as stable variability; indicating that the plotted data during the three separate observation periods of five days each, while Learner T was in Grade 3 (School P) and Grade 4 (Schools P



and R), varied only slightly in terms of observational incidents. Although Learner T's behaviour challenges yielded slightly different outcomes in the three observation periods, these challenges remained fairly consistent in frequency within the five separate days of observations.

In August/September 2013, when Learner T was in Grade 3 at School P, Figure 6.1 indicates variability between 9 and 13: the variabilities remained stable during the five individual days of observations. This relative stability suggests that Teacher SM helped Learner T manage his daily school environment in Grade 3, and assisted him in acquiring behavioural adaptation skills in preparation for Grade 4. Research Questions 1, 2 and 3 provide evidence of the Grade 3 teacher SM assisting Learner T with his behavioural adaptation challenges.

In February/March 2014, when Learner T was in Grade 4 at School P, data show the variabilities to be between 15 and 16 behavioural challenges. Although Learner T experienced higher levels of behavioural adaptation challenges than he did in August/September 2013, the variability over the five days of observation in February/March 2014 remained stable. Data indicate that Learner T experienced more regular, inappropriate behavioural responses than observed between August and September 2013. Differences in the intensity of the behavioural responses were noticed: from mild, disruptive, but not dangerous in August/September 2013 to moderate, that is, verbal/physical outbursts as well as disruptive social and emotional behaviour in February/March 2014. An example from the February and March 2014 observations indicate that Learner T showed moderate intensity in his behavioural response. He interrupted a discussion on animals and their habitat: He shouted at a peer who was giving information:

- Learner T: You are talking junk! I did my own research and crocodiles do not do that. When Teacher (JM) sent him outside to calm down, he shouted back to the class.
- Learner T: Wake up! Nature should be left alone to do what he knows best.

This example illustrates that Learner T was still experiencing challenges: not being able to understand how to show appropriate social reciprocity towards others. When Learner T returned to class, Teacher JM called him to her desk and explained:

Often people do say things that you will not agree with, and you need to respect that. You need to learn to wait till you get a turn to give your version. This will help you think about your answer calmly without getting upset.

At the end of the first term Learner T was moved to School R. During a telephonic interview, Principal A at School P mentioned the reason for Learner T moving to School R. It was not Learner T's inability to respond in a socially acceptable manner during interactions with others that motivated the move, but an increase in the intensity of these incidences that was of concern to Teacher JM. She was concerned that Learner T's verbal/physical outbursts as well as his disruptive social and emotional behaviour might rise as the pressure of being in Grade 4 increased. It was decided by all concerned to enrol Learner T at School R, where he could start the second term (April 2014) of Grade 4.

In August/September 2014, when Learner T was attending School R, data indicate the variabilities dropped to between 7 and 8 respectively. Although Learner T experienced lower levels of behavioural adaptation challenges than he had in August/September 2013 and February/March 2014, the variabilities over the five days of observation in August/September 2014 again remained 'stable'; indicating that while still experiencing behavioural adaptation challenges, variabilities between days remained consistent.

During an interview, Teacher AJ at School R stated that when he joined School R in April 2014, it was difficult to manage his behaviour, and he was often "... rude and disruptive." For instance, Learner T was 'rude and disruptive' when reprimanded during an Afrikaans reading lesson. The class had to read together out loud as a group. He kept reading ahead and louder than his peers, which caused confusion in the group.

- Teacher AJ:           Learner T, what is the problem? You are reading too fast and not with the rest of the class!
- Learner T:            They are reading so slowly and like 'zombies', and it is not my fault that I have already finished the story.
- Teacher AJ:           Learner T, I know you can read well in Afrikaans, but we are now reading together as a group and you need to co-operate and respect that.

According to Teacher AJ, during the last two terms (August to December 2014), instead of shouting out and being rude, he showed his annoyance or disappointment at what was said or done by the teachers or his peers, by opting to withdraw from the situation. He would sit at his desk reading or sometimes drawing, instead of disrupting the lesson with impulsive behaviour. She would then ask him if he was OK, or if he would like to contribute to the discussion by giving his opinion on the matter, which he only sometimes provided. Teacher AJ mentioned that when it came to starting tasks, Learner T started to implement the method of 'thinking and flow maps' to write down the main point that he wanted to use in an essay. This technique assisted in preventing him from impulsively starting to write and helped him to see the essay in its entirety.

- Trend

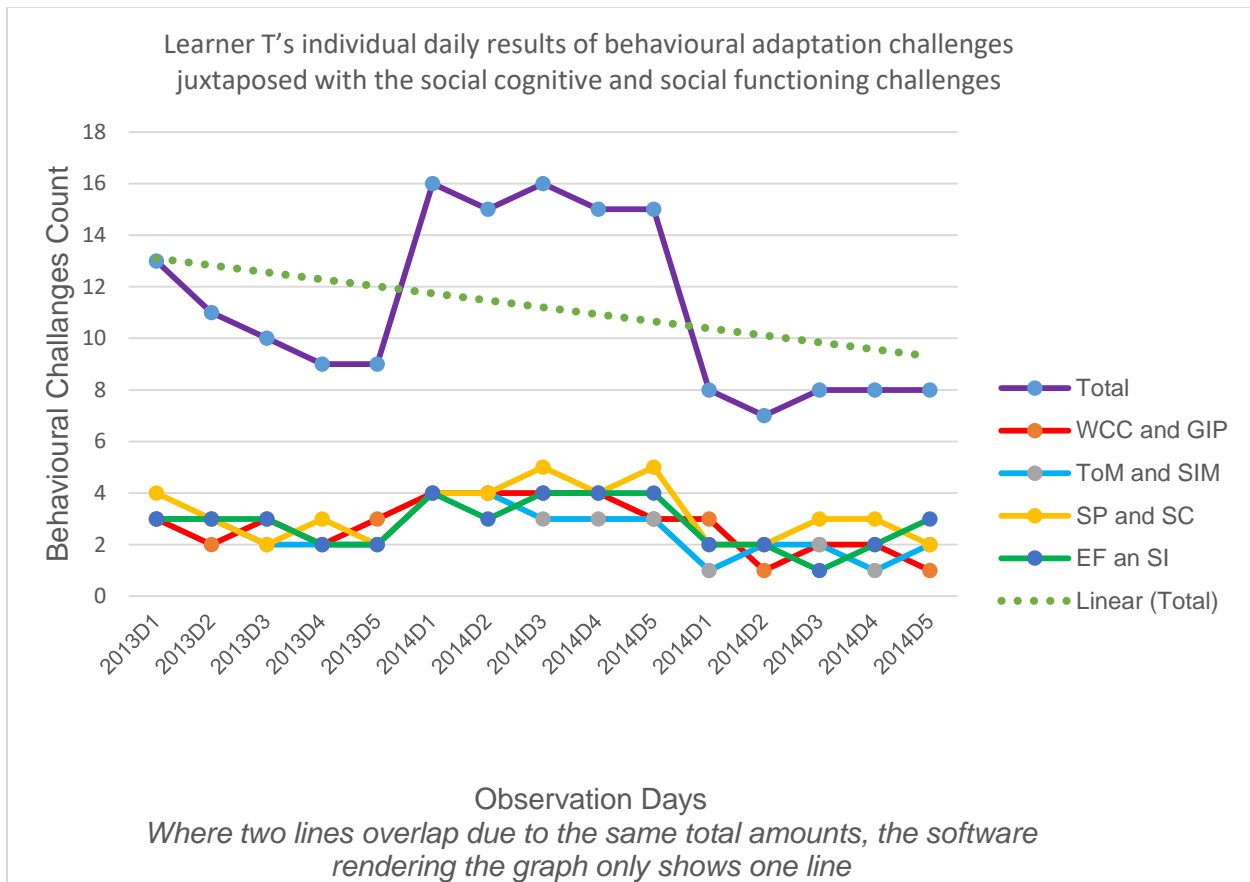
Figure 6.1 illustrates a gradual decrease in the overall trend: from August/September 2013, through February/March to August/September 2014. This decrease in disruptive incidents indicated that from April 2014 to August 2014, Learner T settled into School R and was acquiring and implementing some of the behavioural adaptation skills needed to assist him in managing his social cognitive and social functioning challenges more effectively. Teacher AJ (School R) mentioned that she "... consciously and actively helped Learner T manage his daily routine by using visual charts for him to follow. By placing strict boundaries, and by understanding that breaking rules would have consequences, Teacher AJ helped manage Learner T's behaviour. He worked hard to achieve the goals on his 'goal chart' which was specially designed for him by Teacher AJ; with the cooperation from the principal and his parents. This goal chart was taken home every day for his parents to sign.

In the following section (Table 6.2), observation data were tabulated to show occurrences of behavioural adaptation challenges associated with social cognitive and social functioning challenges experienced by Learner T; for the specific period of five days respectively during August and September 2013, February March 2014 and August and September 2014. Results provide evidence/confirmation of the frequency of the total occurrences of social cognitive and social functioning challenges Learner T experienced during the total 15 days of observation in Grade 3 and Grade 4.

From the data presented in Table 6.2, the visual representation graph (Figure 6.2) was constructed.

**Table 6.2** Learner T's results of behavioural adaptation challenges in terms of social cognitive and social functioning challenges.

Year and months of observation	Days of observation	Behavioural adaptation challenges	WCC and GIP	ToM and SIM	SP and SC	EF and SI
Aug/Sept 2013 Teacher SM School P	Day one	13	3	3	4	3
	Day two	11	2	3	3	3
	Day three	10	3	2	2	3
	Day four	9	2	2	3	2
	Day five	9	3	2	2	2
		<b>Total results 52</b>	<b>13</b>	<b>12</b>	<b>14</b>	<b>13</b>
Feb/Mar 2014 Teacher JM School P	Day one	16	4	4	4	4
	Day two	15	4	4	4	3
	Day three	16	4	3	5	4
	Day four	15	4	3	4	4
	Day five	15	3	3	5	4
		<b>Total results 77</b>	<b>19</b>	<b>17</b>	<b>22</b>	<b>19</b>
Aug/Sept 2014 Teacher AJ School R	Day one	8	3	1	2	2
	Day two	7	1	2	2	2
	Day three	8	2	2	3	1
	Day four	8	2	1	3	2
	Day five	8	1	2	2	3
		<b>Total results 39</b>	<b>9</b>	<b>8</b>	<b>12</b>	<b>10</b>

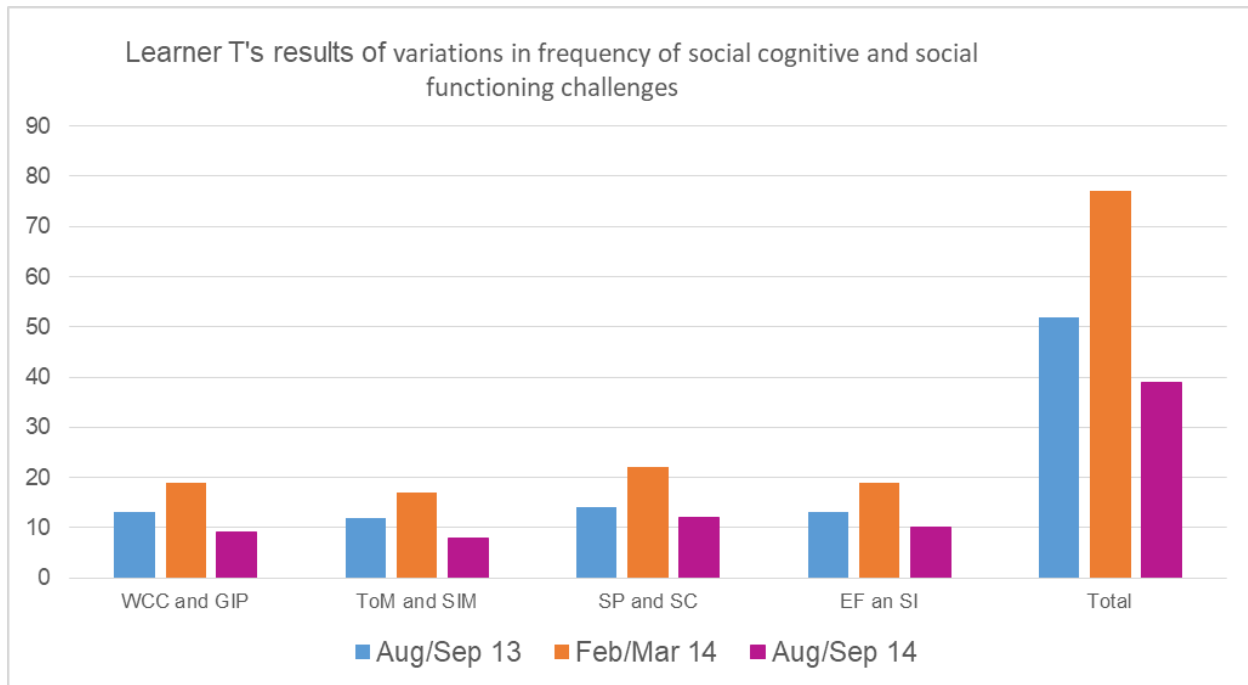


**Figure 6.2** Learner T's individual daily results of behavioural adaptation challenges juxtaposed with the social cognitive and social functioning challenges

The results of the following section show variations in frequency (Table 6.3) based on the total number of occurrences of social cognitive and social functioning challenges which Learner T experienced during the observation days in Grade 3 and Grade 4. From the data presented in Table 6.3 a visual representation graph (Figure 6.3) was constructed.

**Table 6.3** Learner T's total results of variations in frequency

Social cognitive and Social function challenges	Observation Aug/Sep 2013	Observation Feb/March 2014	Observation Aug/Sep 2014
WCC and GIP	13	19	9
ToM and SC	12	17	8
SP and SC	14	22	12
EF and SI	13	19	10
<b>TOTAL</b>	<b>52</b>	<b>77</b>	<b>39</b>



**Figure 6.3** Variations in frequency of social cognitive and social functioning challenges for Learner T

Results from Table 6.3 and Figure 6.3 indicate that Learner T's social cognitive (WCC, ToM, SP and EF) and social functioning (GIP, SIM, SC and SI) challenges triggered certain inappropriate behavioural responses:

- *more frequent* social cognitive and social functioning challenges during observations in February/March 2014, compared to the observation conducted in August/September 2013; and
- *less frequent* social cognitive and social functioning challenges during observations in August/September 2014, compared to the previous observations conducted in both August/September 2013 and February/March 2014.
- Summary of the results of observing Learner T's behavioural adaptation challenges

Data reveal that Learner T's social cognitive and social functioning challenges influenced his behavioural adaptation as he progressed through Grade 4 in the following ways.

Learner T's WCC and GIP challenges registered improved responses on his overall behavioural adaptability as he progressed in Grade 4. This improvement can be attributed to the fact that Teachers JM and AJ provided and implemented a structured and transparent classroom and learning environment that remained constant throughout Grade 4. Introducing coping strategies and social skills intervention programmes, as

described throughout the discussions on Learner T, assisted in the overall improvement of WCC and SGU and enhanced his behavioural adaptation in Grade 4.

Learner T's ToM and SIM challenges demonstrated an improvement in his overall behavioural adaptability as he progressed through Grade 4. Results showed that his Grade 4 teachers, Teachers JM and AJ, had an open social reciprocity policy which helped eliminate confusion and misunderstanding during social reciprocity and social perceptions in the classroom environment.

Learner T's SP and SC challenges showed improvement in overall behavioural adaptability in Grade 4: something which could be attributed to the coaching he received from his Grade 4 teachers. Teachers JM and AJ made a proactive effort to minimise sensory distractions, to reduce his sensory overload experiences and allow him to use a 'quiet zone', or leave the classroom when he felt overwhelmed by sensory distractions.

Learner T's EF and SI challenges showed an improvement on his overall behavioural adaptability as he progressed through Grade 4. This improvement can be attributed to the fact that Teachers JM and AJ assisted Learner T to develop appropriate EF and SI coping skills which assisted him interact in a socially appropriate way.

The final results are conclusive: Learner T experienced social cognitive and social functioning challenges which jointly contributed to his difficulty with behavioural adaptability.

To conclude the results for Learner T, it is important to mention that one of the reasons for the improvement in Learner T's overall behavioural adaptation was his relocation to a private LSEN school in April of his Grade 4 year. It was observed in August/September 2014 that the smaller class size and specific behavioural intervention strategies assisted Learner T with his social cognitive and social functioning challenges and contributed to a positive influence on his overall behavioural adaptability in Grade 4.

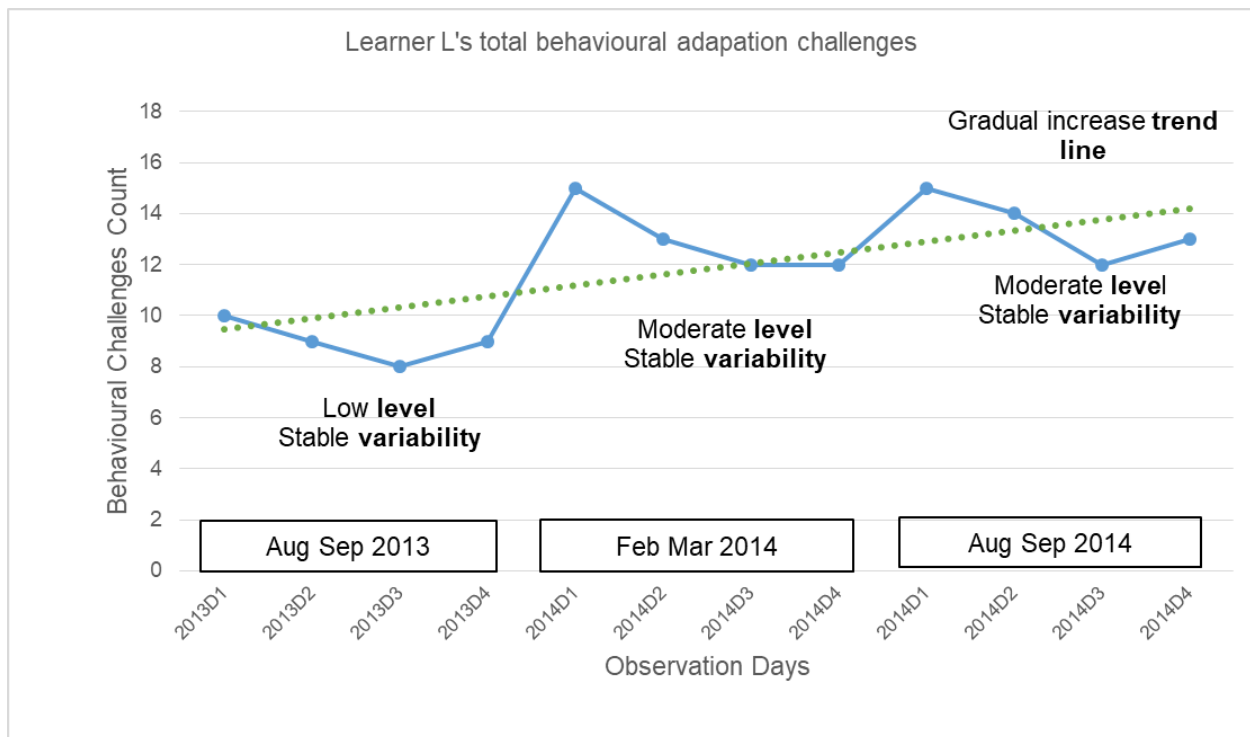
### 6.2.2 Learner L

As with the presentation of results for Learner T, results of the observed behavioural adaptation challenges experienced by Learner L are presented in tabular form in Table 6.4, according to year, months and days of occurrences.

**Table 6.4** Learner L's total behavioural adaptation challenges observed

Observation Aug/Sep 2013 <i>Teacher GR School P</i>	Total behavioural adaptation challenges observed per day	Observation Feb/Mar 2014 <i>Teacher JM School P</i>	Total behavioural adaptation challenges observed per day	Observation Aug/Sep 2014 <i>Teacher JM School P</i>	Total behavioural adaptation challenges observed per day
Day 1	10	Day 1	15	Day 1	15
Day 2	09	Day 2	13	Day 2	14
Day 3	08	Day 3	12	Day 3	12
Day 4	09	Day 4	12	Day 4	13
Total	36	Total	52	Total	54

Table 6.4 is visually represented as a line graph in Figure 6.4. This information is the same as Learner T.



**Figure 6.4** Learner L's line graph presentation of level, variability and trend of observation data



<b>Key:</b>	<b>Level:</b>	low level in August/September 2013 (36); moderate level in February/March 2014 (52); and moderate level in August/September 2014 (54)
	<b>Variability:</b>	stable variability in August/September 2013 stable variability in February/March 2014; and stable variability in August/September 2014
	<b>Trend:</b>	gradual increase of trend movement over the 12 days of observation days.

Plotted on the line graph are three properties: level (blue solid line), variability (blue dots on blue line) and the trend line (green dotted line). As with Learner T's results, the three properties have been used to identify patterns in data over the 12 individual days of observation. In the following section, these three properties relating to Learner L's findings during the observation and interview data of the Grade 4 teacher (Teacher JM) are discussed. Chapter 3 explains why only 12 days of observations were conducted instead of 15 as for Learner T. Learner L was often absent and the researcher could only conduct 4 days of three sets of observations.

- Level

During observations in August/September 2013 (Grade 3) data provided evidence that Learner L experienced a low level of behavioural adaptation challenges (36). Data indicated that Teacher GR implemented regular routines and prepared Learner L for unexpected changes in the classroom routine; assisting her in acquiring adaptive skills in preparation for Grade 4. Research Questions 1, 2 and 3 provide evidence of environmental changes and regular routines implemented by the Grade 3 teacher, Teacher GR.

Observation data from February/March 2014 (Grade 4) provide evidence that Learner L experienced a moderate level of behavioural adaptation challenges (52). This result suggests that, although Learner L experienced a 'moderate level' of behavioural adaptation challenges, she still found any small changes in her environment stressful. However, it was observed by the researcher that Learner L's assigned facilitator was helpful in assisting Learner L to adapt to sudden changes in the environment.

At School P, Grade 4 Teacher JM, mentioned during the interview:

As from day one in Grade 4, Learner L showed that she did not like any form of change to her routine that she was used to in Grade 3. The facilitator, however, has been assisting Learner L to accept and adapt to routines and changes that were different than those she experienced in Grade 3.

Observation data from August/September 2014 (Grade 4) data provides evidence that Learner L experienced a moderate level of behavioural adaptation challenges (54). The difference, however, was in the intensity with which she expressed herself in a socially acceptable manner.

Teacher JM agreed with the researcher:

Learner L did not act out on a continuous basis, but when she did it would be a very intense experience for her, and often very disruptive to the peers around her. Learner L's latest objection was that she refused to have any contact, or participate in any group activity where she had to interact with boys, as she argued that they do not listen and were 'too physical'. Unfortunately, not having contact with boys in a group situation was not always possible.

- Variability

In August/September 2013, Learner L attended Grade 3: for this period Figure 6.4 indicates variability between 8 and 10. These variabilities suggest that behavioural adaptation challenges remained stable during the four days of observations. The Grade 3 teacher (Teacher GR) and the facilitator worked together as a team to assist Learner L in her day-to-day social interactions. The teacher and facilitator made Learner L aware of more socially appropriate behavioural adaptation skills that she could use in a similar situation in the future. Research Questions 1, 2 and 3 provide evidence of the Grade 3 teacher, Teacher GR, assisting Learner L in preparation for Grade 4.

In February/March 2014, when Learner L was in Grade 4, data shows stable variabilities between 12 and 15 during the four individual days of observations. Although Learner L showed a 'stable variability' of social adaptation challenges, the 'level' amounts indicated a gradual increase. This rise suggests that, because she was experiencing more social adaptation challenges on a more regular basis than she did in Grade 3, she found adjustment to the change of learning environment and changes to her daily routine more

challenging. Teacher JM confirmed that Learner L wanted everything to be perfect and organised according to her standards and what she was used to in Grade 3. She clarified:

Learner L would for example, remember everything I said, correct me if she thought I was wrong by saying: "That is not what you said just now", or she would insist that she had been taught a better way of doing a task.

In August/September 2014, in the third term of Grade 4, variability in Learner L's social adaptation challenges, as during observation, remained stable between 12 and 15. This result was similar to data obtained from the observation data used in February/March 2014. The difference, however, noted during the observation, lay in the intensity of the behavioural responses, which rose from mild (disruptive verbal responses, but a willingness to listen and conform) in February/March 2014 to moderate (verbal/physical outbursts and disruptive social and emotional behaviour) in August/September 2014.

An example of where Learner L experienced a moderate outburst of intensity, was during a computer lesson where the class had to design a cover page for their project. The computer teacher told them that because learners arrived late for class, those who had not finished the design of their cover page had run out of time to complete it. She promised that she would allow those who were not finished to complete it during the next lesson. Learner L responded by shouting and running out of the classroom crying:

That is not fair! Those who were on time should be allowed to complete their cover. You guys that came late are all so disrespectful of time and now we do not have time to design our cover properly. I hate all of you!

During the interview, Teacher JM confirmed that since the amount of work increased and Learner L had to work at a faster pace, she became more emotional and stressed. She mentioned that when Learner L could not complete a task on time, she would lash out verbally or burst into tears to show that she was not coping with a decision or situation.

Teacher JM stated:

Learner L shows an above average intelligence in everything she does. To assist her in managing the workload, I could in good conscience give Learner L less work. I would allow her to do the rest of the task at home under the supervision of her mother or granny.

- Trend

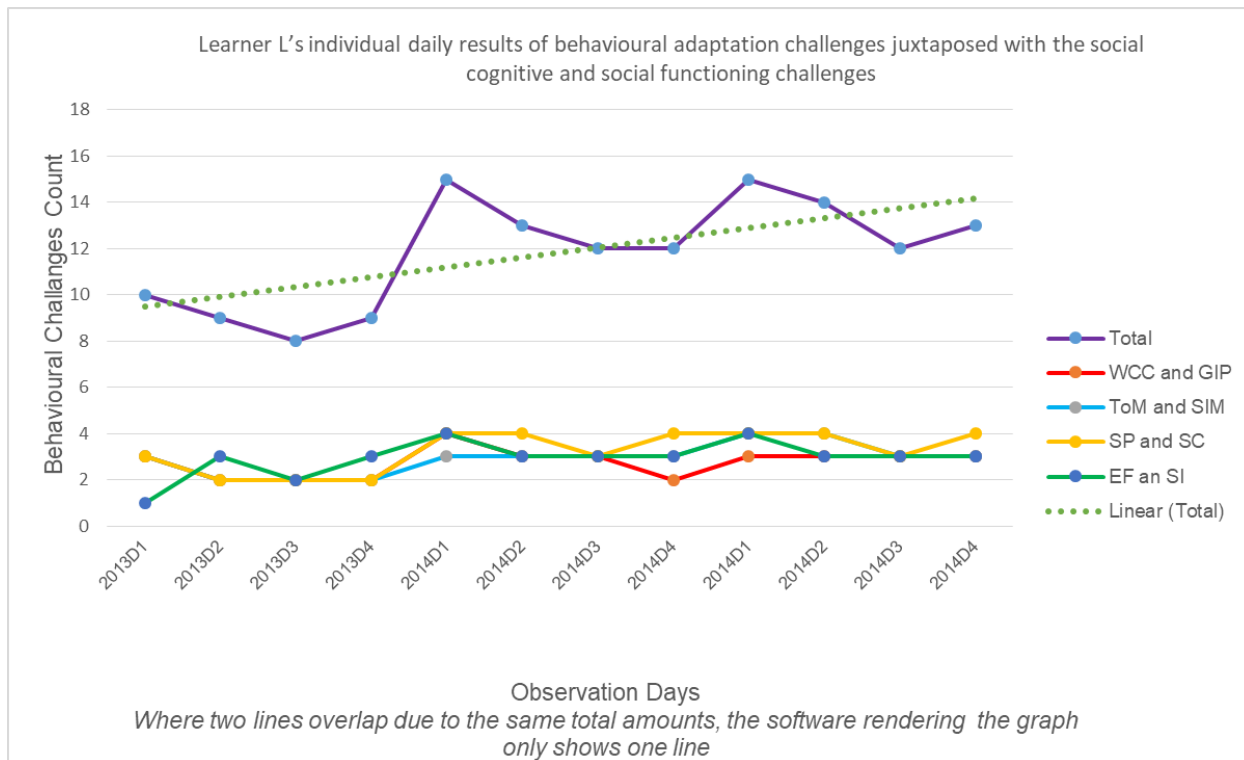
Figure 6.4 illustrates a gradual increase in the overall trend of movement from August/September 2013 through February/March to August/September 2014. The gradual trend increase suggests that Teacher JM (Grade 4) and her support structure continually assisted Learner L to manage her social cognitive and social functioning challenges throughout Grade 4. Teacher JM mentioned:

I would allow her to do as much as she could manage and often allowed her to use her own method of problem-solving. As long as she shared her version of problem solving with the rest of the class, they could benefit from it. The facilitator has been a great help to assist me in keeping Learner L focussed and explaining to her in advance what was expected. This would prevent any confusion, which could lead to a misunderstanding and stress later.

In the following section (Table 6.5), observation data were tabulated to show the frequency of occurrences of behavioural adaptation challenges associated with social cognitive and social functioning challenges experienced by Learner L; for the specific period of four days respectively during August and September 2013, February March 2014 and August and September 2014. Results provide evidence/confirmation of variations in frequency of occurrences of social cognitive and social functioning challenges Learner L experienced during the total 12 days of observation in Grade 3 and Grade 4. From the data presented in Table 6.5, a visual representation graph (Figure 6.5) was constructed.

**Table 6.5** Learner L’s results of behavioural adaptation challenges in terms of social cognitive and social functioning challenges

Year and Months of Observation	Days of Observation	Behavioural adaptation challenges	WCC and GIP	ToM and SIM	SP and SC	EF and SI
Aug/Sept 2013 Teacher GR School P	Day one	10	3	3	3	1
	Day two	9	2	2	2	3
	Day three	8	2	2	2	2
	Day four	9	2	2	2	3
		<b>Total results 36</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>
Feb/Mar 2014 Teacher JM School P	Day one	15	4	3	4	4
	Day two	13	3	3	4	3
	Day three	12	3	3	3	3
	Day four	12	2	2	4	3
		<b>Total results 52</b>	<b>12</b>	<b>12</b>	<b>15</b>	<b>13</b>
Aug/Sept 2014 Teacher JM School P	Day one	15	3	4	4	4
	Day two	14	3	4	4	3
	Day three	12	3	3	3	3
	Day four	13	3	3	4	3
		<b>Total results 54</b>	<b>12</b>	<b>14</b>	<b>15</b>	<b>13</b>

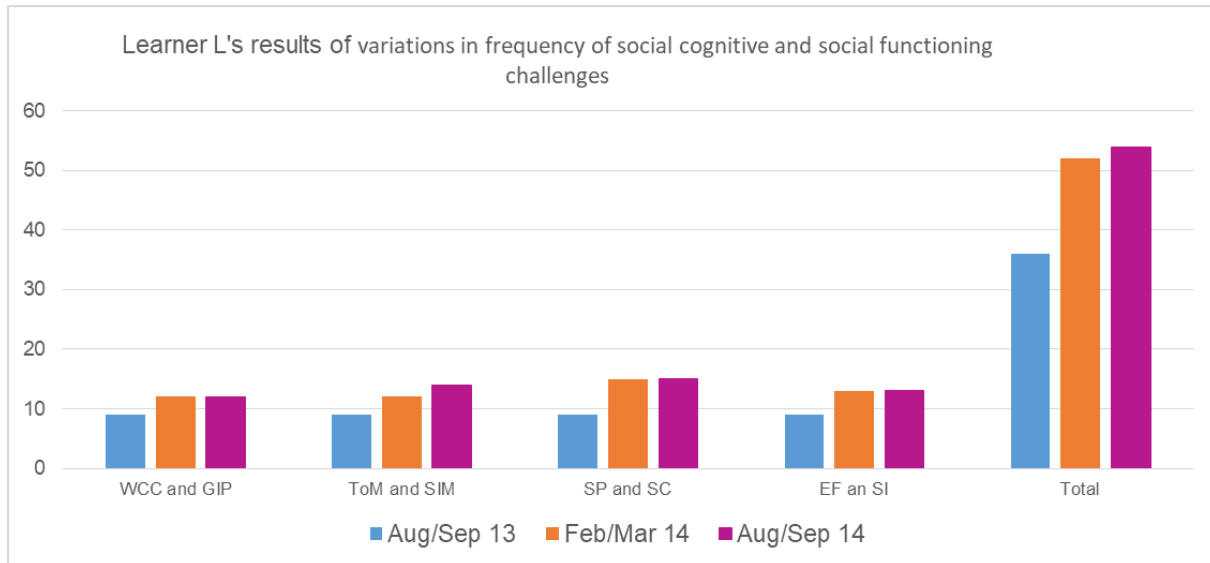


**Figure 6.5** Learner L’s individual daily results of behavioural adaptation challenges juxtaposed with the social cognitive and social functioning challenges

The results of the following section show variations in frequency (Table 6.6) based upon the number of occurrences of social cognitive and social functioning challenges which Learner L experienced during the observation days in Grade 3 and Grade 4. From the data presented in Table 6.6, a visual representation graph (Figure 6.6) was constructed.

**Table 6.6** Learner L's total results of variations in frequency

Social cognitive and Social function challenges	Observation Aug/Sep 2013	Observation Feb/March 2014	Observation Aug/Sep 2014
WCC and GIP	9	12	12
ToM and SC	9	12	14
SP and SC	9	15	15
EF and SI	9	13	13
<b>Total</b>	<b>36</b>	<b>52</b>	<b>54</b>



**Figure 6.6** Variations in frequency of social cognitive and social functioning challenges for Learner L

Results from Table 6.6 and Figure 6.6 indicate that Learner L's social cognitive (WCC, ToM, SP and EF) and social functioning (GIP, SIM, SC and SI) challenges created inappropriate behavioural responses:

- *more frequent* social cognitive and social functioning challenges during observations in February/March 2014, compared to the observation conducted in August/September 2013; and
  - *more frequent* social cognitive and social functioning challenges during observations in August/September 2014, compared to the previous observations conducted in both August/September 2013 and February/March 2014.
- Summary of the results of observing Learner L's behavioural adaptation challenges

The collected data revealed that Learner L's social cognitive and social functioning challenges influenced her behavioural adaptation as she progressed through Grade 4. The results validated this perception in the following manner.

Learner L's WCC and GIP challenges remained constant and showed a 'stable' result on her behavioural adaptability as she progressed through Grade 4 from February to September 2014. This stability can be attributed to Teacher JM creating a structured, transparent and secure learning environment that was kept consistent throughout Grade 4.

Learner L's ToM and SIM challenges showed only a slight increase in her behavioural adaptation challenges through Grade 4. This slight increase can be attributed to the Grade 4 teacher. Teacher JM adopted a policy of open social reciprocity. With the support of the facilitator, the teacher and facilitator helped to eliminate confusion and misunderstandings that may have been experienced by Learner L. This clarification was effected to minimise inappropriate behavioural responses.

The SP and SC challenges which influenced Learner L's behavioural adaptability and remained constant and 'stable' in Grade 4. Teacher JM and her support team made a conscious effort to minimise sensory distractions. Data revealed that Teacher JM and her assistant used positive reinforcement and allowed her to develop her own sensory coping strategies such as leaving the classroom or using the 'quiet zone' at her own discretion.

By implementing these strategies, teacher and facilitator tried to spare Learner L from feeling overwhelmed by sensory distractions.

These results indicate that the EF and SI challenges that influenced Learner L's behavioural adaptability, remained constant and 'stable' in Grade 4. Teacher JM, with the collaborative and daily effort from her support team, helped Learner L understand and develop EF and SI skills. By developing these skills, her support team assisted her to manage her behavioural adaptation in Grade 4.

Although Learner L's social cognitive and social function challenges remained generally constant in Grade 4, results showed that these challenges together contributed to a slight increase in her behavioural adaptability.

Observations conducted in February/March and August/September 2014 and the interview conducted with Learner L's Grade 4 Teacher JM, confirm that the social coping strategies and social and emotional support given to Learner L were beneficial in assisting her to adapt her daily behavioural responses during her Grade 4 year. Teacher JM mentioned that without the support and assistance from the facilitator, her colleagues and Learner L's family, it would have been an impossible task for her to 'manage' Learner L alone.

In conclusion, Teacher JM mentioned that Learner L would transfer from School P to attend an all-girls school in 2015. Teacher JM stated that the decision was made because Learner L became too emotional when working in a group with male peers. Learner L complained that boys did not know how to behave and according to her lacked "... artistic talent ...". According to Teacher JM, Learner L spent a week of Term 3 (September 2014) at an all-girls school, and that this school was happy to accept her for Grade 5 in January 2015.



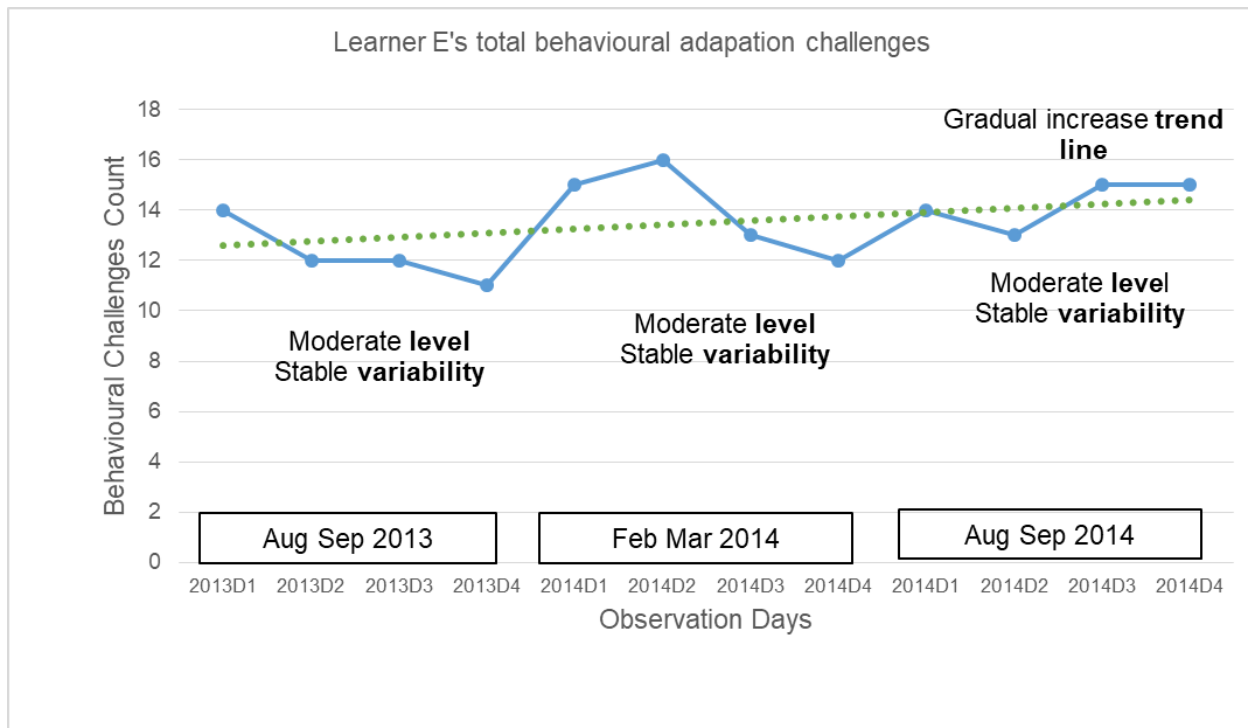
### 6.2.3 Learner E

As with the presentation of results for Learner T and L, the results of observed behavioural adaptation challenges experienced by Learner E are presented first in tabular form (Table 6.7), according to year, months and days of occurrences.

**Table 6.7** Learner E's total behavioural adaptation challenges observed

Observation Aug/Sep 2013 <i>Teacher CJ School M</i>	Total behavioural adaptation challenges observed per day	Observation Feb/Mar 2014 <i>Teacher JT School M</i>	Total behavioural adaptation challenges observed per day	Observation Aug/Sep 2014 <i>Teacher JT School M</i>	Total behavioural adaptation challenges observed per day
Day 1	14	Day 1	15	Day 1	14
Day 2	12	Day 2	16	Day 2	13
Day 3	12	Day 3	13	Day 3	15
Day 4	11	Day 4	12	Day 4	15
<b>Total</b>	<b>49</b>		<b>56</b>		<b>57</b>

Table 6.7 above is visually represented as a line graph in Figure 6.7.



**Figure 6.7** Learner E's line graph presentation of level, variability and trend of observation data

<b>Key:</b>	<b>Level:</b>	moderate level in August/September 2013 (49); moderate level in February/March 2014 (56); and moderate level in August/September 2014 (57)
	<b>Variability:</b>	stable variability in August/September 2013 stable variability in February/March 2014; and stable variability in August/September 2014
	<b>Trend:</b>	'gradual increase' of trend movement over the 12 days of observation days.

Plotted on the horizontal axis of the line graph above are three properties: level (blue solid line), variability (blue dots) and the trend line (green dots). As with Learner T's and Ls' results, the three properties have been used to identify patterns in data over the 12 individual days of observation. In the following section, these three properties relating to Learner E's findings during the observation and interview data of the Grade 4 teacher (Teacher JT), are discussed.

- Level

Observation data from August/September 2013 (Grade 3) show that Learner E experienced a moderate level of behavioural adaptation challenges (49). This result suggests that Teacher CJ introduced regular routines and prepared Learner E for unexpected changes in routine which assisted him in acquiring certain adaptation skills in preparation for Grade 4. Research Questions 1, 2 and 3 provide evidence of environmental changes and regular routines implemented by the Grade 3, Teacher CJ.

Observations conducted in February/March 2014, when Learner E was in Grade 4, indicate that Learner E experienced a moderate level of behavioural adaptation (56). Although this result showed a 'moderate level' of behavioural adaptation challenges, Learner E's Grade 4 Teacher JT, mentioned in the interview that Learner E found adapting to change in environment and routines difficult. She stated:

With the help of the class assistant, the LSEN teacher and my fellow staff members at the school, we have managed to assist Learner E from the first day in Grade 4. We all made sure to warn him in advance about any changes and that he always knew what was expected of him. What did contribute to a smoother transition from Grade 3, was that he has been with the same learners since Grade 1 and he did not have to make new friends as well.

The observation data gathered in August/September 2014 (Grade 4) revealed a moderate level of adaptation challenges experienced by Learner E (57). Although the data still indicate a 'moderate level' of increase in behavioural challenges, it was, according to Teacher JT, his stagnation in developmental maturity that had been a concern. Teacher JT clarified:

As Learner E's peers matured in social and emotional development during their Grade 4 year, his social and emotional immaturity had been distracting to his peers and they would often tell him to "just grow up".

- Variability

In August/September 2013 Learner E attended Grade 3: for this period Figure 6.7 showed variabilities between 11 and 14. These variabilities suggest that behavioural adaptation challenges remained 'stable' during the four days of observations. This stability suggests that Teacher CJ and her class assistant worked together as a team to assist Learner E in his day-to-day social interaction and made him more aware of socially appropriate behavioural adaptation skills. Research Questions 1, 2 and 3 provide evidence of the assistance and support given to Learner E by Teacher CJ and class assistant in preparation for Grade 4.

In February/March 2014, when Learner E was in Grade 4, data shows stable variability between 12 and 16 during the 4 individual days of observations. Although Learner E showed a stable variability of social adaptation challenges, the level amount increased gradually: suggesting that because he was experiencing more social adaptation challenges on a more regular basis, he was finding adjustment to the change of learning environment and changes to his daily routine more challenging than when he was in Grade 3. It was observed that Learner E's desk was joined to Teacher JT's desk. During the interview she explained:

By putting his desk close to mine I could assist him and keep him focussed when I am sitting at my desk. When I was not at my desk I would make sure that I or the assistant was close by to support him to manage the given tasks. I was aware that drawing was his passion. When I noticed that he was not adhering to a change in environment, or doing his task, I would assure him that if he tries to work and completes his task, he will be given some time during quiet reading time to work on his drawing.

In August/September 2014, in the third term of Grade 4, the variabilities of Learner E's social adaptation challenges, during observation, remained stable between 13 and 15. During the interview, Teacher JT stated that as the year progressed, Learner E responded to his learning environment by withdrawing from activities and tasks as the workload increased. It was observed by the researcher in August/September 2014 that when Learner E's drawing was taken away for him to focus on his work, he would become distraught, throw his books on the floor or bang his hand on the desk. He then refused to participate further. Teacher JT voiced her concern:

A meeting was set up with myself, the Grade 5 teacher and the LSEN teacher. This was to find ways to help Learner E acquire coping skills that can motivate and encourage him to participate next year (2015). We all agreed that sending him outside to compose himself when he was upset was not an option any more, as he had already fallen behind in his academic work in 2014.

- Trend

Figure 6.7 illustrates a gradual increase in the overall trend of movement from August/September 2013 through February/March to August/September 2014. The trend of a gradual increase suggests that, by means of their vigilance and careful routine, Teacher JT (Grade 4) and her support structure assisted Learner E to manage his social cognitive and social functioning challenges throughout Grade 4. Where possible, they assisted him in acquiring behavioural adaptation skills throughout Grade 4. Teacher JT explained:

As he often suffered from sensory overload he was allowed to use a pencil and paper instead of a marker and small blackboard. He was allowed to drink water or eat an apple to assist him to focus. He was allowed to go and work in the library with the class assistant if he could not focus on completing a test.

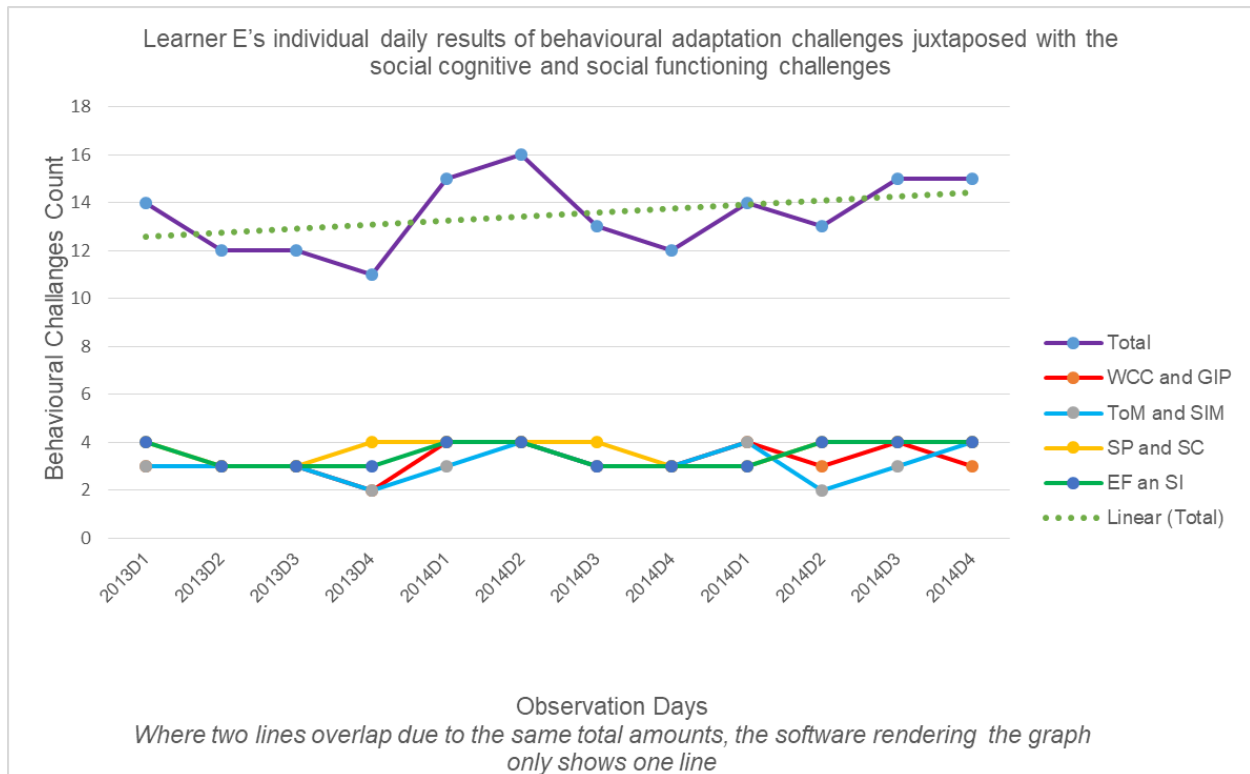
In the following section (Table 6.8), observation data were tabulated to show the frequency of occurrences of behavioural adaptation challenges associated with social cognitive and social functioning challenges experienced by Learner E; for the specific period of four days respectively during August and September 2013, February March 2014 and August and September 2014. Results provide evidence/confirmation of variations in frequency of occurrences of social cognitive and social functioning

challenges Learner E experienced during the 12 days of observation in Grade 3 and Grade 4.

From the data presented in Table 6.8 below, a visual representation graph (Figure 6.8) was constructed.

**Table 6.8** Learner E's behavioural adaptation challenges in terms of social cognitive and social functioning challenges

Year and Months of Observation	Days of Observation	Behavioural adaptation challenges	WCC and GIP	ToM and SIM	SP and SC	EF and SI
Aug/Sept 2013 Teacher CJ School M	Day one	14	3	3	4	4
	Day two	12	3	3	3	3
	Day three	12	3	3	3	3
	Day four	11	2	2	4	3
		<b>Total results 49</b>	<b>11</b>	<b>11</b>	<b>14</b>	<b>13</b>
Feb/Mar 2014 Teacher JT School M	Day one	15	4	3	4	4
	Day two	16	4	4	4	4
	Day three	13	3	3	4	3
	Day four	12	3	3	3	3
		<b>Total results 56</b>	<b>14</b>	<b>13</b>	<b>15</b>	<b>14</b>
Aug/Sept 2014 Teacher JT School M	Day one	14	4	4	3	3
	Day two	13	3	2	4	4
	Day three	15	4	3	4	4
	Day four	15	3	4	4	4
		<b>Total results 57</b>	<b>14</b>	<b>13</b>	<b>15</b>	<b>15</b>

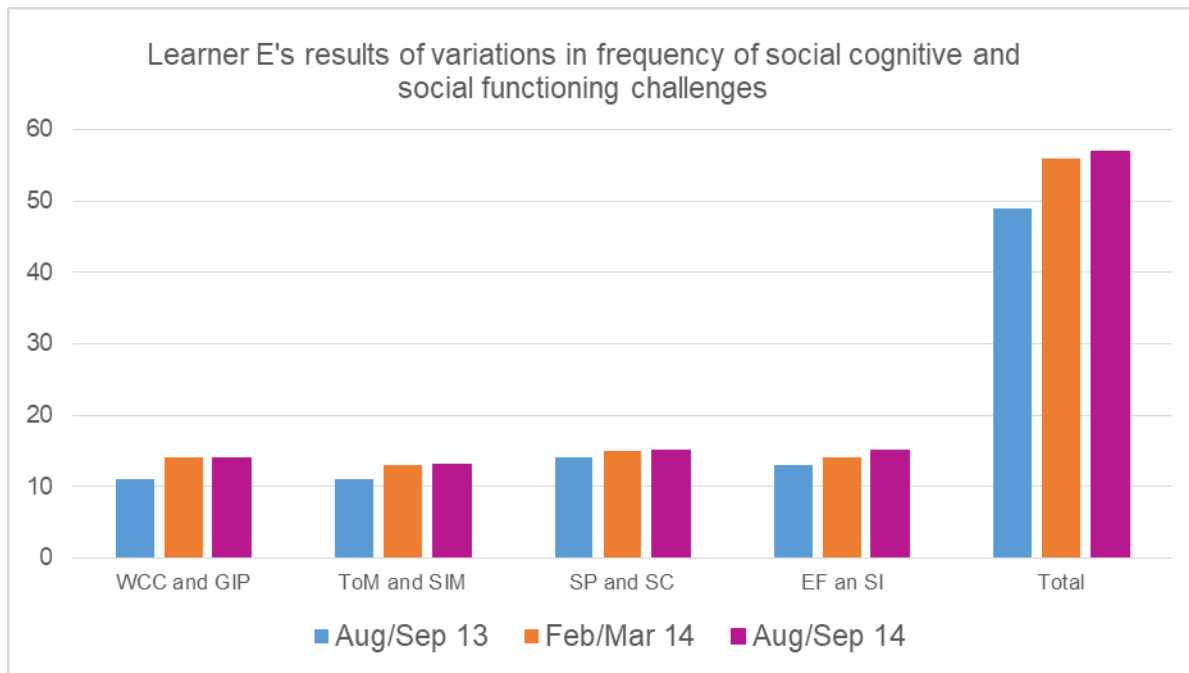


**Figure 6.8** Learner E's individual daily results of behavioural adaptation challenges juxtaposed with the social cognitive and social functioning challenges.

This section show variations in frequency (Table 6.9) based upon the total number of occurrences of social cognitive and social functioning challenges which Learner E experienced during the observation days in Grade 3 and Grade 4. From the data presented in Table 6.6, a visual representation graph (Figure 6.9) was constructed.

**Table 6.9** Learner E's total results of variations in frequency

Social cognitive and Social function challenges	Observation Aug/Sep 2013	Observation Feb/March 2014	Observation Aug/Sep 2014
WCC and GIP	11	14	14
ToM and SC	11	13	13
SP and SC	14	15	15
EF and SI	13	14	15
<b>TOTAL</b>	<b>49</b>	<b>56</b>	<b>57</b>



**Figure 6.9** Variations in frequency of social cognitive and social functioning challenges for Learner E.

Results of Table 6.9 and Figure 6.9 indicate that Learner E's social cognitive (WCC, ToM, SP and EF) and social functioning (GIP, SIM, SC and SI) challenges created inappropriate behavioural responses:

- *more frequent* during observation in February/March 2014, compared to the observation conducted in August/September 2014; and
- *more frequent* in August/September 2014 than during observations conducted in February/March 2014.
- Summary of the results of observing Learner E's behavioural adaptation challenges.

Data revealed that Learner E's social cognitive and social functioning challenges influenced his behavioural adaptation as he progressed through Grade 4. Results validate this perception in the following manner:

Learner E's WCC and GIP challenges stayed constant and did not reveal any significant change throughout Grade 4. The reason for this consistency can be attributed to the collaborative effort of Teacher JT, the class assistant and the LSEN teacher who designed

a structured, transparent and secure learning environment that stayed constant throughout Grade 4.

Learner E's ToM and SIM challenges remained constant and did not reveal any significant change throughout Grade 4. This constant and stable result can be explained by the fact that Teacher JT adopted a policy of open social reciprocity. She ensured that before commencing with a task or conversation, there would be no misunderstanding or confusion that could result in Learner E displaying socially inappropriate behaviour. If Learner E displayed behaviour that was not appropriate in her Grade 4 class, she and her assistant immediately intervened to assist him with his confusion or misunderstandings. Although Learner E's greatest challenges in Grade 4 were SP, SC, EF and SI, the results remained constant and revealed only minimal change. The results from the data indicate that the support provided by the whole team, Teacher JT, the assistant and the LSEN teacher, benefited Learner E with his behavioural adaptation. His social cognitive and social functioning challenges in Grade 4 were generally 'stable' due to the continued support he received.

Teacher JT confirmed that, without the overall support and assistance from the class assistant and her colleagues to help her manage and support Learner E, it would have been difficult for her to cope with Learner E alone. Results indicate that, by helping him manage his day-to-day challenges, they could prevent behavioural responses escalating when he showed signs of not coping with the increase of workload in Grade 4.

### **6.3 SUMMARY OF THE RESULTS**

As all three learners progressed in Grade 4, their teachers developed different kinds of initiative, imaginative and caring intervention programmes in an attempt to assist these learners manage their behavioural adaptation challenges in a more positive manner. The focus was on challenges that could have been directly associated with these learner's experiencing social cognitive and social functioning challenges. The researcher now summarises each learners social cognitive and social functioning challenges that influenced behavioural adaptation challenges. It is interesting to note that all three



learners experienced the most behavioural challenges linked to SP and SC challenges which could be as a direct result of their AS/HFA condition.

Learner T's overall behavioural challenges registered an improved response as he progressed in Grade 4 from February/March to August/September. Table 6.1 indicates this overall improved response from 77 behavioural adaptation challenges reduced to 39 challenges. All Learner T's social cognitive and social functioning challenges showed an improvement as described below:

- WCC and GIP challenges showed a positive response from 19 to 9 behavioural challenges;
- ToM and SIM challenges showed a positive response from 17 to 8 behavioural challenges;
- SP and SC challenges showed a positive response from 22 to 12 behavioural challenges; and
- EF and SI challenges showed a positive response from 19 to 10 behavioural challenges.

The contributing factor in Learner T's Grade 4 class, was that he was moved to a LSEN school (School R) in April of 2014. Social interventions, such as coping strategies and social skills programmes were put in place by Teacher AJ in the LSEN Grade 4 classroom.

WCC and GIP challenges improvement can be contributed to both the Grade 4 Teachers, JM and AJ, implementing structured and transparent learning environments, which assisted with adaptation challenges to change. When Learner T moved to School R, Teacher AJ's social intervention strategies assisted him with adapting to social cognitive changes (WCC) and social functioning (GIP) behavioural challenges.

Learner T's ToM and SIM challenges improved, as Teacher AJ's intervention programme also focused on behavioural coping skills dealing with inappropriate responses due to misunderstandings related to ToM and SIM. She implemented the method of 'thinking and flow maps' where Learner T had to write down the main points to organise his thoughts according to his own personal view. Teacher AJ would then assist him with an overall understanding.

Learner T experienced a decrease in the overall number of SP and SC challenges. Both Teachers JM and AJ made conscious efforts to minimise distractions during class time. When Learner T however did experience sensory overload he was allowed to use approved coping strategies. He was allowed to voice his sensory discomfort and could ask permission to leave the classroom or use a 'quiet zone' to compose himself.

As Learner T progressed through Grade 4, his EF and SI challenges showed an improvement. Teacher AJ's intervention programme included a goal chart assisting Learner T with managing his impulsive social reciprocal verbal contributions when he felt confused or misunderstood the topic of discussion. Teacher AJ acknowledged his efforts to conform.

Learner L's overall behavioural challenges registered only a slight increase as she progressed in Grade 4: from 52 to 54. The only social cognitive and social functioning challenge that increased was ToM and SIM, while the others (WCC, GIP, SP, SC, EF and SI) remained constant.

This very marginal increase in Learner L's ToM and SIM challenges could be explained by the continuous support and assistance that Teacher JM received from the facilitator who adopted a policy of open social reciprocity to help Learner L manage ToM and SIM challenges.

As she was in the same Grade 4 class and school as Learner T, Learner L had the same teacher (Teacher JM). Learner L was therefore exposed to the same intervention strategies to assist her with adapting to social cognitive change. As part of the intervention strategy for Learner L, Teacher JM compromised her classroom rules of completing work in the set timeframe to assist Learner L. To reduce possible impulsive behaviours and emotional distress, Learner L was allowed to complete her work at home, as Learner L often wanted to add additional information and work at a slow pace.

Learner Es' overall behavioural adaptability challenges showed a minimal increase as he progressed in Grade 4 from 56 to 57. The only social cognitive and social functioning

challenge that increased was EF and SI while the others (WCC, GIP, ToM, SIM, SP and SC) remained constant.

To assist with Learner E's behavioural adaptability, Teacher JT had a support system including a classroom assistant and access to an onsite LSEN teacher. Teacher JT adopted a policy of open social reciprocity. Together with the support of a classroom assistant they ensured that even before commencing with a task or conversation there would be no confusion or misunderstanding that could result in inappropriate behavioural responses. Allowing Learner E to use approved coping strategies (of voicing his sensory discomfort and giving him permission to continue his task in the library, while accompanied by the class assistant), helped minimise sensory overload and social communication challenges. Learner E was seated close to Teacher JT's desk, so she or the assistant could readily engage, motivate and encourage him on a continuous basis during the day to or participate or conform.

In summary, the social cognitive and social functioning challenges all influenced the behavioural adaptation of the three AS/HFA learners as they progressed to and through Grade 4. The major contributing factor was the collaborative support systems put in place by the three class teachers (Teachers AJ, JM and JT) which included: co-planning, co-teaching and co-assessing the learner's various needs. Although all three learners found it difficult to set their own learning goals, the teachers motivated them to complete tasks and to reach the expected learning outcomes. All three teachers focussed on improving their learners' self-confidence with the ultimate aim of developing self-efficacy and self-regulation skills, which assisted, in turn with their social cognitive and social functioning and minimised any detrimental influence upon behavioural adaptation in their learning environment.

## CHAPTER 7

### OVERVIEW OF THE FINDINGS OF THE RESEARCH QUESTIONS 1, 2, 3 AND 4

#### 7.1 INTRODUCTION

Chapter 7 provides an overview of the findings of the research, which provides answers to the research questions and the main aim and sub-aims of this study. To conclude the chapter, the Social Inclusive School Environment (SISE) conceptual framework that was initiated by the findings in this research, is presented and discussed in Chapter 8.

#### 7.2 OVERVIEW OF THE FINDINGS OF THE RESEARCH

The findings in this study established that all three learners experienced co-existing social cognitive and social functioning challenges: they were not always able to adapt their behaviour appropriately when they moved from Grade 3 up to, and through, Grade 4. From the findings, two significant themes emerged:

- Social cognitive and social functioning challenges influenced the three learners' behavioural adaptation in Grade 3 and Grade 4; and
- How well the three learners functioned and adapted to their school environment depended largely upon the level of teacher support and assistance that they received in terms of self-coping skills in Grade 3 and Grade 4.

##### 7.2.1 Social cognitive and social functioning challenges influenced all three learners' behavioural adaptation in Grade 3 and Grade 4

Although all three learners exhibited similar challenges in their social cognitive and social functioning, there were marked differences in behavioural adaptational responses among these learners. An example is that Learners T and E manifested less obvious or emotional reactions to sensory stimuli, while Learner L would easily burst into tears when she felt overwhelmed by what was said or done in the classroom.

An overview of the findings are discussed in the next four paragraphs. These findings show how the four combined social cognitive and social functioning challenges [WCC and

GIP challenges; ToM and SIM challenges, SP and SC challenges, EF and SI challenges] influenced the three learners' behavioural adaptation from Grade 3 to Grade 4.

All three learners displayed WCC and GIP challenges in both Grade 3 and Grade 4 which were manifested in abnormal, fixated behaviour; with a pronounced tendency to focus narrowly upon minute details that attracted them. This tendency often led to social isolation. The larger social world eschews fixated behaviour; preferring a more socially adept, global style of processing and gathering information (Happé & Frith, 2006). In the classroom, the inability of the three learners to integrate information in an orthodox manner created behavioural insecurities; all three learners seemed unable to view relevant detail as a whole; they were persistently pre-occupied with one part of the information. They found it difficult to adhere to new, unfamiliar routines and changes, and they struggled to comprehend the general classroom discussions and would persevere in their concern with smaller details. This obsessive behaviour was manifested in their overall inability to appreciate the global perspective of a situation. The three learners under observation tended to fixate on the significance of small parts of a problem or situation that caught their individual attention.

The findings showed that the three learners experienced ToM and SIM challenges in Grade 3 and Grade 4. They demonstrated an inability to recognise or understand the thoughts, beliefs, desires and intentions of their teachers and peers (Attwood, 2007). These learners were unable to ascertain the unspoken and subtle subtexts behind statements; which contributed towards their behavioural adaptation challenges (Case-Smith et al., 2014). They could make literal interpretations of what was said and would become upset if others had different points of view. Not understanding the nuances and inherent signalling of dialogue created inappropriate social behaviours and obstructed social interaction during class discussions.

Similarly, in Grade 3 and Grade 4, these three learners experienced SP and SC challenges. They found it difficult to communicate appropriately when they experienced a sensory overload in their classroom environment. These difficulties resulted in them displaying inappropriate verbal and non-verbal communication. They displayed coping

strategies that were not socially acceptable: for example, they would put their hands over their ears in an attempt to block out external auditory noises which were overwhelming.

All three learners encountered behavioural adaptation challenges of EF and SI. These challenges could be linked to a lack of Executive Function (EF) skills (Lopez et al., 2005). The findings from the experiences of the three learners in both Grade 3 and Grade 4, show that these learners lacked the three appropriate EF (response inhibition, emotional control, and inappropriate behaviour response) skills linked to social cognitive challenges; which resulted in them finding difficulty exhibiting congruent social and behavioural responses. They would react impulsively, often gave into their basic emotional impulses and would respond without thinking of the consequences of their actions.

The three learners showed an initial increase of inappropriate behavioural responses, which influenced their adaptation after transitioning from Grade 3 to Grade 4. Yet, as they progressed through Grade 4, moderate to low behavioural adaptation challenges were met despite the continuous changes and added academic pressure in this higher grade. These moderate to low results can, according to the researcher, be attributed to the teacher support, assistance and exposure to the core concepts within the SCT learning environment. (The concepts of self-efficacy, self-observational learning, self-evaluation and self-reaction were explained and discussed in Chapter 2).

The following section summarises the support provided and methods used by each of the Grade 3 and Grade 4 teachers, which granted the three learners opportunities for observational learning. The six teachers: three in Grade 3 and three in Grade 4 (Learner T and L had the same teacher, when they moved to Grade 4, but in April of their Grade 4 year, Learner T moved to school R, where he had a different teacher), assisted with the development of skills that promoted self-efficacy, self-evaluation and self-reaction during class participation.

### 7.2.2 How the three learners functioned and adapted to their school environment depended largely upon the level of teacher support and assistance they received to implement self-coping skills

Teachers who support and assist ASD learners reduce the time it takes for these learners to transition from one activity or school phase to another; which can limit frustration and disruptive behaviour (Radunovich & Kockert, 2008; Hume, 2014). The findings from this study show that Grade 3 and 4 teachers assisted the AS/HFA learners to be more socially aware, be more persistent in completing a task and willing to employ effective self-coping skills.

The following paragraphs provide examples and discussions that show the Grade 3 and Grade 4 teachers' caring and supportive assistance to AS/HFA learners in their classrooms. First, Tables 7.1 and 7.2 provide examples from the results to show teachers' compassionate, supportive attitudes while monitoring these learners' progress. The discussion that follows comprises six paragraphs. The first four paragraphs explain the teachers' assistance in managing WCC and GIP, ToM and SIM, SP and SC, and EF and SI challenges. The fifth paragraph explains the important role that the professional educational support teams played in helping teachers to meet the above challenges. The final paragraph explains the researcher's reason for devising the Social Inclusive School Environment (SISE) conceptual framework.

Tables 7.1 and 7.2 provide examples of teachers' compassionate and supportive attitudes to their AS/HFA learners.

**Table 7.1** Examples from the classroom observations of the three Grade 3 teachers' understanding and support

Learner	Lesson	Examples of the Grade 3 teachers caring behaviour.
Learner T	Mathematics	Teacher SM showed patience and understanding when explaining to Learner T the reasons behind doing the expected exercise.
Learner T	English oral	Teacher SM listened and accepted Learner T's argument and allowed an alternative assessment for the oral presentation.
Learner L	English writing	Teacher GR acknowledged Learner L's distress at not understanding the humour in what she had said.
Learner L	English literature	Teacher GR acknowledged that she understood why Learner L was experiencing emotional distress and talked to her till she calmed down.
Learner E	Mathematics	Teacher CJ acknowledged the frustration of Learner E, and sat next to him at his desk to assist him with the first question, so that he could continue with the rest of the questions.
Learner E	Art lesson	Teacher CJ listened to the reasons that Learner E gave for not wanting to follow the Art lesson rules. She accepted his alternative reasoning to complete the Art activity.

**Table 7.2** Examples from the classroom observations of the three Grade 4 teachers' understanding and support

Learner	Lesson	Examples of the Grade 4 teachers' caring behaviour.
Learner T	Social Sciences (School P)	Teacher JM allowed Learner T to calm down and suggested ways of managing his frustration.
Learner T	English debate (School R)	Teacher AJ showed compassion when acknowledging Learner T's withdrawal from the conversation and asked for his opinion.
Learner L	Drama lesson	Teacher JM was sympathetic towards Learner L for not wanting boys in her group, and offered her the choice to withdraw from participating.
Learner L	Language skills	Teacher JM understood Learner L's pre-occupation with making small paper dolls and allowed her to continue after completing her work.
Learner E	Numeracy Mental mathematics	Teacher JT was concerned that Learner E needed assistance during Mathematics lessons and allowed a peer to explain the exercise.
Learner E	Language	Teacher JT acknowledged that Learner E needed assistance to begin his exercise and made sure he understood what the expectations were.

Teachers made these gestures of compassion, care and concern despite the fact that in most cases they were not consciously aware of the causes of learners' social cognitive and social functioning challenges. It can be concluded therefore that teachers' concern as described in Tables 7.1 and 7.2 was provided without the necessary background causal knowledge of AS/HFA characteristic challenges. In one interview for example a teacher sensed instinctively that she should not react with anger when the learner broke



sweets meant for a peer's party. The teacher was not aware of the root causes of this act but reacted in the correct way: she acknowledged that she did not know why this learner behaved as he did. This teacher would have been far better equipped to react to such outbursts had she known of the root cause, which was the anxiety over the unfamiliar environment that this learner was feeling regarding the changes that would occur as he transitioned from Grade 3 to Grade 4. Not managing change can be associated with experiences of WCC and GIP challenges.

The findings show that instinctively, all the teachers knew how to assist with **WCC and GIP** challenges, in an attempt to improve their learners' appropriate social behaviour during transitions in the classroom. They provided a well-structured classroom with consistent routines and classroom management procedures (Aguirre et al., 2014). All teachers wrote daily time-tables on the white and black boards explaining the routine for that particular day. This regular routine allowed learners to view the time-table whenever they needed to during the day and feel secure in the teaching structure (Roa & Gagie, 2006).

Because unexpected changes can occur during the day, Burner (2013) cautions that learners on the autism spectrum disorder should be warned of changes in advance, wherever possible. The results of this study revealed that all the teachers attempted to warn learners ahead of time, as soon as they were aware of unexpected changes to the daily routine displayed on their boards.

The results showed that all the Grade 3 and 4 teachers used positive reinforcement to assist their learners who experienced **ToM and SIM** challenges. This reinforcement encouraged meaningful social conversational exchanges during difficult moments of confusion and/or misunderstandings (McCarthy, 2010; Koegel et al., 2014). However only two teachers introduced 'peer-mediated learning', which can assist with developing a positive self-image (McFadden et al., 2014). One Grade 3 (Teacher JM) and one Grade 4 teacher (Teacher JT) used peer-mediated learning to assist their AS/HFA learners to work as a team to complete tasks or activities, while being exposed to meaningful social conversational exchanges.

The Grade 3 and 4 teachers attempted to eliminate exposure to unnecessary sensory distractions experienced by the learners facing **SP and SC** challenges. The teachers gave the learners opportunities to verbalise their discomfort. The results showed that these learners were allowed to implement their own behaviour management skills in order to avoid sensory overload.

To support learners with **EF and SI** challenges, the Grade 3 and 4 teachers acknowledged when these learners showed social and emotional distress. Because these challenges can lead to inappropriate, sudden verbal and non-verbal responses (Kana et al., 2007), teachers provided positive reinforcement by suggesting more appropriate self-help skills for coping when similar conditions occur in the future (Cooper et al., 2014). Results revealed that all Grade 3 and 4 teachers acknowledged learners' pre-occupation with special interests and attempted to use these interests to motivate social participation and behavioural regulation (Koegel et al., 2010).

### **7.3 CONCLUDING COMMENTS**

It became evident from the examples in Tables 7.1 and 7.2 and the findings of this study in general that teachers were in many cases instinctively aware of the behavioural challenges that these AS/HFA learners experienced on a daily basis. Awareness of these challenges could be attributed to the fact that these teachers worked collaboratively with various support teams to assist these learners. The professional support teams included the assistance of an independent psychologist (Private school P), on-site LSEN teachers (School M and School R), and principals and co-teachers. Teachers were amenable to co-teaching roles in their classrooms (Giangreco, 2013). These co-teaching roles included a LSEN teacher and a class assistant (School M), a facilitator, (Private School P), and peer's assistance (in both School P and School M). The main argument derived from this research study is that teachers generally would be even better able to deal with the challenges of teaching AS/HFA learners if they received support and knowledge of the origins and contexts of such conditions. Teachers would then be able to assess challenges consciously and with sure knowledge; not merely relying upon an instinctive, sympathetic teacher's sensibility.

As from the findings, it can be assumed that if such expert teams are available at private, and well-funded government mainstream schools, and teachers are still not provided upfront with training to identify AS/HFA learners social cognitive and social functioning challenges, then teachers at most underfunded government mainstream schools (Quintile 1-3)<sup>3</sup> are left unable to cope with or identify and explain manifestations of AS/HFA learners' behaviour in class. Few government mainstream schools, especially those schools located in non-affluent areas in South Africa, have suitable or adequate collaborative support structures in place to assist learners with barriers to learning (Nel, Tlale, Engelbrecht & Nel, 2016), which includes AS/HFA learners. It is with these assumptions in mind that the researcher became aware of the importance of teachers' understanding and supporting of AS/HFA learners, especially within non-affluent government mainstream schools. AS/HFA learners from poor homes who are obliged to attend inclusive classes at quintile 1-3 schools deserve precisely the same educational consideration and rights to proceed in their education as those who are drawn from homes of affluence. These rights are guaranteed in White Paper 6 (DoE, 2001). The South African DoE is therefore legally and ethically bound to provide all teachers with the opportunity to receive training in support knowledge for tuition of AS/HFA learners.

To address these challenges, the researcher developed a conceptual framework for a Social Inclusive School Environment (SISE) in Chapter 8. The SISE contributes to, and broadens, existing knowledge for the support of teachers of AS/HFA learners in government mainstream schools, as well as private schools; especially for learners during transition from Grade 3 and 4. This SISE conceptual framework relating to AS/HFA learners, is developed to support teachers of learners with AS/HFA who experience behavioural adaptation challenges. It explains the links between classroom influences and these learners' characteristic social cognitive and social function challenges and the influence on behavioural adaptation.

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<sup>3</sup> Schools are ranked between Quintiles 1 and 5 in South Africa educational system, with Quintile 1 being schools in a poor areas and quintile 5 being schools in more affluent areas. Schools in quintiles 1 to 3 are no-fee schools, and schools in Quintiles 4 and 5 are fee-charging schools (South African School Act 24, 2003).

## **CHAPTER 8**

### **INTRODUCTION TO THE SISE CONCEPTUAL FRAMEWORK**

#### **8.1 INTRODUCTION**

The researcher developed a framework which supports teachers of AS/HFA learners in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges, by analysing how teachers were observed during the course of this thesis: teachers were able to create the correct environment, adjust classroom behaviour and provide for the physical needs of the AS/HFA learners. This analysis of four specific examples enabled the researcher, through an application and interpretation of Strampel and Oliver's (2007) reflective theoretical grid (see Appendix 19), to create a new conceptual framework to support teachers of AS/HFA learners. Providing a SISE conceptual framework significantly assists teachers to modify their curriculum, classroom environment and teaching styles effectively; demonstrating how to include AS/HFA learners into the main learner body of a class so that they can experience optimal learning.

Bandura's theories (1977 - 2012), which comprise the basis for this research, were predicated on conditions for typical learners. Although this thesis incorporates Bandura's (1986) fundamental distinction between the behaviour, environment and physical needs of learners, these three elements have to be reconceptualised in terms of AS/HFA learners whose responses are not predictable compared to typical learners.

In the course of developing a new conceptual framework which applies to atypical learners, it is necessary to emphasize that the teachers, during this research, had received varying degrees of training to work with AS/HFA learners' either in government mainstream or private schools. The four examples, selected for analysis below show how teachers used their pedagogical skills to not only create successful solutions to potentially disruptive classroom situations but to establish more positive patterns of behaviour as the learners transition from Grade 3 to Grade 4. These teachers had not received systematic or formal training in dealing with AS/HFA learners, so their success was not consistent nor explicable even to themselves. Analysing these four examples, however, allows the

researcher to explain why they elevated the behavioural adaptation of these learners from Grade 3 to Grade 4.

### 8.1.1 A discussion of the four examples

In order to analyse these four examples, the researcher has drawn on Strampel and Oliver's (2007) model of levels of reflection and stages of cognitive processing. This model of reflective practice reveals exactly how and why these teachers were able to move from stimulated reflection to critical reflection; using a variety of cognitive processing to apply new knowledge to each problematic situation. By defining and analysing the precise pedagogical steps each teacher took and by synthesising the overall results of this specific research project and literature from the relevant fields, the researcher was able to devise a consistent and reliable model for all teachers of AS/HFA learners who transition from Grade 3 to Grade 4 and experience behavioural adaptation challenges.

Example 1 shows the level of reflection and the cognitive processes of the teacher who successfully resolved a moment of disturbance caused by an AS/HFA learner. The teacher managed the behaviour of the learner by drawing on her own, as well as the learner's, prior knowledge. Both teacher and learner were able to adapt their learning and behavioural habits constructively. The teacher applied her new knowledge and offered an appropriate pedagogical solution.<sup>4</sup>

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<sup>4</sup> The Clip Art used in the figures was purchased from Can Stock Photo Inc., Halifax, Canada (Appendix 20).

Example 1

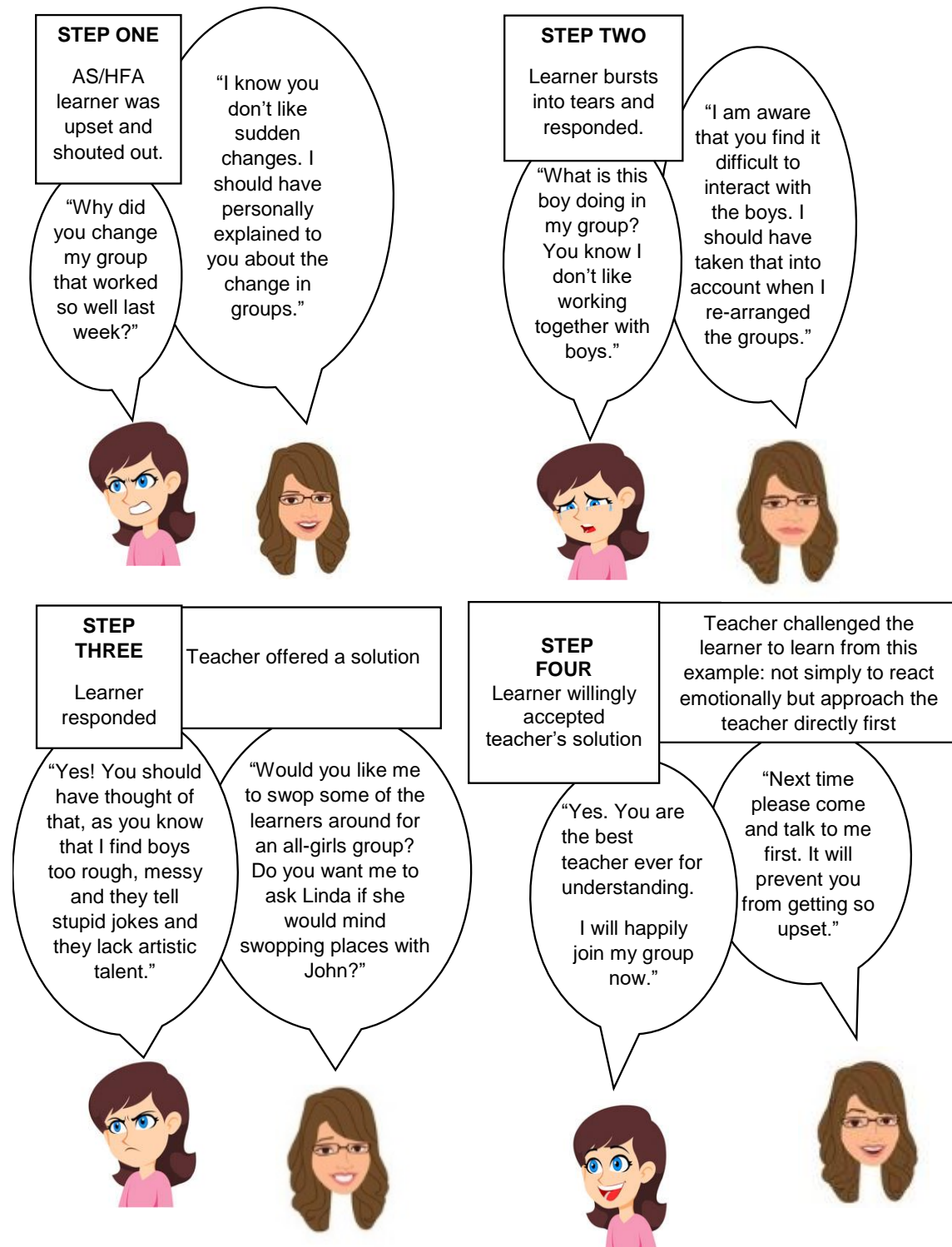


Figure 8.1 Example 1

In summary the teacher's intervention was successful. The learner's behaviour adapted to the situation and she is now performing optimally. The teacher offered a solution in an attempt to entrench a pattern of behaviour as the learner transitions from Grade 3 to Grade 4.

### Discussion

In Example 1, the AS/HFA learner manifested her own unique combination of challenges (Gillberg and Gillberg, 1989). First, the learner displayed GIP and WCC challenges, (a sudden change of environment), followed by SC and SP challenges (she showed her personal frustration by bursting out into tears). Next the learner experienced SIM and ToM challenges (she did not understand the behaviours of boys) and lastly she manifested SI and EF challenges (by showing unusual and unexpected affection towards the teacher).

Through the behavioural responses of the learner, the teacher became aware of something the learner was unhappy about; this was a new situation. The learner recalled her prior knowledge (Strampel & Oliver, 2007) of working with boys, which she did not enjoy. She voiced two concerns: her concern over the change in the group that she worked with previously, and the boy that was included in the new group.

The teacher, using reflective practices and cognitive processing, identified the need to make sense of the fact that the learner was in distress. She realised that she needed to intervene to assist the learner. From the learner's reaction, the teacher cognitively recalled the learner's dislike for working with boys. She interpreted and summarised the situation and attempted to reconceptualise the issue, by offering a possible alternative solution. At this level the teacher used the highest level of cognition (where she was able to identify how appropriate her suggestion was, manage the behaviour and apply a self-help skill (Swaab et al., 2011) to assist the learner with her future behavioural adaptation challenges.

The teacher successfully managed the situation by offering a solution: she suggested an all-girls group. To assist the learner in transitioning from Grade 3 to Grade 4, to manage her learning environment, her personal feelings and her behavioural responses in a more

socially appropriate manner, the teacher suggested the learner talk to her first. This intervention method suggested by the teacher promoted the skill of creating a sense of self-efficacy in the learner, so she could attempt to manage her own behavioural adaptation challenges (AAIDD, 2017) more effectively. Eventually, the learner was able to move beyond the dialogic reflection and valued the teacher's suggestion, which was critical for developing new perspectives and for her to manage her own new behaviour.



## Example 2









<p><b>STEP ONE</b></p> <p>The AS/HFA learner commented.</p> <p>“I am not dressing up and not using props in my oral.”</p> 	<p>Teacher showed understanding by stating:</p> <p>“I am aware that you do not like role-play or acting. You don’t have to add any props but you need to present an interesting oral.”</p> 
<p><b>STEP TWO</b></p> <p>Learner asked:</p> <p>“Is it necessary for Jack to move the desks around to show his stupid oral?”</p> 	<p>Teacher showed sympathy by suggesting:</p> <p>“I know you don’t like sudden changes. But he needs the space to do his experiment for his oral.”</p> 
<p><b>STEP THREE</b></p> <p>Learner jumped up and said:</p> <p>“Please tell me his experiment is not going to be smelly and noisy!”</p> 	<p>Teacher attempted to manage the behaviour by offering an adjustment:</p> <p>“I understand that you do not like sudden loud noises and unusual aromas. So you can come and sit here with me at the back of the class.”</p> 
<p><b>STEP FOUR</b></p> <p>Learner shouted out:</p> <p>“This experiment is not making sense and freaking me out. I would rather go and draw in the library.”</p> 	<p>Teacher assisted him to self-reflect on his inappropriate behaviour.</p> <p>“You are being disrespectful. I will speak to you later. I am sure Jack or anyone else would not walk out when you do your oral presentation.”</p> 

Figure 8.2 Example 2

In summary, this example demonstrated the teacher's use of descriptive reflection. She recollected and recognized the event and compared, explained and made sense of the new information; using both her and the learner's prior knowledge. The learner adapted his environment to the situation by sitting at the back of the class with his teacher.

### Discussion

In Example 2, this learner experienced SIM and ToM challenges (he voiced that he did not want to use any prompts or role-play in his oral presentation). This was followed by SIP and WCC challenges (not understanding the reason for desks being moved around). Next the learner manifested SC and SP challenges (he was distressed by the suggestion of odours or loud noises), (Lane et al., 2010) and finally he displayed SI and EF challenges (by showing inappropriate behavioural responses).

The learner, in this example, was unhappy with the situation and conveyed his discontent to the teacher in a challenging manner. He recollected, recognised and compared a previous situation to the present situation to state his dissatisfaction of the desks being moved. Although the learner agreed to conform to the teacher's suggestion, he has not moved beyond the dialogic reflective stage (Strampel & Oliver, 2007), as he had not fully accepted the teacher's solution.

The teacher acknowledged his behaviour and what he said, and realised she needed to prevent a disruptive outburst. Through cognitively drawing on her prior knowledge she interpreted and classified the present situation. She recognised the challenge the learner had with change and was able to implement a useful and timely strategy for dealing with his sensory challenge. Thus she was able to role model (Denler et al., 2014) a mode of behavioural response upon which he could draw on when transitioning to the more challenging environment of Grade 4.

To assist the learner manage his personal feelings, his learning environment and behavioural responses in a more socially appropriate manner, the teacher offered a strategy to defuse the situation. To assist the learner in his transition (Autism Advocate, 2009) from Grade 3 to Grade 4, the teacher attempted to instil the practice of accepting

and trusting her suggestions. Although the learner learnt to recognise his own freedom to approach the teacher instead of reacting in an emotionally unacceptable manner, he only reluctantly accepted the teacher's solution. It is questionable whether this learner was able to learn from this experience as he transitioned from Grade 3 to Grade 4.

## Example 3

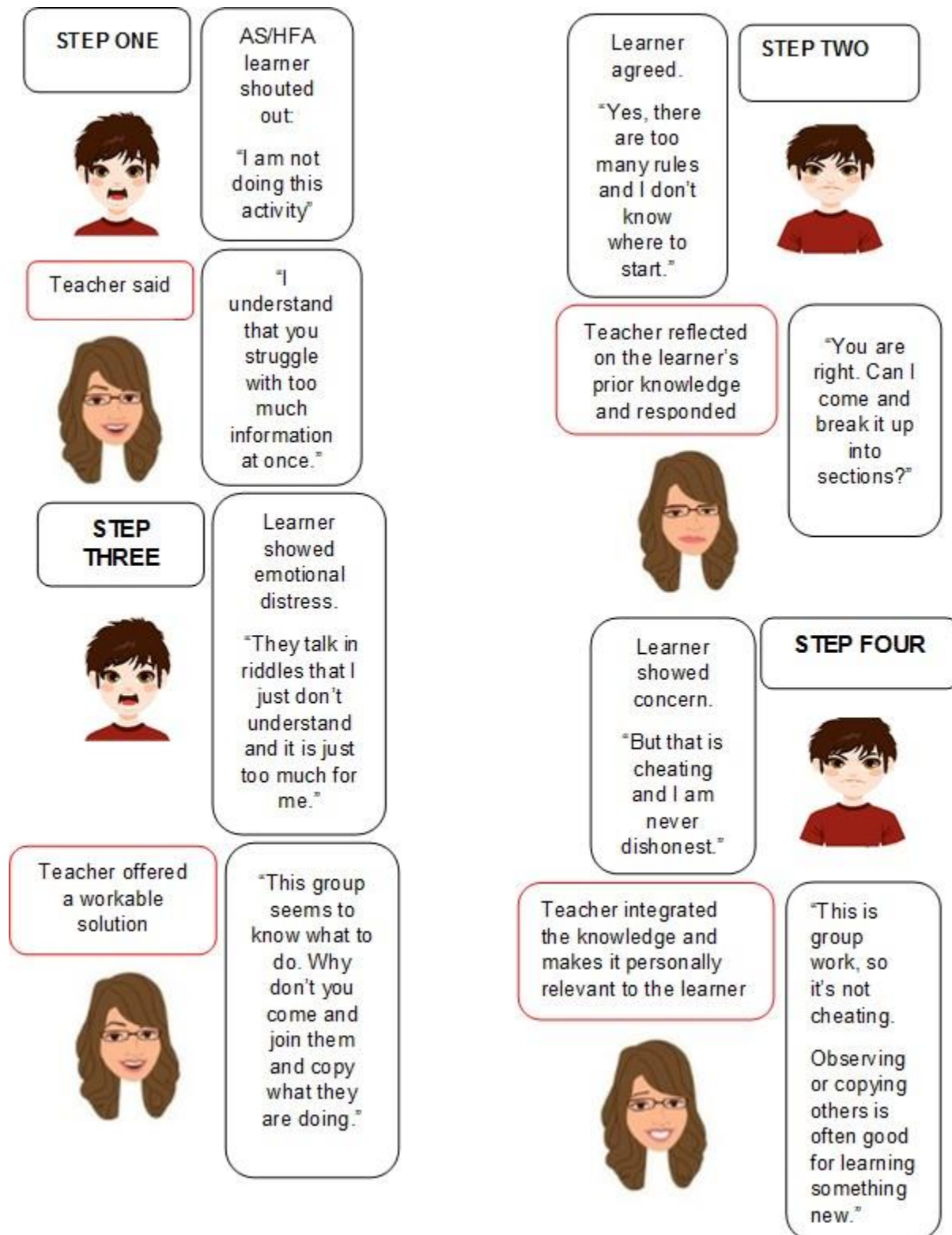


Figure 8.3 Example 3

In summary, this teacher's intervention was successful. The learner, through talking with his teacher, overcame sincere ethical objections about copying: he has learnt that peer learning can occur in some acceptable ways. The sensitivity and flexibility of the teacher, allowed her to understand the literal mindedness of the learner but still made the learning experience relevant to the learner.

### Discussion

The AS/HFA learner displayed SI and EF challenges (he shouted out in frustration), followed by SIP and WCC challenges (he was confused about where to begin the activity). Then SC and SP challenges became apparent (he displayed emotional distress over not understanding the activity) and finally, he considered his teacher's suggestion to be dishonest (Attwood, 2007).

This learner responded impulsively by shouting out that he was not managing the activity. This inability of showing appropriate response inhibition alerted the teacher that something was wrong and that he needed her assistance.

Relying upon cognitive stimulation, the teacher recognised and interpreted the sincerity and literal mindedness of his ethical dilemma. She replaced his pre-existing conception about copying by offering new knowledge (Entwistle & Smith, 2002) about the legitimate benefits of peer learning.

This is an excellent example of how the teacher showed the learner how his literal understanding could evolve into a more nuanced comprehension of the ethics of educational processes. The learner's willingness and readiness to adjust the boundaries of his limited ethical practice will assist him as he transitions from Grade 3 to Grade 4.

## Example 4

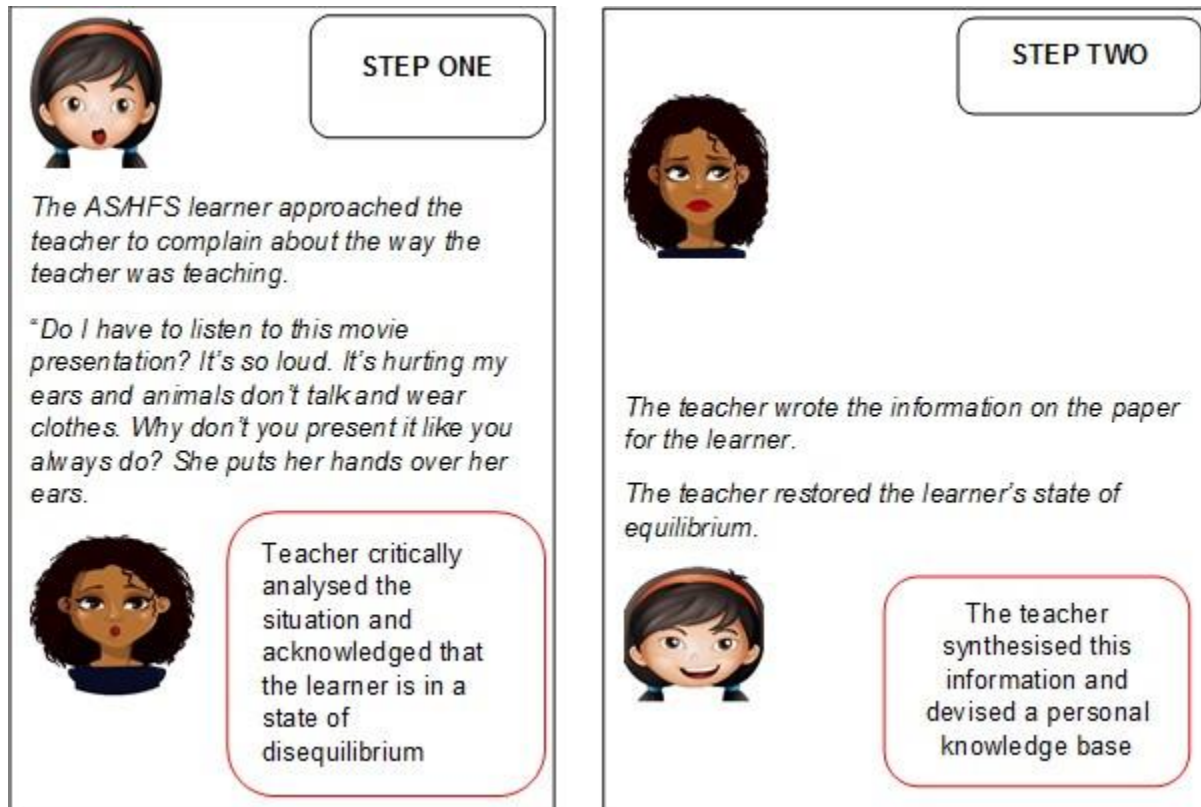


Figure 8.4 Example 4

In summary, this particular example demonstrated the teacher's successful deployment of dialogic reflection. She critically analysed the situation and synthesized the information into a personal knowledge base. The learner successfully moved from a state of disequilibrium to one of stable equilibrium.

## Discussion

The teacher's intention was to use a different pedagogical approach: by using a movie to present the learning material in a different and fun way. However, she did not predict the AS/HFA learner's stark reaction to this innovation (Fillippello et al., 2013). The learner began by complaining about the volume of the movie and blocked her ears with her hands (SC and SP challenges). She voiced her dissatisfaction over the method the teacher was using to present the learning material (GIP and WCC challenges). She complained that the movie was unrealistic (SIM and ToM challenges). Lastly, she accepted the teacher's

suggestion; indicating a positive behavioural adaptation with SI and EF. This knowledge could be transferred to strengthen and facilitate her transition from Grade 3 to Grade 4.

The teacher immediately responded to the learner's reaction towards the volume of the movie presentation. She focused her attention on this learner who was in distress and by means of dialogic reflection was able to construct an immediate remedy by writing the information on a piece of paper. Using re-conceptualisation and cognitive application (Stampel & Oliver, 2007) the teacher synthesised this information and devised a personal knowledge base. Through this reflective process, she was able to restore the learner's state of equilibrium. This example showed that the teacher was able to augment Bandura's model for typical learners and apply it to an atypical classroom environment.

### **8.1.2 Discussion of how the four examples are related to the broad research background**

This thesis has developed by inductively analysing the results shown in the previous chapters and situating this analysis within a deductively derived background study of the relevant research. At this point it is necessary to demonstrate how the details from the examples discussed above are rooted in broad areas of research. In the following section linkages are made between the analysis of the examples and a brief overview of the most significant resources which contributed to the deductive component of the development of the SISE conceptual framework.

Schriber, Robins and Solomon (2014:112) state that "... although individuals with ASD have been found to be atypical across many domains of functioning, the unique characteristics of individuals with ASD as manifested in their basic personality traits have received little empirical attention". The researcher set out to determine how these distinct character traits influence AS/HFA learners' patterns of thinking, feeling and behavioural responses. So for instance in Example 1 (Figure 8.1) the learner experienced theory of mind challenges in that she found it difficult to be in a group with a boy. By providing this empirical analysis this thesis addresses the gap noted by Schriber et al. (2014).

Since the 1980s there has been a shift in how academic researchers view challenging behaviours among young learners. The focus has moved from "... the form of behaviour (what a child does), to the function of behaviour (why a child does certain things)" (Bornman & Rose, 2017:127). For teachers to understand and address problem behaviour successfully "... the function of behaviour should be identified and understood successfully and then be replaced by behaviour that is socially more acceptable" (Bornman & Rose, 2017:127). The researcher relied upon the insight of Bornman and Rose (2017), by concentrating upon why learners in the examples above behaved in the way they did. For instance, in Example 2 (Figure 8.2) it is essential in understanding why the learner refused to use props and dress up, to realise that the learner faced GIP and WCC challenges.

This section provides a discussion of the significant research in terms of forming this SISE conceptual framework: the latest manual DSM-V (2013) and other numerous related studies which guided the formulation of the SISE conceptual framework. Bandura posited the term Social Cognitive Theory (Bandura, 1986) which was formulated without any reference to AS/HFA learners. Yet his identification of the ways in which mainstream learners interact personally, and behaviourally within their own learning environment, allowed the researcher to locate the complex set of skills which AS/HFA learners lack. For instance in Example 4 (Figure 8.4) where typical learners would have had no difficulty in receiving information by means of a movie, the atypical learner observed here experienced SC, SP, GIP and WCC challenges. Bandura's identification of skills: self-efficacy, self-observation, self-evaluation, self-reaction, which are pertinent to all mainstream learners, are exactly those that AS/HFA learners most need. Self-efficacy in a typical learner would be manifested by acceptance to change in the presentation of information, yet the learner observed in example four was unable to accept the sudden change.

AS/HFA learners are often included within government mainstream and private school classes and diagnosed according to two broad domains of deficits: "persistent deficits in social communication and social interaction across multiple contexts [Domain 1] and ... restricted and repetitive patterns of behaviours, interests and activities [Domain 2]" (DSM-



V, 2013:50). So for instance in Example 3 (Figure 8.3) the learner exhibited persistent deficits in social interaction because he could not understand where to start an activity and then could not understand the context.

In terms of Domain 1, that is to say deficits in social communication and social interactions, learners may (i) not understand the situation or task, or (ii) fail to read the teacher's mood correctly; (iii) display difficulties with social imitative play during social interaction and understanding social rules during communication; (iv) be too candid or even blunt in classroom responses. These deficits can result in behaviours displayed by AS/HFA learners, in this study, to be misunderstood or misinterpreted as rude, by teachers or peers.

In terms of Domain 2 the learner insisted that he did not want to join the group and that he was not a cheat. Domain 2 distinguishes restrictive and repetitive patterns of behaviours, interest and activities: includes behaviours by individuals with ASD who generally favour sameness of routine and are inflexible; having an abnormally restricted or fixated interest in a single issue. Teachers and peers may label these behaviours displayed by AS/HFA learners, in this study, as awkward, odd, lacking in co-operation or even as childish. In Example 4 the learner insisted on the sameness of routine in that she regained equilibrium as soon as the teacher returned to the tradition means of writing information down.

One of the most important earlier studies (Frith & Happé, 1994) in influencing this research explored inter-relations between ToM and other social cognitive theories: WCC and EF, in relation to impairments of socialisation, imagination and communication shown among individuals on the autism spectrum. So in Example 1 the learner manifested ToM challenges as she indicated her lack of understanding of boys. This ToM challenge led directly to her inability to accept change readily which is a sign of WCC. Frith and Happé (1994:128) viewed this association between ToM and especially WCC as "...a useful framework for thinking of autism in the future". The work of Frith and Happé has proven to be particularly reliable and useful for the purpose of this research which emphasises the fluid interrelations between such challenges. Since this study by Frith and Happé

(1994) the relevance of the "... usual pattern of sensory perception and reactions" (Attwood, 2007:271), which Asperger (1944) originally identified, has been acknowledged as another contributing factor of social behavioural challenges experienced by individuals with autism. Since Asperger's study created an awareness of sensory processing challenges experienced among learners with AS, many research studies have been conducted into sensory processing issues experienced by individuals with AS, HFA and autism in general (Dunn, Smith Myles & Orr, 2002; Minshew & Hobson, 2008; de Jager & Condy, 2009). For instance in Example 4 the learner placed her hands over her ears to indicate her discomfort: a clear demonstration of sensory processing challenges. This awareness of the significance of sensory processing was already evident in DSM-V (2013) including sensory processing deficits as sub-diagnostic criteria for individuals with ASD. Numerous other significant studies of the major syndromes that constitute ASD have emerged and have had a significant influence on this research. The majority of these studies, however, are detailed and specific which means that they cannot always account for the overall complexity, fluidity and intricacy of learners with ASD.

Wing, Gould and Gillberg, (2011) rightfully acknowledged the vital importance in identifying behavioural traits among ASD individuals, which include challenges with social communication, social imagination and social interaction. So, for instance, in Example 2 the learner did not want to communicate his information; he could not imagine himself dressing up; the learner was unable to interact socially in that he referred to the work of a peer learner as a 'stupid oral'. Social imagination, according to Wing et al. (2011:769), is "... decreased capacity to think about and predict the consequences of one's own actions for oneself and for other people". Wing et al. (2011) claim that there should have been greater emphasis placed upon social imagination by the DSM-V designers, as ASD individuals may have an abundance of imagination but are unable to harness it within social frameworks. The DSM-V recognises a deficit in social imagination may be used as one of the criteria to place an individual on the autism spectrum, but only provides "... difficulty in sharing imaginative play" (DSM-V, 2013: 50), as a sub-criterion.

According to Cashin and Barker (2009:193) it is necessary to look beyond these three impairments: social communication, social imagination and social interaction, and focus

upon “levels of cognitive processing” which could include WCC, ToM, SP and EF. So for instance in Example 1 the learner exhibits WCC challenges in that she disliked the change to the group. In Example 2 the learner showed evidence of ToM challenges in that he did not want to dress up. In Example 3 the learner shouted out his frustration which was proof of an EF challenge. In Example 4 the learner blocked her ears to show sensory overload signifying a SP challenge.

DSM-V (2013:50) includes behavioural challenges that can be linked directly to cognitive processing deficits: “deficits in social-emotional reciprocity [ToM]; ... insistence on sameness, inflexible adherence to routines [WCC]; ... hyper-hypo reactivity to sensory input [SP]; and ... difficulties to adjust behaviour to suit various social contexts” [EF]. The DSM-V, however, does not clarify actual behaviour in relation to these cognitive processes. For the purpose of this thesis the researcher linked social cognitive and social functioning challenges, but there is no reason why these challenges cannot stand independently. Some researchers have focussed their attention on WCC alone (Frith, 1989), ToM (Baron-Cohen et al., 1985), SP (Ayres, 1979), EF (Hill, 2004) and GIP (Happé & Frith, 2006). Others have focussed on traits of impairment: SC, SIM, and SI (Wing & Gould, 1979).

This research is unique in that the researcher has been able to unite all these challenges within a single conceptual framework. It is essential to understand the whole AS/HFA learner: by comprehending the full range of interrelated challenges.

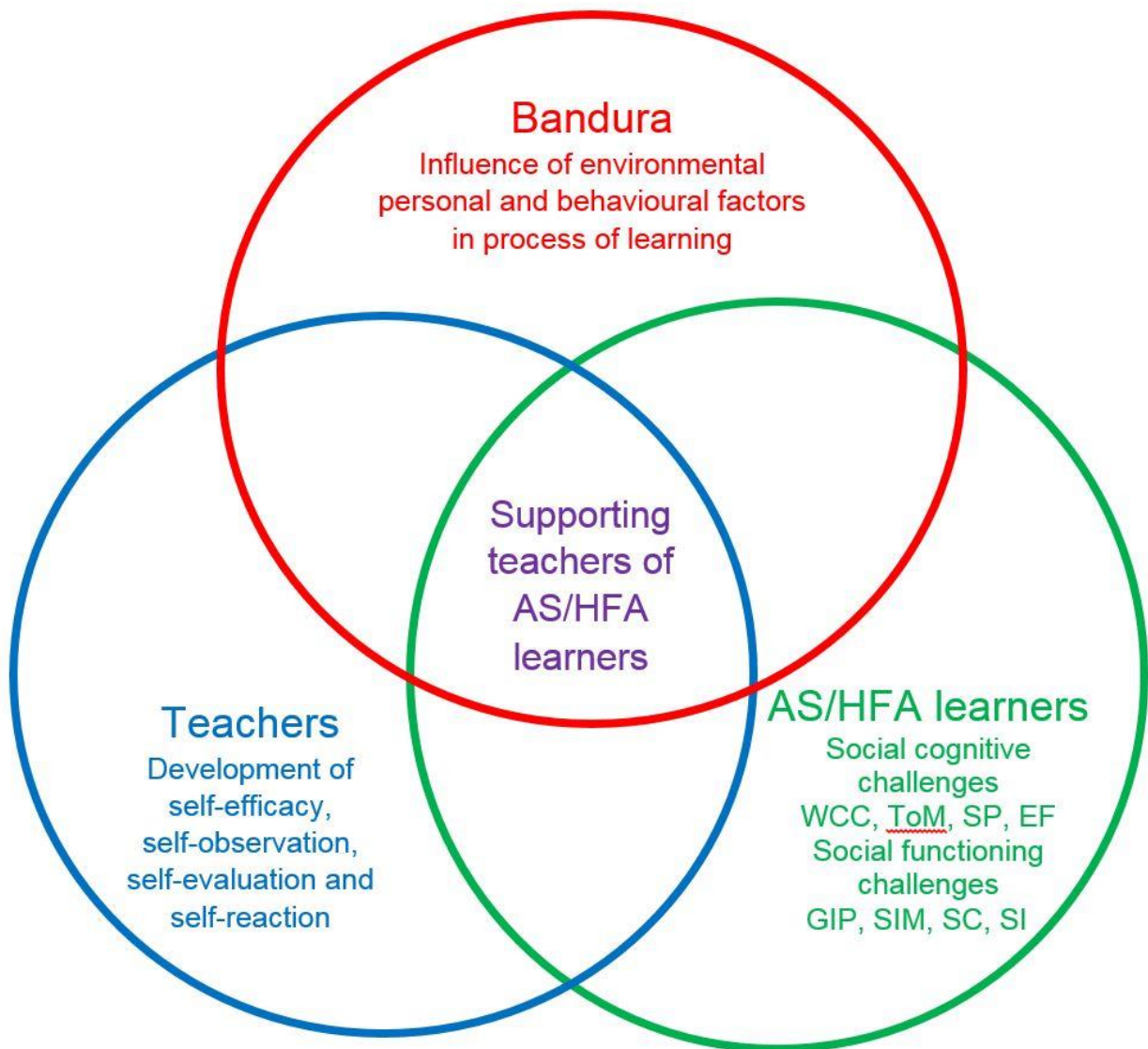
## **8.2 AN OVERVIEW OF THE COMPONENTS OF THE INVESTIGATION AND ITS CONCEPTUAL FRAMEWORK**

The extensive body of international and national research that has been drawn on in creating a rigorous background to this specific observation and inductive analysis is represented graphically below.



### 8.3 THE NEW SISE CONCEPTUAL FRAMEWORK

Finally, the new SISE conceptual framework, devised by synthesizing inductively generated information with conceptual guidelines deduced from the body of research, is discussed and represented below.



**Figure 8.6** The new SISE conceptual framework

The aim of the SISE conceptual framework is to support teachers; helping them to recognise inappropriate or disruptive behaviour, understand its origins and adapt the classroom programme to minimise effects of such behaviour. Inappropriate behavioural

adaptation by AS/HFA learners can be traced back by the links between influences: social functioning challenges, social cognitive challenges and impaired social cognitive skills within a classroom learning environment. It is important to stress that social cognitive and social functioning challenges experienced by AS/HFA learners are all of equal importance in explaining behavioural irregularities manifested in the classroom or learning environment in general. Enabling teachers to know how behavioural difficulties are directly attributable to a common source assists teachers in pre-planning the learning environment suited particularly for AS/HFA learners. Teachers are better equipped to predict manifestations of inappropriate behaviour among AS/HFA learners in their classrooms if they understand the social cognitive and social functioning challenges; teachers are better able to link socially inappropriate behavioural responses displayed by many AS/HFA learners and the links between the related phenomena. This understanding enables the teacher to introduce social cognitive skills that these learners are unable to implement without the know-how and support from the teacher.

AS/HFA learners' social cognitive and social functioning challenges are not of a set nature but are complex. Each AS/HFA learner has his or her own unique blend of challenges. For the teacher, the range of disruptive behaviour that is caused by such admixtures of challenges can prove bewildering in an inclusive as well as an exclusively AS/HFA special environment. The teacher in both government mainstream and private schools benefits from the knowledge of what lies behind manifestation of disruptive behaviour or inappropriate outbursts. The SISE conceptual framework is designed to support teachers of AS/HFA learners in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges, by helping learners to recognise inappropriate or disruptive behaviour and understand its origins. By understanding the social functioning and social cognitive challenges can aid teachers and assist with the development of impaired social cognitive skills linked to environmental influences, personal feelings and behavioural responses that play a role in behavioural adaptation of these learners.

Not knowing how manifestations of behavioural difficulties are directly attributable to a common source prevents teachers from pre-planning the learning environment suited particularly for AS/HFA learners. Once teachers have understood how and why such

disruptive behaviours occur, they are far better placed to adapt the curriculum, the learning environment and change their teaching style and didactic expression, which will aid in the development and implementation of social cognitive skills which these learners find challenging. All these interventions and support by teachers will contribute to and facilitate behavioural adaptation of AS/HFA learners in transitions from Grade 3 to Grade 4.

The Venn diagram is used to show how the three major areas of concern in this thesis overlap: Bandura, teachers and AS/HFA learners. Bandura's research comprises a substantial theoretical platform for this thesis in that his landmark identification of environment, personal and behaviour are applied to examine how AS/HFA learners as atypical learners respond, especially in terms of behaviour, to stimulation in the classroom. Bandura's demarcation overlaps with the nature of teachers' practice in that teachers of AS/HFA learners' need to know about the unpredictability of AS/HFA learner's behaviour which is assumed to be consistent and predictable for typical learners. The central area of the Venn diagram captures that specific common ground which is shared by Bandura's theoretical proposals, teachers of AS/HFA learners and AS/HFA learners themselves.

#### **8.4 CONCLUDING COMMENTS**

This chapter encapsulates the development of the new SISE conceptual framework. The foundation for this development is formed from the results of the conclusions in Chapters 4, 5 and 6. A brief recapitulation of these results follows. From observations of how all three learners performed during the lessons, it became clear to the researcher that all three learners found it difficult to adhere to new routines and changes or to understand the all-inclusive views of the discussion held by their Grade 3 teachers. These AS/HFA learners required more structure and thoughtful planning to be successful. It was evident that all three teachers acknowledged the importance of assisting their learners to cope with changes in their daily schedule. The strategies that were implemented were a collaborative endeavour with the various support teams arranged by the schools and parents: a classroom facilitator and an educational psychologist. Together, the

professional teams embraced the importance of implementing secure and structured routines, processes, social and emotional behavioural regulation skills. They were aware of the importance of assisting their AS/HFA learners with sensory adaptation and appropriate social reciprocity skills.

By supporting the AS/HFA learners, all the Grade 3 teachers helped to reduce the amount of time it took to adapt to transitional situations, increased appropriate behaviour during these transitions, and facilitated less reliance on adult prompting. By careful planning, appropriate support and monitoring their AS/HFA learners' progress, the Grade 3 teachers attempted to boost their learners' independence and confidence to participate in educational activities during the school day and in preparation for their trajectory to Grade 4.

As all three learners progressed in Grade 4, their teachers developed intervention programmes in an attempt to assist these learners manage their behavioural adaptation in a more positive manner. The focus was on challenges that could have been directly associated with these learners experiencing social cognitive and social functioning challenges. The major contributing factor was the collaborative support systems put in place by the three class teachers (Teachers AJ, JM and JT) which included: co-planning, co-teaching and co-assessing the learners' various needs. Although all three learners found it difficult to set their own learning goals, the teachers motivated them to complete tasks and to reach the expected learning outcomes. All three Grade 4 teachers focussed on improving their learners' self-confidence with the ultimate aim of developing self-efficacy and self-regulation skills, which assisted, in turn with their social cognitive and social functioning and minimised any detrimental influence upon behavioural adaptation in their learning environment. This thesis analyses effective pedagogical procedures in order to show by what means the researcher was able to extrapolate Bandura's basic principles of environment, personal and behaviour as well as characteristics of teachers and AS/HFA learners alike to apply to atypical learners.

The four examples (Figures 8.1 – 8.4) were chosen as a ready way of showing how this research had to proceed from an inductive point of view that is to say from the particular



to the general, while examining the wide range of current research in a deductive manner. In this chapter, specific aspects from the examples are linked directly and explicitly to the body of national and international research. The balance of inductive and deductive methods ensured that specific examples were always considered within the context of a larger area of research while at the same time this balance ensured that large conceptual concepts were grounded in demonstrable detail obtained from the research conducted for this specific project. On the basis of this balance it was possible to formulate the new SISE conceptual framework which is of use in supporting teachers of AS/HFA learners in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges.

Chapter 9 provides a summary, recommendations and conclusions that have become apparent from this study.

## **CHAPTER 9**

### **SUMMARY, RECOMMENDATIONS AND CONCLUDING COMMENTS**

#### **9.1 SUMMARY OF THE RESEARCH**

The main purpose of this study was to develop a conceptual framework which supports teachers of learners diagnosed with AS/HFA in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges. The SISE conceptual framework supports teachers by assisting them to recognise the interlinking causes of inappropriate, unexpected or disruptive behavioural adaptation challenges of AS/HFA learners in their Grade 3 and 4 classes.

Teachers who have not received specialist training need to comprehend the causes of disruptive behaviour often exhibited by AS/HFA learners in the classroom (Chataika et al., 2012; Dalton et al., 2012). The SISE conceptual framework provides an overview of these complex relations between cause and effect. When teachers understand the source of an AS/HFA learner's unique mix of character traits (social cognitive challenges such as weak central coherence (Frith, 1989), theory of mind (Baron-cohen et al., 1985), sensory processing (Ayres, 1979), executive function (Hill, 2004), and social functioning challenges such as global information processing (Happé & Frith, 2006), social imagination, social communication and social interaction (Wing & Gould, 1979), they are far better placed to adapt lessons, provide a suitable environment and are able to explain to the rest of the class what is happening and why.

Initially, this thesis familiarises the reader, be it a fellow academic or prospective teacher who is to use it, with the central terms in this specialist area. The nature of the problem is defined: lack of knowledge about how to identify and accommodate the teaching needs of an AS/HFA learner. The origin and background of the study provides a necessary academic landscape for the project. The theoretical underpinnings of the work are dealt with as well as the methodology employed throughout. The limitations and assumptions of the study are recognised and the organisation of the chapters of the thesis is presented.

Before reaching the issue of knowledge that is needed to support teachers confronted by, and too often perplexed by, the inappropriate behaviour of AS/HFA learners in the classroom, it is vital to situate the whole endeavour within the context of Inclusive Education; as reflected in South African policy documents (NDoE, 2001, 2002, 2003, 2008, 2011, 2014; EELC, 2016). The relevant legislation has to be understood in order to appreciate the urgency of the situation. Teachers need ready and affordable help now to understand the basics about AS/HFA learners in the class.

By the same token a new reader in the field needs to know how some of the key terms were developed. The thesis provides a summary as well as a useful timeline which details how and when certain conditions were recognised and named, and by whom (Asperger, 1944; Wing, 1981; Gillberg & Gillberg, 1989; Frith 1991; APA, 1991, 2000, 2013). Teachers need to understand that in 2013 Asperger's Syndrome (AS) was formally associated with Autism Spectrum Disorder (ASD). A novice in the area has to understand the essential teachings of Bandura and the different levels of reflection and cognitive processing. A theoretical perspective of, and introduction to, Bandura's Social Cognitive Theory (SCT) is provided (Bandura, 1977 – 2012), Strampel and Oliver's levels of reflection and cognitive processing (Strampel & Oliver, 2007) are summarised in the text and appears in Appendix 19.

It is important to realise that each particular AS/HFA learner possesses a unique set of character traits which determines how s/he behaves in the classroom, at home and in other social contexts. The manifestation of awkward behaviour can be accounted for and dealt with more effectively if the teacher knows how to recognise each learner's unique amalgam of social cognitive and social functioning challenges. Adequate and timely identification of such a manifestation and its causes enables the teacher to intervene with the confidence provided by substantial and clear knowledge of the situation. It must be stressed that the research showed that many of the teachers observed knew by instinct how to react and intervene. But this intuition does not lead to consistent and reliable teacher practice. Intuition on its own may lead to haphazard, hit-and-miss tuition which is particularly unsuitable in dealing with AS/HFA learners in general. This thesis bridges the

knowledge gap by providing teachers with essential information which enables them to be consistent and effective in their management of their AS/HFA learners' behaviour.

The research methodology is designed specifically to suit the particular requirements of this research into what is a somewhat neglected yet important area of learning in South African schools. The nature and selection of research sites, sampling and data collection have been set out in detail; including a discussion of pre-testing, observations and interviews. Data analysis, trustworthiness, the role of the researcher and ethical considerations have been explained.

The findings derived from Research Questions 1 and 2 demonstrate that all three learners' social cognitive and social functioning challenges compromised their behavioural adaptation in Grade 3. In reply to Research Question 3 it became evident that all three teachers acknowledged the importance of assisting their learners to cope with changes in the daily schedule. The strategies that were implemented were a collaborative endeavour with the various support teams arranged by the schools, parents and educational psychologists (Springer et al., 2013; Williams et al., 2005). Discussion of Research Question 4 indicated that the social cognitive and social functioning challenges all influenced the behavioural adaptation of the three AS/HFA learners as they progressed in Grade 4. The major contributing factor was the collaborative support systems put in place by the three class teachers (Teachers AJ, JM and JT) which included: co-planning, co-teaching and co-assessing the learners' various needs. Although all three learners found it difficult to set their own learning goals, the teachers motivated them to complete tasks and to reach the expected learning outcomes. All three teachers focussed on improving their learners' self-confidence with the ultimate aim of developing self-efficacy and self-regulation skills (Bandura, 1977; 1986; Strampel & Oliver, 2007) which assisted, in turn, with their social cognitive and social functioning, and minimised any detrimental influence upon behavioural adaptation in their learning environment. In response to Research Question 5 it was concluded that it was possible to formulate the new SISE conceptual framework which is of use in supporting teachers of AS/HFA learners in transition from Grade 3 to Grade 4 who experience behavioural adaptation challenges.

Currently, too few teachers are aware of the origin of the behavioural challenges faced by learners with AS/HFA even though teachers have such learners in their classes (Springer, van Toorn, Laughton & Kidd, 2013). Although government recognises the need to include all learners in an equitable and fair teaching environment, lack of funding and knowledge have precluded many South African teachers from gaining a clear and composite comprehension of the behavioural challenges of AS/HFA learners and how to deal with these manifestations in the classroom. This is especially true for AS/HFA learners from less affluent communities who are obliged to attend inclusive classes at Government Quintile 1-3 schools. These learners deserve precisely the same educational consideration and rights to proceed in their education as those who are drawn from homes of affluence. These rights are guaranteed in White Paper 6 (DoE, 2001). The South African DoE is therefore legally and ethically bound to provide all teachers with the opportunity to receive training in support knowledge for tuition of AS/HFA learners. It is with these assumptions in mind that the researcher makes the following recommendations.

## **9.2 RECOMMENDATIONS**

According to research (Nkambule & Amsterdam, 2018; Nel et al., 2016), some teachers have reported that they found support structures to be inadequate; which rendered them ill-equipped to teach AS/HFA learners in South African schools. In this regard the following recommendations are offered:

- **Policy**

Curriculum differentiation should allow for the unique needs of ASD learners. On-site support teams for ASD learners should be provided at all schools. The DBE should recognise the priorities of both these issues. Schools should make staff more aware of the plethora of Inclusive Education documents such as: Conceptual and Operational Guidelines for the Implementation of Inclusive Education (DoE, 2005); Guidelines for Full Service/Inclusive Schools (DBE, 2009); and the National Strategy on the Screening, Identification, Assessment and Support (DoE, 2008/2014), District-Based Support Teams, Institution-Level Based Support Teams, as well as Special Schools as Resource Centres.

Principals of schools should emphasise the importance of accessing these documents at schools.

- Practice

It is recommended that the DoBE and the District Teams make specialised workshops and in-service training available for teachers working with AS/HFA learners in inclusive government mainstream schools. To provide these workshops and in-service training to schools, facilitators for AS/HFA learners and home schooling agents, it is recommended that DoBE and District Teams work collaboratively with support associations, such as Autism South Africa, Autism Western Cape, specialised schools such as Vera and Vista Nova situated in the Western Cape as well as short courses offered by universities such as UNISA; Understanding ASD (CSUAS16) and Inclusive Educational Practices for ASD (CSUAS17).

It should be noted that the teachers observed in this project would be well suited to head up teams of support and assist teachers in government mainstream schools during in-service training or workshops. It is recommended that teachers who have proven records of managing inclusive classes with AS/HFA learners in them should be recognised and deployed to spearhead such new incentives. Experienced teachers are able to devise methods for arranging lessons that suit the needs of AS/HFA learners: finding out how to modify the standard curriculum from such experienced teachers would greatly benefit schools in their aspirations to be inclusive and socially responsible entities. It is recommended that teachers learn how to modify class lessons and that the DoBE assist wherever possible in this valuable work.

- Research

Future research could be devoted to the study of AS/HFA learners transitioning between all grades at South African schools: not merely the transition between Grades 3 and 4. Recognising the unique contribution of AS/HFA learners attending an inclusive mainstream school environment provides a focus for future research. Because this thesis is qualitative in nature, much work remains to be done in researching associated areas in a quantitative manner. This thesis was limited in its scope owing to the restricted numbers

of suitable learners and schools that could be drawn upon: future research needs to be conducted from the point of view of a far wider range of schools and learners. Further research is required in terms of the larger theoretical issues which are prompted by this initial empirical research.

### **9.3 CONCLUDING COMMENTS**

AS/HFA learners should be given the opportunity to learn and form part of, and benefit from, the everyday social interaction and bonds of friendship and understanding forged between themselves, their teachers and peers, and group participations that take place within a mainstream school environment. Too often in South Africa, learners who begin their formal education in a mainstream school environment and are diagnosed with AS/HFA during this period, are later relocated to specialised schools: be they government or private. If teachers are better equipped to understand the social, physical and psychological challenges faced by AS/HFA learners, they are better able to see past impairments and recognise the wealth of general and subject-specific knowledge which such learners frequently possess by virtue of their condition. Learners at mainstream schools which incorporate AS/HFA learners in the classes can learn to appreciate a broader citizenship and build sensitivities and understandings by empathising with those who have different perceptions of the world, reality and community.

This research provides an innovative handbook for teachers in inclusive classrooms in South Africa. Apart from, and in addition to, the material available, which could be under-utilised at schools, this research allows teachers to gain a clear and readily comprehensible view of how to understand and teach AS/HFA learners in a general class. By understanding these learners better, teachers are more likely to be able to modify the curriculum and the physical and learning environment to support and assist these learners to develop social self-help skills. If teachers receive the kind of training and support discussed and recommended above, they will be better able to model the desired social skills and behaviours for these learners. By providing positive reinforcement through verbal reassurance, visual presentation of materials, support with socialisation and

behavioural strategies and skills, teachers can help these learners to develop to their full potential.

Although the challenges that AS/HFA learners face may be debilitating, and they are often misunderstood, such learners can, by means of informed and designated tuition and self-coping strategies, reach a point where they are successfully integrated within a government or private mainstream school environment. At present, in South Africa such trained tuition and supporting knowledge is not provided generally across the country for teachers with AS/HFA learners in their classes. Research has shown to what extent inclusive education programmes elevate the social cohesion, self-confidence and cognitive abilities of AS/HFA learners. Inclusive education policy in South Africa stresses the importance of the reciprocal learning that takes place when learners of different skill levels are placed in a single class. The three AS/HFA learners were all eventually placed in independent private specialised schools. These relocations occurred despite receiving supportive tuition throughout Grades 3 and in Grade 4.

The reality is that the majority of AS/HFA learners continue to attend government mainstream and private schools. In terms of Bandura's notions of observational learning and certainly in terms of the national project of democratic fairness, it must be stressed that by attending these mainstream schools, AS/HFA learners will be provided with substantial opportunities to learn by observation from their teachers and peers. By the same token, peers are given opportunities of learning from these AS/HFA learners. The presence of AS/HFA learners in an inclusive mainstream learning environment broadens the sympathies of peer learners and, ideally, inculcates a culture of tolerance through understanding difference.

Teachers learn from a truly inclusive attendance in the classroom: at several points in this research it was shown that the teaching strategies they developed were of considerable value to the class as a whole. This research project confirms that the overall priorities and didactic emphases of inclusive education as it has come to be recognised internationally apply in South Africa and should be adhered to. This inclusion can take place only once teachers are better equipped in practical and affordable ways to deal with learners from



different racial, economic and educational backgrounds. Learning of a higher ethical order takes place in an environment which instils values of tolerance and acceptance of differences: be it poverty, social or physical or in this case social cognitive and social functioning challenges. Building an inclusive classroom is the basis for building an inclusive society.

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**APPENDICES 1 to 20**

**Appendix 1  
Permission letter to reschedule interview**

*Mrs P.S. de Jager*

[Redacted]

*Email address:* [Redacted]

*To whom it may concern*

*Dear Sir/Man*

*Re: Rescheduling of the original interview date in the 3<sup>rd</sup> term 2013 due to unforeseen circumstances.*

Due to unforeseen circumstances at school I, the Grade 3 teacher, hereby agree to change the interview date to breakup day of the 4<sup>th</sup> term 2013, on the 3<sup>rd</sup> of December 2013. As this is the last day of the 2013 school academic year, this date was agreed upon, as the interview will not interfere with the preparation and teaching time for the year 2013, as all academic work has been completed and finalised.

Sign [Redacted] ..... (Grade 3 teacher)... [Redacted] .. (Researcher).  
[Redacted]

## **Appendix 2 Observation Schedule**

### **FOCUS DURING OBSERVATIONS**

Look at learners behavioural responses in the learning environment to identify what behavioural adaptation challenges he/she experiences.

Observe positive behavioural responses (verbal, physical comments from the learner, as well as positive response from teacher and additional staff) – observe the finer detail of the learners' comments.

To focus on events in the following manner:

1. Subject description: - Write down the subject: Life skills, English, Afrikaans, Social Sciences, and Maths etc.
2. Environmental setting - give descriptions of external factors: venue, props and new additional information;
3. Learners' responses – Look at learners' behavioural responses in the learning environment to identify behavioural adaptation challenges (verbal and physical responses ); and
4. Second party responses – responses from peers (positive and negative responses);
5. Teacher or additional staff immediate responses and intervention strategies;
6. Learners' positive responses – verbal and non-verbal; and
7. Teachers and additional staffs' positive responses and interventions strategies.



<p><b>Theory of Mind</b>                  Recognising and understanding of thoughts beliefs, desires and intentions of others                  (Baron- Cohen et al, 1985)</p>	<p><b>Response challenges</b></p> <p>Not understanding intentions of others</p> <p>Improper reciprocity skills</p>	<p><b>Positive comment</b></p> <p>Although challenges with social imagination it does not mean they do not have imagination.</p>
<p><b>Social Imagination</b>                  The capacity to think about and predict the consequences of one's actions for oneself and other people.                  (Wing 1979)</p>	<p>Cannot understand abstract ideas</p> <p>Cannot do social imaginary play</p>	<p><b>Positive Response</b>                  Often involved in own imaginary play when focused on interest</p>

<p><b>Central Coherence</b>                  Ability to derive overall meaning from a mass of detail.</p> <p><b>Weak Central Coherence</b>                  Heightened focus on 'detail' rather than the 'whole'                  (Frith, 1989)</p>	<p><b>Response challenges</b></p> <p>Not understanding what comes next, to complete a sequence of events</p> <p>Not seeing others point of view;</p> <p>Not adhering to new routines and changes</p>	<p><b>Positive comment</b></p> <p>Although challenges with general understanding, they show understanding of finer details of significance.</p>
<p><b>Global information Processing</b>                  The ability to integrate piecemeal information into a coherent whole; to grasp the 'gist' of a situation                  (Happé &amp; Frith, 2006)</p>		<p><b>Positive Response</b>                  Ability to see finer detail in a situation that often can be overlooked.</p>

<p><b>Executive function</b>  <i>Brain-based skills that are required for humans to perform a task or interact appropriately (Dawson and Guare, 2012 and Hill, 2004)</i></p>	<p><b>Challenging skills</b>                  Organising and planning                  Task Inhibition                  Goal-directed                  Sustained attention</p>	<p><b>Positive comment:</b>                  Although ASD learners experience EF challenges they do not show the lack of these skills when focussing on own interest</p>
<p><b>Social Interaction</b>                  Appropriate personal and group interaction in the social environment</p>	<p><b>Response Challenges</b>                  Response Inhibition                  Emotional Control                  Inappropriate social behavioural responses</p>	<p><b>Positive response:</b>                  Often very focussed, organised and show sustained attention to complete a task of specific interest.</p>

<p><b>Sensory Processing</b>                  Hyper-sensitivity, when a stimuli feels too intense                   Hypo-sensitivity when young learners under-respond to stimuli.                  (Wing, 1998)</p>	<p><b>Challenging skills</b>                  Challenges with hypo-and-hyper sensitivity senses                  Tactile touch                  Visual – sight                  Auditory - hearing                  Vestibular – balance and movement                  Proprioceptive - muscle reaction</p>	<p><b>Positive comment</b>                  Although challenges with hypo-and-hyper sensitivity of senses some learners with ASD can experience superior and heightened sense reactions that can be seen as positive.</p>
<p><b>Social Communication</b>                   Verbal and non-verbal behaviours people use to influence social situations                  Timler, Vogler-Elias and McGill, 2007)</p>	<p><b>Response challenges</b>                  Inappropriate social non-verbal and verbal communication;                  Inability to adapt to change of social setting                  Inability to express thoughts in socially acceptable manner</p>	<p><b>Positive response</b>                  Some learners may experience focussed sensory experiences, for example in visual and auditory, that can be of benefit to a situation.</p>

**OBSERVATION SHEET FOR LEARNERS IN GRADE 3 (2013 and 2014)**

<b>Learner:</b>	<b>School:</b>	<b>Date:</b>	<b>Day:</b>	<b>Page no:</b>
<b>Subject:</b>	<b>Environmental Setting: Description of external factors</b>	<b>Learners' responses Behavioural adaptation challenges</b>	<b>Teachers' immediate responses (Intervention strategies)</b>	<b>Additional positive comments (Relevant information)</b>
<b>Description:</b>	<b>Venues Props and new additional information</b>	<b>Verbal responses and Physical responses of learner  Second party/s responses (peers)</b>	<b>Class teachers' responses Intervention strategies  Additional teaching staff responses/interventions</b>	<b>Learners' positive responses and comments  Teacher and additional staffs' positive responses and comments</b>

**Appendix 3  
Interview Schedule**

**INTERVIEW QUESTIONS FOR TEACHERS 2013 AND 2014**

<b>Prioritising and planning</b>	<b>Yes</b>	<b>No</b>	<b>Incon- sistent</b>	<b>Support and Assistance</b>
<p><b>Main Question</b> Does he/she have the ability to reach a goal or complete a task?</p> <p><b>Probing Questions</b> Can he/she focus on one task before starting another? Can he/she follow a routine or plan developed by another? Can he/she complete a given task with a few steps? Can he/she plan ahead how to save, or achieve a set goal – see the big picture? Can he/she finish homework assignments with few steps with some assistance?</p>			x	<p><b>Main Question</b> What adjustments did you have to make to assist him/her in reaching a specific goal or complete a task?</p> <p><b>Probing Questions for assistance</b> How much assistance and support have you given in helping him/her to reach specific goals or complete a routine or task? Can he/she manage without your assistance and support? Is this an everyday occurrence? Do you have to assist in most routines and tasks?</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Support and assistance)</b>	

Organisation	Yes	No	Incon- sistent	Support and Assistance
<p><b>Main Question:</b> Does he/she show the ability to establish and maintain systems for arranging or keeping track of important items and putting them where they belong after use?</p> <p><b>Probing Questions for answers</b></p> <p>Can he/she put equipment back in appropriate place?</p> <p>Can he/she find material to start a new routine or project?</p> <p>Can he/she organise writing materials and books for easy access?</p> <p>Can he or she keep track of daily routines and homework assignments and notices?</p>				<p><b>Main Question</b></p> <p>What adjustment did you have to make to assist and help him/her keep track of daily routine and to organise important items?</p> <p><b>Probing Questions for answers</b></p> <p>How much assistance and support have you given to help him/her keep track of daily routine and organise important items?</p> <p>Can he manage without assistance and support in organising and keeping track of items and putting them back after use?</p> <p>Do you have to assist him to organise and find equipment regularly?</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Support and Assistance)</b>	
Time Management	Yes	No	Incon- sistent	Support and Assistance
<p><b>Main Question</b></p> <p>Can he/she prioritise a routine or task and complete it in a timely fashion?</p> <p><b>Probing Questions</b></p> <p>Can he/she complete most of his/her routine or activities within the time frame allocated?</p> <p>Can he/she be given appropriate time to complete chores, without constant reminders?</p> <p>Can he/she speed up what he/she is doing when</p>				<p><b>Main Question</b></p> <p>What adjustment did you have to make to assist and support him/her in completing a given activity or a task?</p> <p><b>Probing questions</b></p> <p>How much assistance and support do you need to give him/her in assisting to complete a given routine or a task?</p> <p>How did you assist him/her to complete all</p>

there is not much time left?				his/her work timelessly? Did you have to give constant reminders of the time frame?
<b>Comments (Positive and Negative)</b>			<b>Comments (Support and Assistance)</b>	
<b>Working Memory</b>	<b>Yes</b>	<b>No</b>	<b>Incon- sistent</b>	<b>Support and Assistance</b>
<p><b>Main Question</b> Does he/she have the capacity to hold information in mind while performing a task? - Recall of long term memory?</p> <p><b>Probing Questions</b> Can he follow a daily routine without constant reminders? Does he/she remember to bring to school what is needed and take home what is needed? Can he/she listen to teacher, finish what he is doing and follow through what is asked?</p>				<p><b>Main Question</b> What adjustments did you have to make to help him/she to do what has already been asked of him/her?</p> <p><b>Probing questions</b> Does he/she need assistance and reminders all the time of what was already asked of him/her? Do you need to repeat to him/her individually, to complete what was asked of him/her a while ago? Does he/she need support and reminders of what he/she needs to bring and take home every day?</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Support and Assistance)</b>	

Meta-cognition (problem solving)	Yes	No	Incon- sistent	Support and Assistance
<p><b>Main Question</b> Does he/she show self-monitoring and self-evaluation skills?</p> <p><b>Probing Questions</b> Can he/she plan a way to approach a routine or task and how to complete it? Can he/she use new strategy if something is not working? Can he/she recognise that others have different ideas and feelings of issues than themselves?</p>				<p><b>Main Question</b> What adjustments did you have to make to assist him/her to understand cause and effect and to deal with problem-solving' effectively?</p> <p><b>Probing Questions</b> How do you assist in explaining cause and effect on a regular basis, so he/she can complete a task or understand problem solving issues? How did you assist if he/she fixates on problem and ignores other solutions given by others? Do you have to assist him/her in making interpretation of intent – cause and effect relationships? How did you assist with appropriate back and forth communication (reciprocity)?</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and Support)</b>	
Task Initiation	Yes	No	Incon- sistent	Assistance and Support
<p><b>Main Question</b> Can he/she start a project without undue procrastination?</p> <p><b>Probing Questions</b> Does he/she start a task that is not popular now instead of later? Can he/she follow through on instruction without too much delay?</p>				<p><b>Main Question</b> What adjustments did you have to make to assist him/her in starting a given task or work?</p> <p><b>Probing questions</b> Do you have to remind him constantly to start his work? Do you have to support him by repeating the instructions individually again, so he can start</p>

<p>Can he/she get right to work when instruction have been given?</p>				<p>his work? Do you have to remind him daily of routine or daily procedures?</p>
<p><b>Comments (Positive and Negative)</b></p>			<p><b>Comments (Assistance and Support)</b></p>	
<p><b>Goal-directed persistence</b></p>	<p><b>Yes</b></p>	<p><b>No</b></p>	<p><b>Incon- sistent</b></p>	<p><b>Assistance and Support</b></p>
<p><b>Main Question</b> Can he/she following through and complete a goal and not be put off by distractions or competing interests? <b>Probing Questions</b> Does he/she persist even then finding it hard to achieve? Does he/she refuse to start or complete as it is not something he/she wants to do? Does he/she do chores, and stick with it till completion?</p>				<p><b>Main Question</b> <b>What adjustments did you have to make to assist him/her in persevering with a routine or goal?</b>  <b>Probing Questions</b> Do you have to support and assist in helping him continue with set goal or task? Do you constantly have to motivate him to complete chores or tasks given? If not given support, does he complete a routine or task on his own?</p>
<p><b>Comments (Positive and Negative)</b></p>			<p><b>Comments (Assistance and support)</b></p>	



Flexibility of thinking and response	Yes	No	Incon sistent	Assistance and Support
<p><b>Main Question</b> Has he/she always understood what to do next to complete a sequence of events, see others point of view; and does he/she adhere to new routines and changes?</p> <p><b>Probing Questions</b> Does he adjust easily to unexpected change to routine? Can he tolerate redirection from teacher when following of instructions? Can he/she share his ideas and equipment without a fuss? Can he/she deal with disappointments and manage frustration with minimum fuss?</p>				<p><b>Main Question</b> <b>What adjustments did you have to make to assist and support him/her in change of routine or unexpected setbacks?</b></p> <p><b>Probing Questions</b> <b>How did you help him/her adjust to changes made in the daily routine, or setbacks?</b> Did you give constant support when there is a change in routine?</p> <p><b>How did you give assistance and support to help him/her with a sudden change of routine, or setbacks?</b></p> <p>How did you assist when he/she needed support with dealing with disappointments and to manage his/her frustration if things does not go according to plan?</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and Support)</b>	

Response Inhibition	Yes	No	Incon- sistent	Assistance and Support
<p><b>Main Question</b> Did he/she show the inability to think before reacting, not giving in to his/her basic drive of emotions and thoughts and responding in a socially appropriate manner?</p> <p><b>Probing questions</b> Can he/she control responses and think before reacting? Can he/she 'keep cool' to think in an emotionally charge situation? Does he/she show the capacity to think before responding? Can he/she control the urge to jump to conclusions? Does he/she have sound judgement? Can he/she say something before thinking it through?</p>				<p><b>Main question</b> How have you assisted him/her in developing coping skill of controlling his/her impulse to respond out of turn? What adjustments did you have to make with response-inhibition problems?</p> <p><b>Probing questions</b> What support and assistance did you give in helping him/her think before responding to a situation? What strategies and support have you tried to assist him/her in these situations?</p> <p><b>What are the procedures that you used the most?</b> What did you say to assist him/her to express his/her feelings, when responding without thinking it through?</p>
<b>Comments (positive and negative)</b>			<b>Comments (Assistance and Support)</b>	

Emotional Control	Yes	No	Incon- sistent	Assistance and Support
<p><b>Main Question</b> Does he/she manage his/her emotions appropriately to achieve a goal, complete a task?</p> <p><b>Probing questions</b> Can he/she keep control of unpleasant feelings like anxiety, frustration and disappointments? Can he/she join into a conversation without getting overly excited or emotional? Can he/she tolerate criticism from adults? Can he/she deal with perceived 'unfairness' without getting overly upset? Can he/she adjust behaviour quickly after physical activity or stimulating situation?</p>				<p><b>Main Question</b> <b>What adjustments did you have to make to assist him/her in controlling his emotions in a socially acceptable way</b> and using appropriate social interaction during times of confusion and misunderstanding?</p> <p><b>Probing questions</b> How have you assisted him/her in developing coping skills for next year? How did you assist him/her to express feelings in a more socially acceptable way? What are the process that you used the most? How did you assist his/her with calming down procedures? How did you assist with adjusting behaviour when overly excited or upset?</p>
<p><b>Comments (Positive and Negative)</b></p>			<p><b>Comments (Assistance and Support)</b></p>	

Sensory processing	Yes	No	Incon- sistant	Assistance and Support
<p><b>Main Question</b> Does he/she experience sensory processing challenges on a regular basis?</p> <p><b>Probing questions</b></p> <p>When experiencing sensory processing challenges does he/she have the ability to adapt to a changed social setting?</p> <p>Can he/she express personal thoughts in a socially acceptable manner?</p> <p>Can he/she show appropriate social non-verbal and verbal communication skills?</p>				<p><b>Main Question</b></p> <p>How have you assisted him/her to cope during sensory processing challenges?</p> <p><b>Probing Questions</b></p> <p>How have you assisted him/her in expressing his/her personal feelings in an acceptable manner?</p> <p>How did you assist him/her with sensory overload which could lead to the use of inapposite non-verbal and verbal communication?</p>
<p><b>Comments (Positive and Negative)</b></p>				<p><b>Comments (Assistance and Support)</b></p>

<b>Tactile</b> <b>Tactile quality (pressure (light, deep)</b> <b>Texture – (hard, soft, sharp, dull),</b> <b>Temperature (hot, cold)</b>	<b>Yes</b>	<b>No</b>	<b>Incon-</b> <b>sistent</b>	<b>Assistance and support</b>
<p><b>Main Question</b>                      Does he appear to have tactile processing problems?</p> <p><b>Probing Questions</b>  <u>Does he/she display hyper-sensitivity?</u>                      (resistant to touch                      low pain threshold                      irritated by clothing/ materials                      Avoidance of using messy activities</p> <p><u>Does he/she display hypo-sensitivity?</u>                      (Does not feel or respond to touch                      High pain threshold                      Does not notice anything stuck (food), or eg blood on his body).</p>				<p><b>Main Question</b>                      What adjustments did you have to make when you noticed that he/she was tactile sensitive?</p> <p><b>Probing questions</b>                      How have you assisted him/her manage with tactile processing challenges  <u>If he/she is tactile sensitive, how have you shown support?</u>                      How do you assist when his/her response is (Aggressive/emotional towards touch, anxiety to new tactile experiences, avoidance and meltdowns).  <u>How do you assist when his/her response is?</u>                      (poor judgement to personal space                      Indiscriminate touching and handling of objects and peers,                      mouths and chews objects like pencils etc).</p>
<p><b>Comments (Positive and Negative)</b></p>			<p><b>Comments (Assistance and Support)</b></p>	

Visual -sight	Yes	No	Incon- sistent	Assistance and support
<p><b>Challenge 1: Ocular Control</b>  <b>Question</b>                      Can he/she coordinate eye movement to follow scan and fix visual stimuli?  <b>Probing questions</b>                      Can he/she find and track moving objects?                      Have good eye-hand co-ordination?                      Have sustained eye-contact when in conversation?</p> <p><b>Challenge 2: Visual Perception</b>  <b>Question</b>                      Can he discriminate and interpret visual stimuli correctly?  <b>Probing Questions</b>                      Does he/she have visual spatial relationships issues?                      (Depth perception, visual figure ground, position in space (fore and background perception).</p> <p><b>Challenge 3: Visual hypersensitivity</b>                      Can he/she discriminate visual stimuli correctly?</p>				<p><b>Main Question</b>                      What adjustments did you have to make when you noticed that he/she was visually sensitive?</p> <p><b>Probing Questions</b>                      If he/she shows visual sensitivity, how do you support?                      If he/she shows avoidance and anxiety around tasks?                      If he/she show visual motor skills difficulties? (hold head close to task at hand, writing, eating, bump and run into people and objects, clumsy when performing tasks, fine motor difficulties, behaviour to bright light in environment, not sure what visual stimuli to focus on, follow moving stimuli and not focussing on appropriate stimuli)</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and support)</b>	

<b>Auditory = hearing</b>	<b>Yes</b>	<b>No</b>	<b>Incon- sistent</b>	<b>Assistance and support</b>
<p><b>Main Question</b> How his /her perception of and ability to understand what is heard in his/her environment?</p> <p><b>Probing questions</b> Can he/she? (Discriminate between sounds, associate and decode sounds, register auditory information). <u>Is he/she hyper-sensitive?</u> (High registration, low stimulus tolerance). <u>Is he/she hypo-sensitive?</u> (Low registration, high stimulus tolerance).</p>				<p><b>Main Question</b> What adjustments did you have to make when he/she showed auditory difficulties?</p> <p><b>Probing questions</b> If he/she shows auditory sensitivity, how do you support? <u>With hyper-sensitive?</u> (Difficulty with focus and attention, show emotional/reactive behaviours to even the most subtle noise). <u>With hypo-sensitive?</u> (Appears oblivious in an active environment, show difficulty responding to names and directions).</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and support)</b>	

Gustatory and olfactory Smell and taste	Yes	No	Incon- sistent	Assistance and support
<p><b>Main Question</b> How does he/she tolerate, react to unusual tastes and smells in his/her environment?</p> <p><b>Probing questions</b> <u>Does he/she show hyper-sensitivity?</u> (High registration, low stimulus tolerance). <u>Does he/she show hypo-sensitivity?</u> (Low registration high stimulus tolerance).</p>				<p><b>Main Question</b> What adjustments did you have to make when he/she showed gustatory and olfactory sensitivity?</p> <p><b>Probing Questions</b> How do you support if he/she with managing sensory challenges such as taste and smell? (gustatory and olfactory) sensitivity? <u>Is he/she hyper-sensitive?</u> (Highly reactive to taste and smell stimuli, including perfumes, 'cookies' smells, food etc., avoidance behaviour to project (use of scented pens etc.) narrow range of food tolerance). <u>Is he/she hypo-sensitive?</u> (Ignores noxious odours, indiscriminate tasting and smelling of objects may promote poor hygiene poor appetite).</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and Support)</b>	



<b>Vestibular -balance</b> -inner ear stimulated by gravity and movement <b>Muscle tone</b>	<b>Yes</b>	<b>No</b>	<b>Incon- sistent</b>	<b>Assistance and support</b>
<p><b>Main Question</b> Does he/she show poor posture, weak bi-lateral co-ordination and balance?</p> <p><b>Probing questions</b> <u>Does he/she show hyper-sensitivity?</u> (Clumsy and lethargic, disorientated to sudden movement, nauseated by movement, over sensitive to movement). <u>Does he/she show hypo-sensitivity?</u> (Clumsy, agitated with stillness of body, poor awareness of physical space under-reactive to environment). <u>Does he/she show poor Muscle Tone?</u> Loose and floppy body</p>				<p><b>Main Question</b> What adjustments did you have to make to support him in promoting and developing a healthy (balance) vestibular system?</p> <p><b>Probing questions</b> How do you support him in promoting and developing a healthy vestibular system, which is balance? <u>Is he/she hyper-sensitive?</u> (Insecure, fearful response to activities that involve movement, difficulty negotiating stairs, playground equipment, difficulty walking in a line or in synchronization with others, avoidance of modelling other movements). <u>Is he/she hypo-sensitive?</u> (Restless, irritable disregard the physical space of others, craves constant movement, seeks spinning and rocking movements – rocking on chair will hang upside down or swing for a long time) <u>Does he/she have low muscle tone?</u> handles objects with loose, easily fatigued and frustrated by motor activity Difficulty sitting upright for extended periods, especially without back support.</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and Support)</b>	

<b>Muscle movement planning</b>					
<b>Proprioceptive system</b>	<b>Yes</b>	<b>No</b>	<b>Incon- sistent</b>	<b>Assistance and support</b>	
<p><b>Main Question</b> Does he/she complain of tense painful muscles and has dyspraxia (poor motor planning)?</p> <p><b>Probing questions</b> <u>Is he/she hyper-sensitive?</u> (tense painful muscles, rigid movements, high registration for tactile stimuli) <u>Is he/she hypo-sensitive?</u> Weak, loose muscle joints' floppy awkward movement, difficulty sustaining postural stance, low registration of tactile stimuli). <u>Dysfunction of praxis</u> (Poor gross- motor and fine-motor skills).</p>				<p><b>Main question</b> What adjustments did you have to make to promote and help him/her develop a healthy (muscle movement) proprioceptive system?</p> <p><b>Probing questions</b> <u>Is he/she hyper-sensitive?</u> (Avoidance of activities that require movement walking on toes, slow to respond to directional change, avoids sensory movement activities) <u>Is he/she hypo-sensitive?</u> (Watches limbs to track movement, loose grasp, drop things easily, Can't walk in a straight line and walks/crashes into things, Craves movement activities).</p>	
<b>Comments and support (Positive and Negative)</b>				<b>Comments (Support and assistance)</b>	

Social reciprocity and abstract thinking skills	YES	NO	Incon- sistent	Assistance and support
<p><b>Main Question</b> Does he/she understand social reciprocity during social interaction?</p> <p><b>Probing questions</b> Does he/she understand social reciprocity? Does he/she show the ability to determine the intentions of others? Can he/she make sense of abstract ideas?</p>				<p><b>Main Question</b> What adjustments did you have to make to assist him/her with appropriate social reciprocity during times of confusion and/or misunderstanding?</p> <p><b>Probing Questions</b> What strategy did you use to promote appropriate social reciprocity skills? How have you supported him/her in making sense of his environment? (Making literal interpretation of what someone is saying, inability to see that someone may have knowledge to contribute, immature understanding of emotions, using intellect instead of intuition).</p>
<b>Comments (Positive and Negative)</b>			<b>Comment (Assistance and support)</b>	

Inappropriate behavioural responses	YES	NO	Incon- sistent	Assistance and support
<p><b>Main Questions</b> Does he/she experience inapposite behavioural responses on a regular basis during social interaction?</p> <p><b>Probing questions</b> Does he/she show the inability to think before reacting, Not to give in to his/her basic drive of emotions and thoughts? (Gastrointestinal issues, ADD or Tourette's features)</p>				<p><b>Main Question</b> What adjustments did you have to make to assist him/her in dealing with improper social and emotional issues?</p> <p><b>Probing Questions What are the procedures that you used the most?</b> How do you assist him/her in dealing with improper social and emotional responses? (Conduct issues) (Meltdown, tantrums, rage Aggression, grief Anxiety and panic Isolation School refusal and sleep disturbances).</p>
<b>Comments (Positive and Negative)</b>			<b>Comments (Assistance and Support)</b>	
<b>CONCLUDING COMMENTS</b>				

## Appendix 4 Permission from Cape Peninsula University of Technology



Research Checklist:		Yes	No
1:	Does the study involve participants who are unable to give informed consent? Examples include children, people with learning disabilities, or your own students. Animals?	X	
2:	Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited? Examples include students at school, members of self-help groups, residents of nursing homes — anyone who is under the legal care of another.	X	
3:	Will it be necessary for participants to participate in the study without their knowledge and consent at the time — for example, covert observation of people in non-public places?		x
4:	Will the study with the research subject involve discussion of sensitive topics? Examples would include questions on sexual activity or drug use.		x
5:	Will the study involve invasive, intrusive, or potentially harmful procedures of any kind (e.g. drugs, placebos or other substances to be administered to the study participants)?		x
6:	Will the study involve prolonged or repetitive testing on sentient subjects?		x
7:	Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?		x
8:	Does your research involve environmental studies which could be contentious or use materials or processes that could damage the environment? Particularly the outcome of your research?		x

**Signatures:**

Researcher/ApPLICANT:			Supervisor/Senior investigator (if applicable):
Date: 26.09.2014		26.09.2014	Date:

*Please note that in signing this form, supervisors are indicating that they are satisfied that the ethical issues raised by this work have been adequately identified and that the proposal includes appropriate plans for their effective management.*

**Faculty Research Ethics Committee comments:**

EFEC unconditionally grants ethical clearance for the study titled, "Challenges experienced by high functioning learners with Autism Spectrum Disorder in the transition from Foundation to Intermediate Phase." The certificate is valid for 4 years from the date of issue.			
Approved		 Chairperson: Cina P Mosito	Date: 29 Sep 2014
Approval Certificate/Reference: EFEC 6-9/2014			

## Appendix 5 Permission from the Western Cape Education Department



Directorate: Research

[Audrey.wyngaard2@gwec.gov.za](mailto:Audrey.wyngaard2@gwec.gov.za)  
tel: +27 021 467 9272  
Fax: 0865902282  
Private Bag x9114, Cape Town, 8000  
[wced.wcape.gov.za](http://wced.wcape.gov.za)

**REFERENCE:** 20130801-15170  
**ENQUIRIES:** Dr A T Wyngaard

Mrs Petronella De Jager

**Dear Mrs Petronella De Jager**

**RESEARCH PROPOSAL: CHALLENGES EXPERIENCED BY HIGH FUNCTIONING LEARNERS WITH ASD IN THE TRANSITION FROM FOUNDATION TO INTERMEDIATE PHASE**

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be conveyed to the District Director of the schools where the project will be conducted.
5. Educators' programmes are not to be interrupted.
6. The Study is to be conducted from **05 August 2013 till 20 September 2014**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
12. The Department receives a copy of the completed report/dissertation/thesis addressed to:

**The Director: Research Services  
Western Cape Education Department  
Private Bag X9114  
CAPE TOWN  
8000**

We wish you success in your research.

Kind regards.

Signed: Dr Audrey T Wyngaard

**Directorate: Research  
DATE: 01 August 2013**

**Appendix 6  
Permission from School M**

**PERMISSION FROM SCHOOL (M)**

*(E), has been used to refer to this learner, as to adhere to a strict confidentiality code*

*RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER E IN GRADE 3 AT SCHOOL M, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME AND TO INTERVIEW TEACHERS.*

*Dear Principal of School M*

If you grant me permission to observe learner E as part of my research study and interview his Grade 3 and Grade 4 teachers, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I [redacted] sign. [redacted] give permission that learner E can be

observed at School M and that the teachers may be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*

**Appendix 7  
Permission from School P**

**PERMISSION FROM SCHOOL (P)**

*(Learner T and Learner L), has been used to refer to the learners, as to adhere to a strict confidentiality code*

**RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNERS T AND L IN GRADE 3 AT SCHOOL P, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME AND TO INTERVIEW TEACHERS.**

*Dear Principal of School P*

If you grant me permission to observe learner T and L as part of my research study and interview their Grade 3 and Grade 4 teachers, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I  sign.  give permission that learner T and L can be

observed at School P and that the teachers may be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*





### Appendix 8 Permission from School R

#### PERMISSION FROM SCHOOL (R)

(T), has been used to refer to this learner, as to adhere to a strict confidentiality code

*RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER T IN GRADE 4 AT SCHOOL R, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME AND TO INTERVIEW TEACHER.*

*Dear Principal of School R*

If you grant me permission to observe learner T as part of my research study and interview his Grade 4 teacher, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

[Redacted] sign..... give permission that learner T can be

observed at School R and that the teacher may be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*

**Appendix 9**  
**Permission from teacher at School M (Grade 3)**

**PERMISSION FROM GRADE 3 TEACHER AT SCHOOL (M)**

*(E), has been used to refer to this learner, as to adhere to a strict confidentiality code*

*RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER E IN GRADE 3 AT SCHOOL M, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME, AND TO CONDUCT AN INTERVIEW*

*Dear Grade 3 Teacher at School M*

If you grant me permission to observe learner E in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I [redacted] sign [redacted] give permission that learner E can be

observed at School M in my classroom, and that I be interviewed, to from part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*

**Appendix 10**  
**Permission from teacher at School P (Grade 3)**

**PERMISSION FROM GRADE 3 TEACHER AT SCHOOL (P)**

Learner T, has been used to refer to this learner, as to adhere to a strict confidentiality code

**RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER T IN GRADE 3 AT SCHOOL P, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME, AND TO CONDUCT AN INTERVIEW**

*Dear Grade 3 Teacher at School P*

If you grant me permission to observe learner T in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I  sign  give permission that learner T can be  
(Teacher SM)

observed at School P in my classroom, and that I be interviewed, to form part of the research study on:

*“The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4”.*



**Appendix 11**  
**Permission from teacher at School P (Grade 3)**

**PERMISSION FROM GRADE 3 TEACHER AT SCHOOL (P)**

*Learner L, has been used to refer to this learner, as to adhere to a strict confidentiality code*

**RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER T IN GRADE 3 AT SCHOOL P, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME, AND TO CONDUCT AN INTERVIEW**

*Dear Grade 3 Teacher at School P*

If you grant me permission to observe learner L in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I  sign  give permission that learner L can be  
(Teacher GR)

observed at School P in my classroom, and that I be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*



**Appendix 12**  
**Permission from Teacher at school M (Grade 4)**

**PERMISSION FROM GRADE 4 TEACHER AT SCHOOL (M)**

*(E), has been used to refer to this learner, as to adhere to a strict confidentiality code*

*RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER E IN GRADE 4 AT SCHOOL M, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING (ASPERGER'S SYSDOME), AND TO CONDUCT AN INTERVIEW*

Dear Grade 4 Teacher at School M

If you grant me permission to observe learner E in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I ..... sign..... give permission that learner E can be

observed at School M in my classroom, and that I be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*

**Appendix 13**  
**Permission from teacher at School P (Grade 4) (a and b)**

**PERMISSION FROM GRADE 4 TEACHER AT SCHOOL (P)**

Learner L, has been used to refer to this learner, as to adhere to a strict confidentiality code

**RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER T IN GRADE 4 AT SCHOOL P, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME, AND TO CONDUCT AN INTERVIEW**

*Dear Grade 4 Teacher at School P*

If you grant me permission to observe learner L in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I  sign  give permission that learner L can be  
(Teacher JM)

observed at School P in my classroom, and that I be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*



**PERMISSION FROM GRADE 4 TEACHER AT SCHOOL (P)**

*Learner T, has been used to refer to this learner, as to adhere to a strict confidentiality code*

*RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER T IN GRADE 4 AT SCHOOL P, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME, AND TO CONDUCT AN INTERVIEW*

*Dear Grade 4 Teacher at School P*

If you grant me permission to observe learner T in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I   sign  give permission that learner T can be  
(Teacher JM)

observed at School P in my classroom, and that I be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*



**Appendix 14**  
**Permission from Teacher at school R (Grade 4)**

**PERMISSION FROM GRADE 4 TEACHER AT SCHOOL (R)**

*(T), has been used to refer to this learner, as to adhere to a strict confidentiality code*

**RE: CONSENT FORM FOR PERMISSION TO OBSERVE LEARNER T IN GRADE 4 AT SCHOOL R, WHO HAS BEEN CLINICALLY DIANOSED WITH EXPERIENCING ASPERGER'S SYSDOME, AND TO CONDUCT AN INTERVIEW**

*Dear Grade 4 Teacher at School R*

If you grant me permission to observe learner T in your classroom, please sign this form. I can arrange to collect this signed document personally from the school, or at a pre-arranged venue.

I ..... sign. .... give permission that learner T can be

observed at School R in my classroom, and that I be interviewed, to form part of the research study on:

*"The social cognitive and social functioning growth trajectories of learners with AS, as they progressed from Grades 3 through to Grade 4".*



**Appendix 15**  
**Consent form from Legal guardian (mother)**

Mrs P.S. De Jager

[Redacted]

25 July 2013

RE: CONSENT FORM FOR PERMISSION TO OBSERVE YOUR CHILD, WHO HAS BEEN DIAGNOSED AS A HIGH FUNCTIONING LEARNER WITH ASD.

Dear Parents/Guardian

If you grant me permission to include your child in my research, please complete and sign this form and I will pick it up at the school office, or pre- arranged venue.

I [Redacted] give permission, subject to your letter above, for my

Child, [Redacted] to be included in the research on:

*"Challenges experienced by high functioning learners with ASD in the transition from Foundation to Intermediate Phase".*

[Redacted]

[Redacted]

3 August 2013

**Appendix 16**  
**Consent form from Legal guardian (mother)**

Mrs P.S. De Jager



August 2013

RE: CONSENT FORM FOR PERMISSION TO OBSERVE YOUR CHILD, WHO HAS BEEN DIAGNOSED AS A HIGH FUNCTIONING LEARNER WITH ASD.

Dear Parents/Guardian

If you grant me permission to include your child in my research, please complete and sign this form and I will pick it up at the school office, or pre- arranged venue.

I,  ..... and.....give permission for my

child to be included in the research on:

*"Challenges experienced by high functioning learners with ASD in the transition from Foundation to Intermediate Phase".*



08 . 08 . 2013

**Appendix 17**  
**Consent form from both parents**

Mrs P.S. De Jager


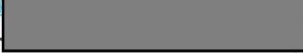


August 2013

RE: CONSENT FORM FOR PERMISSION TO OBSERVE YOUR CHILD, WHO HAS BEEN DIAGNOSED AS A HIGH FUNCTIONING LEARNER WITH ASD.


Dear Parents/Guardian

If you grant me permission to include your child in my research, please complete and sign this form and I will pick it up at the school office, or pre- arranged venue.

I,  and.....  give permission for my

child to be included in the research on:

*"Challenges experienced by high functioning learners with ASD in the transition from Foundation to Intermediate Phase".*

 05.08.2013.

### Appendix 18 Additional examples for Chapter 5

Additional examples of evidence from the interview and observation data with the Grade 3 teachers of how they assisted the AS/HFA learners with behavioural adaptation challenges in preparation for Grade 4.

**Table 5.1:** Additional results of how Teacher SM assisted Learner T with behavioural adaptation challenges in preparation for Grade 4

Four themes	Evidence of preparation by Teacher SM
<p>1. Implementing secure, structured routines and procedures to assist Learner T with behavioural adaptation challenges.</p>	<p>Example 2. Every morning Teacher SM displayed the day's routine on the white board;                      Example 3. Every morning Teacher SM discussed the daily routine with all the learners in the class; and                      Example 4. Teacher SM assisted Learner T with understanding and adapting to unexpected changes of the routine during the day.</p>
<p>2. Assisting Learner T with appropriate social reciprocity skills during confusion and/or misunderstanding.</p>	<p>Example 2. To explain what Teacher SM wanted her learners to do, she sometimes used idiomatic expressions. These expressions confused Learner T. She however allowed him to question her use of words.</p>
<p>3. Assisting with sensory adaptation due to sensory overload experienced by Learner T.</p>	<p>Example 2. Teacher SM did not change every day procedures and educational learning materials around; and                      Example 3. Teacher SM encouraged Learner T to verbally express his discomfort when he experienced sensory overload.</p>
<p>4. Assisting Learner T with the development of social and emotional behaviour regulation skills</p>	<p>Example 2. Teacher SM explicitly explained and gave clear instructions and procedures in sequential steps.</p>

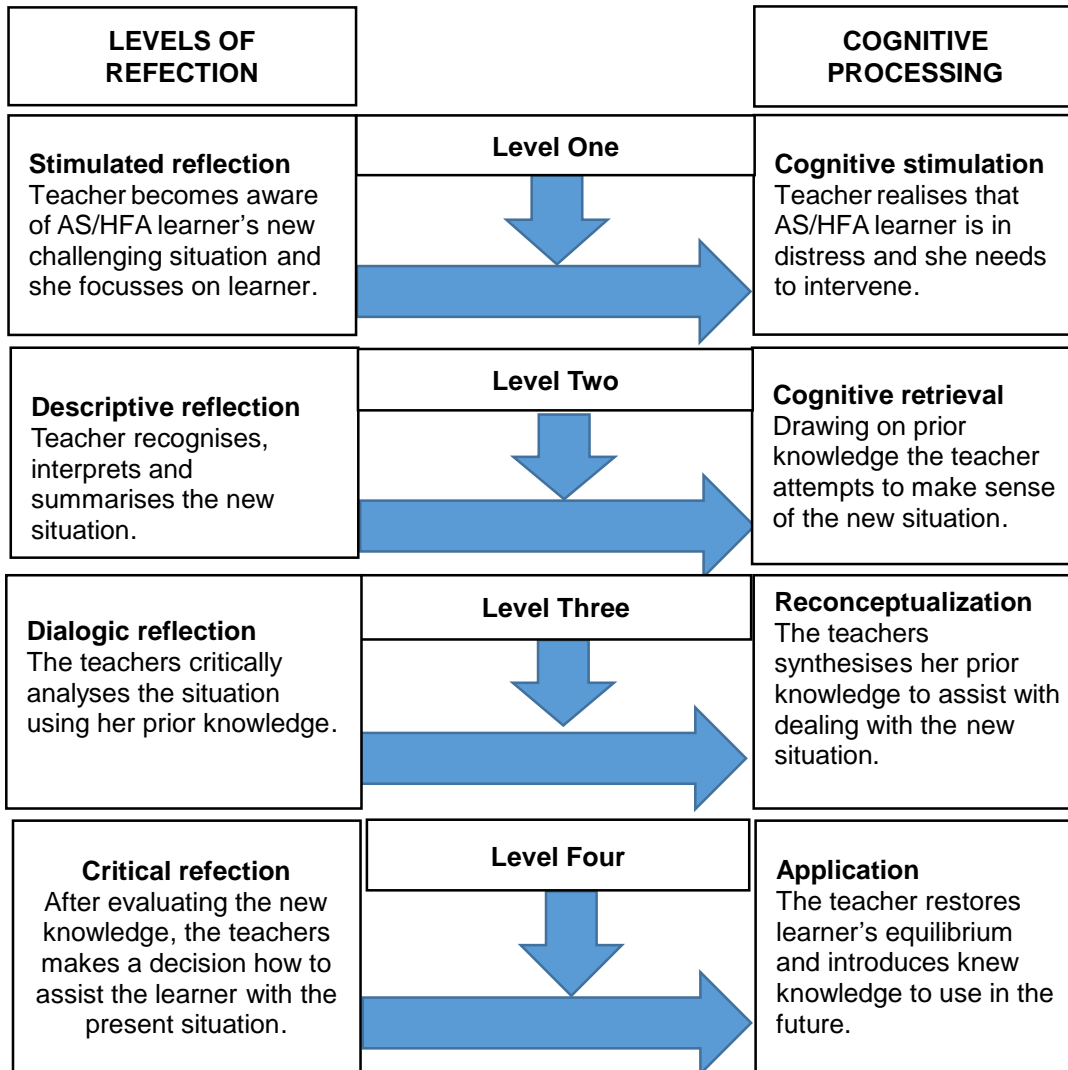
**Table 5.2:** Additional results of how Teacher GR assisted Learner L with behavioural adaptation challenges in preparation for Grade 4

Themes	Evidence of preparation by Teacher GR
1. Implementing secure, structured routines and processes to assist Learner L with behavioural adaptation challenges.	<b>Example 2</b> Teacher GR worked alongside the facilitator, who was permanently employed to support Learner L in the classroom; and <b>Example 3</b> Teacher GR pre-warned Learner L if she was aware of any sudden changes to her normal routine or procedures.
2. Assisting Learner L with appropriate social reciprocity skills during confusion and/or misunderstanding.	<b>Example 2</b> Teacher GR allowed an open social reciprocity policy to encourage participation to prevent confusion and/or misunderstandings.
3. Assisting with sensory adaptation due to sensory overload experienced by Learner L.	<b>Example 2</b> Teacher GR acknowledge Learner L's verbal comments, but insisted she waits till she could listen to her.
4. Assisting Learner L with the development of social and emotional behaviour regulation skills.	<b>Example 2</b> Teacher GR and the facilitator assisted Learner L with using appropriate BR skills.

**Table 5.3:** Additional results of how Teacher CJ assisted Learner E with behavioural adaptation challenges in preparation for Grade 4

Themes	Evidence of preparation
1. Implementing secure, structured routines and processes to assist Learner E with behavioural adaptation challenges.	<b>Example 2</b> Teacher CJ would pre-warn Learner E about change of daily routine and provide assistance.
2. Assisting Learner E with appropriate social reciprocity skills during confusion and/or misunderstanding.	<b>Example 2</b> Teacher CJ showed empathy and understanding to assist Learner E during social reciprocity.
3. Assisting with sensory adaptation due to sensory overload experienced by Learner E.	<b>Example 2</b> Teacher CJ used positive encouragement strategies to assist learner E with sensory challenges.
4. Assisting Learner E with the development of social and emotional behaviour regulation skills.	<b>Example 2</b> Teacher CJ always responded immediately when Learner E showed RI and EC challenges.

**Appendix 19**  
**Levels of reflection and cognitive processing (adapted from Strampel & Oliver, 2007)**



## Appendix 20 Invoice for Clip Art purchased



May 20, 2018  
Invoice / Order Id : 5612035





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Andre de Jager  
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South Africa  
0027833265243

**Payment Method**

**Credit Card:** mastercard \*3226  
**Trans ID:** 101033111  
**Auth ID:** 064732

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