CHAPTER ONE
INTRODUCTORY ORIENTATION AND STATEMENT OF THE PROBLEM

1.1 INTRODUCTION

Learners with Asperger's Syndrome could possibly be educated in inclusive education environments. As a result of the recent trend of 'inclusion' all teachers may be required to educate all learners in their regular classrooms. This research will attempt to explore the nature of Asperger's Syndrome as well as inclusive education in order to develop practical guidelines for teachers of learners with Asperger's Syndrome. These guidelines may enable the teachers to respond positively to the needs of these learners and ensure that their inclusion in the regular school is successful.

Asperger's Syndrome is characterised by serious impairments in social interaction skills and repetitive behaviours (Neihart 2000:222). Typically Asperger's Syndrome is triggered by the failure to adapt to a new social challenge (Tantam 2000:47-48). Attwood (2000:96) noted difficulties in social integration as a fundamental component of Asperger's Syndrome, yet the characteristic difficulties of this syndrome have only recently begun to be described. Besides the social impairments, learners with Asperger's Syndrome may encounter other impairments. However, the social and emotional impairments may be predominant and cause the most concern for teachers when including learners with Asperger's Syndrome into their regular classrooms. It is for this reason that, in this study, a greater focus will be given to these social and emotional impairments.

Today there is a dramatic increase in the number of learners diagnosed with Asperger's Syndrome particularly since the addition of this syndrome in the widely used *Diagnostic and statistical manual of mental disorders* (Simpson & Myles 1998:149). This increase in diagnosis may be explained partially in terms of a greater awareness of the impairments of Asperger's Syndrome. However, there is a view that there has been a real increase in the incidence of Asperger's Syndrome (Greenway 2000:469). Accordingly, learners with Asperger's Syndrome will all the more likely be part of an inclusive education setting (Greenway 2000:469).

The increase in the number of learners with Asperger's Syndrome is not something uniquely international. Many learners in South Africa are now being diagnosed with this syndrome and are found in inclusive education settings. This could be as a result of the new trend towards

inclusion of all learners in regular schools   Increasingly, teachers will be faced with the challenge of educating learners with Asperger's Syndrome in an inclusive education setting. Thus, teachers require practical guidelines because they may be unaware of the nature of this syndrome and of useful strategies to educate these learners in their regular classrooms. As Marks, Schrader, Longaker and Levin (2000:14) believe that familiarising teachers with the characteristic behaviours, learning styles and social needs of learners with Asperger's Syndrome becomes critically important for these learners to be successful, both socially and academically.

It must be asserted that in this study the abilities and the potential of the learners with Asperger's Syndrome will be accentuated. Notwithstanding their impairments, this study aims to show that learners with Asperger's Syndrome display many talents and capabilities. If teachers were sufficiently competent and were given guidelines to capitalise on these strengths, then these learners may be effectively included in any inclusive education setting.

The following rationale will place this research into perspective and explain the necessity for undertaking this study.

1.2 RATIONALE AND MOTIVATION FOR THE STUDY

1.2.1   Lack of research in South Africa

Until the present time, not much research has been done in the field of Asperger's Syndrome especially in the South African context.   The database search (*Index to South African Periodicals*) located only seven articles for the period 1997-2003. This necessitated the use of many valuable overseas literature sources for the theoretical background of this study. Asperger's Syndrome is a world wide phenomenon and not exclusive to South Africa – thus more research efforts have been undertaken overseas and much valuable research is internationally acclaimed.

As a result of this absence of research, there is a need for an investigation into the field of Asperger's Syndrome, in South Africa, especially with regard to the inclusion of learners with Asperger's Syndrome. This investigation would place the researcher in a favourable position to outline certain guidelines for the benefit of teachers which can assist them in responding to the needs of learners with Asperger's Syndrome in their inclusive classrooms.

1.2.2   Need to increase teachers' understanding of Asperger's Syndrome

In spite of the significant increase in the use of the term Asperger's Syndrome and the predictable interest among professionals (especially teachers, who are in contact with learners with Asperger's Syndrome) and families, there is still much misunderstanding regarding the syndrome (Simpson & Myles 1998:149). Much of the lack of understanding results from a lack of available information about Asperger's Syndrome (Simpson & Myles 1998:149).   Klin and Volkmar (1996:1) maintain that despite some new research leads, knowledge on Asperger's Syndrome is still very limited. Church, Alisanski and Amanullah (2000:12) concur that very little information is available that describes the social, academic, and behavioural experiences of learners with Asperger's Syndrome. Research on Asperger's Syndrome, in regard to scientific research as well as in regard to inclusive education settings, is only beginning. Questions remain regarding the nature of this puzzling syndrome, and what can be done to support those affected by it (Attwood 2000:86).

This study, therefore, aims to outline practical guidelines for the teachers of learners with Asperger's Syndrome and in so doing increase the teacher's understanding and ability to respond to the needs of learners with Asperger's Syndrome. Many teachers may not have even heard of the syndrome and may be ignorant of the best strategies of responding to the needs of learners with Asperger's Syndrome. Barnhill (2001:259) maintains that it is imperative to disseminate knowledge regarding the characteristics of Asperger's Syndrome so that this condition can be recognised early, and appropriate interventions can be provided to support learners with Asperger's Syndrome in coping successfully.

A comprehensive understanding of the impairments of Asperger's Syndrome is essential and will provide a powerful interpretation of a learner's unusual actions. With this knowledge, adults (and especially teachers) will appreciate that learners with Asperger's Syndrome are not necessarily trying to annoy them but rather trying to make sense of the confusing world in which they live (Barnhill 2001:264). Further, without appropriate education supports, the learners may be left to fend for themselves in a world where social cues hold little meaning and where repeated failure in interpersonal relationships creates anxiety and social rejection (Safran 2001:154). For this specific reason, this study will focus on the necessity of increasing the teacher's understanding of the nature of Asperger's Syndrome.

1.2.3 Fostering teachers' positive responses towards learners with Asperger's Syndrome in inclusive education settings

There is a shift towards the new trend of inclusion and inclusive education settings whereby no learner may be excluded from the regular school (Republic of South Africa (RSA) 1996:5). According to this policy all learners should be welcomed in general education classes in their local schools (Giangreco quoted by Naicker in Engelbrecht, Green, Naicker & Engelbrecht 1999:20). With this new inclusive approach everyone should be more tolerant and accepting of others, especially learners with Asperger's Syndrome who could become valuable members of the regular school community. Aylott (2000a:784) points out that learners with Asperger's Syndrome can and do make progress and can function within the non-Asperger's Syndrome world.

1.3 PROBLEM STATEMENT

The problem statement ensures that the researcher has a good grasp of the specific problem he or she wishes to investigate (Johnson & Christensen 2000:47).

A specific problem statement will also enable the researcher to communicate the research problem to others. Providing a specification of the study purpose at the outset also has the advantage of guiding the research process by, for example, indicating how and by what methods the data will be collected (Johnson & Christensen 2000:47). The problem statement merely indicates what is probably necessary to conduct the study and explains that the findings will present this information (McMillan & Schumacher 1997:84).

For the purpose of this research on Asperger's Syndrome, two problem statements were devised. These will keep the study focused and ensure that the readers of this research know what outcomes are envisaged (in other words what the study expects to accomplish).

1. What is the nature of Asperger's Syndrome?
2. How will an understanding of inclusive education empower the researcher to develop certain practical guidelines for teachers of learners with Asperger's Syndrome in inclusive education settings?

1.4 AIMS OF THE RESEARCH

From the above mentioned three rationales (lack of research and knowledge of Asperger's Syndrome as well as the new trend of inclusion), the main aim of this research can be distinguished - to develop practical guidelines for teachers to support learners with Asperger's Syndrome in inclusive education settings. To reach this aim, the following specific objectives are necessary:

- To make a study of the nature and scope of Asperger's Syndrome (its history, causes and impairments).

- To undertake a literature study and investigate learners with Asperger's Syndrome in inclusive education settings (especially according to the major themes of the inclusion policy), and to understand the correct methods of responding to the diverse needs of these learners to ensure that their inclusion is productive and successful.

- To collect data from the parents of learners with Asperger's Syndrome regarding their impairments and the barriers that these learners have experienced in inclusive education settings.

- To observe the learners with Asperger's Syndrome in their inclusive education settings and determine what guidelines may be offered to the teachers of these learners to support them in their endeavours.

- To interpret the findings from the interviews of the parents and the observation of the learners and formulate guidelines for teachers to support these learners.

The following section explains relevant concepts regarding this research.

1.5 EXPLANATION OF RELEVANT CONCEPTS

It is important for the researcher and the readers to have a clear understanding of the principal terms which will be utilised throughout this study. Thus, in each case the term's specific meaning relevant to this research will be emphasised. This section will divided into three parts namely: Asperger's Syndrome; impairments of learners with Asperger's Syndrome and inclusive education settings.

1.5.1 Asperger's Syndrome

Among the several definitions of Asperger's Syndrome, the DSM-IV (American Psychiatric Association 1994:74-75; http:www.geocities.com/Athens/Troy/1807/criteria.html 1997:1-3) version is the most widely cited in the United States. While the symptoms of Asperger's Syndrome overlap with other conditions, it is often the unique combination of behaviours in social interaction and restricted areas of interest that baffles professionals and parents alike and commonly leads to misdiagnosis. Thus, the DSM-IV definition contains two primary clusters of traits that must be present to qualify for a diagnosis of Asperger's Syndrome. The first primary cluster is a qualitative impairment in social interaction. Accordingly, two of the following four must be observed:

- Marked delays in nonverbal behaviours (i.e. gesturing, facial expression, body posture).
- Impairments in establishing peer relationships.
- Absence of 'spontaneous seeking to share enjoyment, interests or achievements with others'.
- Delays in social reciprocity (American Psychiatric Association 1994:75; http:www.geocities.com /Athens/Troy/1807/criteria.html 1997:1-3).

The second major DSM-IV trait describes the individual's restricted areas of interest, and stereotyped behaviours and activities. One of the following has to be present:

- Preoccupation with one restricted area of interest.
- Inflexibility or rigidity, sticking to a set, sometimes non-functional routine.
- Stereotyped and repetitive motor movements.
- Preoccupations with parts or objects (American Psychiatric Association 1994:75; http:www.geocities.com /Athens/Troy/1807/criteria.html 1997:1-3).

Asperger's Syndrome (originally described by Hans Asperger in 1944) has been viewed as a form of autism (Ringman & Jankovic 2000:394), either as a less severe form of autism, or as a separate condition in its own right, but is unarguably part of the autistic continuum (Connor 1999:81). The autistic spectrum consists of a group of disorders of development with life-long effects and that have in common a triad of impairments in: social interaction, communication, imagination, and behaviour (narrow and repetitive pattern of behaviour) (Wing 1997b:1761). It was Wing (quoted by Tsai 2000:139-140; Wing 1981:124, Wing 1997b:1761) who suggested that Asperger's Syndrome be considered a part of the autistic continuum and that Asperger's Syndrome could be a mild variant of autism in relatively bright children.

The concept of an autistic continuum highlights the range, in terms of a number or severity of symptoms, the individual learners may experience. At one extreme, there are learners who require very specialist care and provision which will necessarily continue into adulthood, and, at the other extreme, there are learners who can successfully and meaningfully be included within a regular school (Connor 1999:81).

For the purpose of this study the following working definition of Asperger's Syndrome will be utilised. Asperger's Syndrome will be regarded as a pervasive developmental disorder. According to Grieg (1998:16) a developmental disorder must significantly limit functioning in three or more of the following life activity areas: communication abilities; learning capacity; capacity for economic self-sufficiency; capacity for independent living; self direction; cognitive functioning; mobility; have originated before the person reaches age twenty-two; be chronic; require life long treatment or services; be a significant handicap to that person's ability to function normally in general society.

Pervasive developmental disorder can thus be understood as a general term referring to a spectrum of disorders that differs with respect to the number or type of symptoms or age at onset (Searcy, Burd, Kerbeshian, Stenehjem & Franceschini 2000:699; Stoddart 1998:45; Szatmari, Bryson, Streiner, Wilson, Archer & Ryerse 2000: 1980). Pervasive developmental disorders are those syndromes which are characterised by severe and pervasive impairment of reciprocal social skills, communication or the presence of stereotyped interests and activities (American Psychiatric Association 1994:75), in other words a less acute type of autism, but nevertheless a syndrome whose impairments may cause numerous difficulties for the learners.

The term Asperger's Syndrome will be utilised synonymously with the terms autistic spectrum disorder (ASD) and high functioning autism. It is felt that this will cause less confusion and it is the most popular term utilised in the literature.

A comprehensive and appropriate understanding of the term Asperger's Syndrome is a core element in ensuring that the researcher is in a position to outline guidelines which teachers can utilise in their inclusive classrooms when confronted with the impairments of learners with Asperger's Syndrome.

1.5.2   **Impairments of learners with Asperger's Syndrome**

1.5.2.1 Impairments

In the introduction, it was stated that Asperger's Syndrome is characterised by serious impairments. In the second rationale of this study it was also stated that an understanding of the impairments of Asperger's Syndrome is essential for teachers to respond correctly to the needs of learners with Asperger's Syndrome in the inclusive classroom. Impairment is defined as something or somebody which is damaged or weakened especially in terms of its quality or strength (Concise Oxford Dictionary 1996:827, s.v. "impairment").

Impairment refers to a specific impairment which a particular person has, for example, an intellectual impairment or visual impairment. The causes are permanent in nature and cannot be removed (intrinsic factors) - factors located within the person. Barriers to learning and development occur where the diverse range of needs of the learner population are not met and lead to learning breakdown (Department of Education 1997:v).

If the system, context or society impedes such individuals to the extent that they cannot achieve what they could achieve with their abilities the impairment may become a 'disability'. *The White Paper on an integrated national disability strategy* (South Africa. Office of the Deputy President 1997:10-11) explains disability:

- "... as a human right and development issue
- as resulting from factors in the social environment
- in terms of a social model of disability and NOT a medical model."

A disabled person means that this person has a physical or physiological impairment, who does not receive adequate education or whose environment restricts him or her to develop his or her full potential. If the system is addressed to accommodate persons with impairments, then they would be able to live with their impairments and need not be viewed as disabled. Thus an impairment does not necessarily put the learner at a disadvantage (Burden nd:5-6).

In order to accommodate the learner, the main principles of the social model of disability (discussed in chapter three) will be adopted for this study. *The White Paper on an integrated national disability strategy* (South Africa. Office of the Deputy President 1997:10) argues that the social model is based on the belief that the circumstances of people with disabilities and the discrimination they face are socially created phenomena and have little to do with their

impairments. A more positive and tolerant school environment could be created, if the learners with Asperger's Syndrome impairments were accepted and if the schools prepared to adjust to their unique needs, instead of requiring the learners to adapt to the school system. The principles of the social model will underpin the specific guidelines developed by the researcher for the teachers of the learners with Asperger's Syndrome.

1.5.2.2 Learners

Learner can be defined as any person ranging from the phase of early childhood development to the phase of adult education, who is involved in any kind of formal or non-formal education and training activity or any person who receives or is obliged to receive education (Dictionary of South African Education and Training. 2000:95, s.v. "learner").

The term learner refers to a person studying in ordinary public schools and replaces the terms pupil and student (Dictionary of South African Education and Training. 2000:95, s.v. "learner").

According to the Department of Education (1997:vii), the term learners refers to all learners, ranging from early childhood education through to adult education. This research will focus on learners with Asperger's Syndrome.

1.5.2.3 Learners with Asperger's Syndrome

With regard to this study the term learners with Asperger's Syndrome will refer to learners diagnosed with Asperger's Syndrome and found in a school environment. It is important for this research that the learners have, for some time during their school career, been included in the regular school (even if there has been a change to a special school). This will enable the researcher to determine those aspects which may promote the inclusion of the learners and thus develop practical guidelines for teachers of these learners who may now be found in inclusive classrooms.

In the definition of the concept Asperger's Syndrome, given by the American Psychiatric Association (1994:74-75; see also 1.5.1), the social and emotional impairments of learners with Asperger's Syndrome were shown to be the most significant and one of the first signs of this syndrome. Thus the social and emotional impairments will be regarded as predominant and distinguishing attributes of this syndrome in this study. A greater focus will be given to these

impairments even though the learners often encounter other impairments (for example motor impairments, cognitive, language, and so forth). The researcher will attempt to clarify how the social and emotional impairments often impinge on these other impairments. Thus, when outlining guidelines for teachers, a greater emphasis will be placed on the social and emotional impairments as the teacher may find that these impairments impede the learner's inclusion in the regular class.

As mentioned, with the growing momentum for inclusion of all learners in the regular school and the realisation that it may not always be in the best interests of learners with Asperger's Syndrome to be grouped together in classes, it is likely that many learners who might previously have attended special schools, will now be educated in inclusive education settings (Connor 1999:80).

1.5.3 Inclusive education settings

1.5.3.1 Inclusion

The recent movement towards inclusive education promotes a single system of education dedicated to ensuring that all learners are empowered to become caring and competent citizens in an inclusive, changing and diverse society (Hall & Engelbrecht 1999:230). The policy of inclusive education stipulates that all learners have the right to access a learning environment that values, respects and accommodates diversity and that provides education appropriate to the learners' needs within an integrated system of education (Bothma, Gravett & Swart 2000:200). UNESCO (2001:21) concurs with this sentiment when it states that inclusive education is about ensuring the rights to education of all learners, regardless of their individual characteristics or difficulties, in order to build a more just society.

The *Education White Paper 6. Special needs education: Building an inclusive education and training system* (Department of Education 2001:17), argues that:

> *Inclusion is about recognising and respecting the differences among all learners and building on their similarities.*

It goes on to argue 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 the development of good teaching strategies that will be of benefit to all learners.

This term inclusion implies more than just the placement of a learner with a disability into a regular school. Inclusion emphasises the need to reconsider and reform schools in order to cater for all learners, rather than focusing on how a learner with a disability will need to adapt to fit into the regular class (Forlin & Engelbrecht 1998:215-216). It requires an increase in support and resources in regular schools proportionate to the severity or complexity of specific learners in the school (Farrell 2000:35).

Clearly the term inclusion refers to the extent to which a school or community welcomes all people as full members of the group and values them for the contribution they make (Farrell 2001:7). For inclusion to be effective all learners must actively belong to, be welcomed by and participate in a school and community, that is, they should be fully included. Their diversity of interests, abilities and attainment should be welcomed and be seen to enrich the life of the school (Farrell 2001:7). An inclusive school is a place where everybody belongs (Lewis & Doorlag 1995:543), and all learners may be capably educated.

1.5.3.2 Education
The concept education is defined as the process of teaching; to give knowledge to someone; to instruct someone in a skill or help them to learn (Concise Oxford Dictionary 1996:419, s.v. "education"). According to Dinnebeil and McInernery (2000:20), teaching is a complex activity and one that is dependent on the skills and characteristics of learners as well as the skills of the teacher.

According to Du Toit and Kruger (quoted by Ntuli 1998:6), education refers to the help and support which the learner receives from an adult with a view to attaining adulthood. Furthermore, education supposes a deliberate and purposeful action whereby the teacher teaches the learner with a view to becoming an autonomous and responsible adult and a valuable participant in his society (Ntuli 1998:6).

According to Curzon (quoted by Ntuli 1998:6-7), education is concerned generally with the transmission of beliefs and moral standards, accumulated knowledge and skills. It has been viewed as the nurturing of the human personality and as an investment in human potential. In

essence, it is a recognition of the fact that society's way of life must be learned, since an understanding of it is not inherited by birth.

Education should be of value to all learners. It should, therefore, provide for the education of all learners. Education, which includes the schools, teachers, learners and parents and communities, should collectively be responsible for all learners. An ethos or atmosphere of shared responsibility should therefore be established at centres of learning (which include all schools). Education must be undiscriminatory and must respect diversity and strive to foster equal learning and excellence for all learners (Burden nd:4).

In summary, inclusive education is about developing regular schools which are capable of meeting the needs of all learners (UNESCO 2001:22).

1.5.3.3 Regular schools

School is defined as "… a place or institution where education is received, especially primary or secondary education …" (Concise Oxford Dictionary 1996:1256, s.v. "school").

The new trend towards inclusion now sees a change in the functions of regular schools. In a school where there is inclusion, a teacher shares the responsibilities of a diversity of learners with the learning support teacher in that school and with other support staff (education support services of districts, special schools and so forth) in order to teach all learners. Collaboration with other teachers which includes team teaching (teaching in a team, a team of teachers who teach one class), and cooperation with parents and persons in the community who are able to assist with learning support in the classroom, will become commonplace (Landsberg, Dednam & Nel 1999:3-4).

For the purpose of this research, the term school will be used to refer to any regular school in which learners with Asperger's Syndrome may be included in the classroom, and in which teachers attempt to achieve the best education for these learners. In order to promote this process teachers require practical guidelines which they can utilise in their challenging journey of successfully educating learners with Asperger's Syndrome in their inclusive classrooms.

1.5.3.4 Teachers

The term educator refers to any person who teaches, educates or trains other persons at an education institution or assists in rendering education services or education auxiliary or support services provided by or in an education department (Dictionary of South African Education and Training 2000:59, s.v. "educator").

According to the Department of Education (1997:vi), an educator " … is a person whose work involves educating others at all levels of education, in any type of education and training context, including formal and informal."

Although the term educator is now commonly used, preference will be given to the term teacher as this is the term found more regularly in the literature. For the purpose of this research the term teacher will be used to refer to any person who teaches in a regular school. Traditionally, teachers referred learners who did not fit into the traditional curriculum to the auxiliary services of the different education departments for diagnosis, remediation and possible placement in special schools. The result of this was that the responsibility for providing learning support to a diversity of learners was taken away from the teacher and given to others beyond the immediate circle of the school (Landsberg et al 1999:3). With respect to the new policy of inclusion, teachers may have to educate learners with Asperger's Syndrome along with the other regular learners in their classrooms and may no longer refer them to other authorities (like special schools). Teachers may, however, be oblivious of this syndrome and all the implications that it has for educating such a learner in the regular class. For this reason practical guidelines are a fundamental part in ensuring the success of such a process.

1.5.3.5 Parents

Research has proven that when parents are involved in the education of their children, the assistance given is more meaningful and the outcome much more positive (Du Toit 1997:145-146; Hanko 1995:84; Sibaya in Engelbrecht, Kriegler & Booysen 1996:88). Parents can, for instance, provide information on how the learner behaves outside the school, identifying strengths and difficulties that may not be apparent in the classroom (UNESCO 2001:64).

In the *South African schools Act. Act 84 of 1996* the involvement of parents in the education of their children is endorsed. This means that parents not only have the right but also the

responsibility to be involved in the education of their children (Republic of South Africa (RSA) 1996:3;6;8;17).

When the term 'parents' is utilised it includes all those who act as caregivers of learners. In terms of the *South African Schools Act. Act 84 of 1996* (Republic of South Africa (RSA) 1996:3), the term parent refers to the:

1. parent or guardian of a learner
2. person legally entitled to custody of a learner
3. person who undertakes to fulfil the obligations of a person referred to in 1 and 2 towards the learner's education at school.

This definition includes any combination of adult care-givers and thereby acknowledges the reality of a society in which a variety of family types and parents are found (Van Wyk 1998:132-133).

Parents are not a homogeneous group. They manifest a variety of attitudes relating to their children's problems such as shock at learning about the problems, feelings of guilt that something they may have done could be the cause of the child's learning problems, overprotection because they feel sorry for their child, or denial of the problem and hope that by denying it, it will go away. Sometimes because parents are unaware of their children's learning problems, they are shocked and indignant to hear that their children could be doing far better than they actually are. This sometimes gives rise to anger towards the teacher (Landsberg et al 1999:33).

In this research it will be argued that it is essential for parents of learners with Asperger's Syndrome to be involved as much as possible in the education of their children as without this involvement there may be little chance of success for the learner in an inclusive education setting. The achievement of success in school depends on a triangle of interaction of three elements, namely the teacher, the parent and the learners. Any form of intervention that excludes members of a family and the community at large seems to be ineffective (Sibaya in Engelbrecht et al 1996:88). Soodak and Erwin (2000:40) maintain that with a firm commitment and understanding of parents' perspectives, professionals and parents in inclusive settings can work in partnership to achieve positive outcomes for learners as well as themselves. Parents often know their child better than anyone else and are thus in the best position to judge what

services and supports are needed (Goble 1995:23-24). They may give teachers and other specialists rapid feedback on the effectiveness of their work with the learners (UNESCO 2001:64). As Moore (1999:177) argues a school can be judged to be more or less inclusive by how it deals with parents.

1.5.3.6 Inclusion of learners with Asperger's Syndrome

Teachers may need support in their endeavours of including all learners in their inclusive classrooms, especially learners with Asperger's Syndrome who may now be encountered in the inclusive classroom. Defining support is not an easy task because support is a multi-dimensional concept that includes many different aspects. UNESCO (2001:71) maintains that support includes everything that enables learners to learn. It includes all those activities which increase the capacity of a school to respond to learner diversity (Booth, Ainscow, Black-Hawkins, Vaughan & Shaw 2000:11). To enable the researcher to outline the practical guidelines, the following definition of support was chosen: "… to give encouragement or to advocate something…" (Concise Oxford Dictionary 1996, s.v. "support"). This definition encompasses exactly what this research is aspiring to achieve – namely the outlining of certain practical guidelines to be able to support the teachers in their challenging task of including learners with Asperger's Syndrome in their regular classrooms. These guidelines may be essential for teachers of learners with Asperger's Syndrome considering that many may not have heard of the syndrome and thus are not in a position to include successfully these learners in their classrooms.

In this research it will be argued that learners with Asperger's Syndrome can be rewardingly included and be made to feel a worthwhile part of an inclusive learning environment, which is an 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 (Department of Education 1997:vi-vii). An inclusive learning environment is one which is free from discrimination, segregation and harassment and which intentionally tries to facilitate an atmosphere of mutual acceptance and respect. It is an environment which respects learners and values them as partners in teaching and learning. It respects the rights of all learners and enables them to participate fully in a democratic society (Department of Education 1997:vi-vii). However, as will be elucidated in chapter three, careful consideration perhaps needs to be given to a number of factors to ensure that this process of inclusion of learners with Asperger's Syndrome

proceeds smoothly. These factors may provide valuable background information for the researcher to utilise when outlining the practical guidelines for the teachers of these learners.

1.6 RESEARCH DESIGN

The use of an appropriate research design will ensure that the actual research is conducted in a methodical manner, and that accurate and relevant information regarding the inclusion of learners with Asperger's Syndrome is obtained.

Research design refers to the plan and structure of the investigation used to obtain evidence to answer research questions. The research design describes the procedures for conducting the study, including when, from whom, and under what conditions the data will be obtained. In other words, design indicates how the research is set up; what happens to the subjects and what methods of data collection are used (McMillan & Schumacher 1997:33; Meyer 1995:280).

A qualitative research design was chosen in order to perform this research. This is considered to be the necessary structure for the researcher to gain required information and understanding on the nature of learners with Asperger's Syndrome in an inclusive education setting.

1.6.1 Qualitative research design

According to Cresswell, (quoted by Bisschoff & Sayed 1999:312) a qualitative study can be regarded as:

> *... an inquiry process of understanding a social or human problem based on building a complex, holistic picture, formed with words, reporting detailed views of informants and conducted in a natural setting.*

Qualitative researchers tend to rely on the inductive mode of the scientific method and the major research objective of this type of research is exploration or discovery. They generally study a phenomenon in an open-ended way, without prior expectations, and they develop hypotheses and theoretical explanations that are based on their interpretations of what they observe. While observing, qualitative researchers try not to draw attention to themselves. That is, they try to be unobtrusive so that they will have little influence on the naturally occurring behaviour being studied. Qualitative researchers view human behaviour as dynamic and changing, and they advocate studying phenomena in depth and over an extended period of time. The product of

qualitative research is usually a narrative report with rich description (vivid and detailed writing) rather than a statistical report (Johnson & Christensen 2000:312).

A qualitative research design is not entirely pre-planned. It is flexible and emerges during the research. Typically, the qualitative researcher selects a topic and generates preliminary questions at the start of a research study. The questions can be changed or modified, however, during data collection and analysis if any of the questions are found to be naive or less important than other questions. This is one of the reasons that qualitative research is often said to be an emergent or fluid type of research (Johnson & Christensen 2000:312). This flexibility made it attractive for the researcher, ensuring that if further information was required it could be collected during the study.

The literature study is a core part of ensuring the success of the final outcome of this research, namely the setting out of practical guidelines for teachers of learners with Asperger's Syndrome in inclusive education settings.

1.6.2 Literature study

In order to conceive the research topic in a way that permits a clear formulation of the problem, some background information is necessary. This is obtained mainly by reading whatever has been published that appears relevant to the research topic. This process is called a literature review (Bless & Higson-Smith 1995:22).

To begin this research an investigation of relevant literature will be undertaken. The purpose of this will be to assist in describing relevant ideas and to form a theoretical basis for this research. This may provide a more comprehensive understanding of the nature of Asperger's Syndrome and inclusion to enable the researcher to outline the necessary guidelines for the teachers of these learners. To aid this process ethnographic research will be conducted.

1.6.3 Ethnographic research design

One of the most common used labels of qualitative research is ethnography (Schurink in De Vos 1998:240). It was felt that such an ethnographic design would be the most suitable considering the proposed research topic and would enable the researcher to obtain the necessary required information regarding the nature of Asperger's Syndrome and the inclusion of these learners in the regular school.

The word ethnography literally means 'writing about people' (Johnson & Christensen 2000:29). In a broad sense, ethnography encompasses any study of a group of people for the purpose of describing their socio-cultural activities and patterns. In ethnography, people are not subjects; they are experts of what the ethnographer wants to find out about (Burns 2000:393; Johnson & Christensen 2000:29).

As a set of methods, ethnography is not far removed from the sort of approach that we all use in everyday life to make sense of our surroundings. It is less specialised and technical in character than approaches like the experiment or the social survey (Hammersley 1998:2). In the final analysis this method helps to "… make sense of personal stories and the way in which they intersect …" (Marks et al 2000:3). This unspecialised nature of ethnography as well as the fact that as a method it helps to give meaning to personal encounters made this approach particularly appealing to the researcher.

In regard to this research on the inclusion of learners with Asperger's Syndrome, the parents of these learners can be regarded as experts and essential elements, because of their practical experience gained from being a constant part of their child's lifes. As a consequence it is felt that these parents have accumulated vast indispensable knowledge which the researcher can utilise and as result the parents of learners with Asperger's Syndrome would comprise the sample for this research.

1.6.4   Sampling

Sampling, according to Arkava and Lane (quoted by Strydom & De Vos 1998:191), can be defined as "… the element of the population considered for actual inclusion in the study." It can also be viewed as a subset of measurements drawn from a population of interest. The sample is studied in an effort to understand the population from which it was drawn.

The following criteria will be applied when selecting the sample for this particular study:
1. Parents (mothers, fathers, or guardians) of learners with Asperger's Syndrome.
2. The learners must have been diagnosed as having Asperger's Syndrome by a psychiatrist, neurologist or doctor.
3. Preference will be given to parents of learners with Asperger's Syndrome attending an inclusive education setting - although learners with Asperger's Syndrome attending a special

school may be utilised providing they have attended a regular school at some time during their school career.

4. Learners could be of any age - although preference will be given to primary school learners as it is believed that any guidelines outlined in this research for effective inclusion of learners with Asperger's Syndrome may be more effective during these years than in later years.

5. Participation in the research must be of a voluntary basis and participants must not feel that they have been forced to participate.

6. Interviews with the parents will be conducted until it is felt that all relevant issues have been discussed and there is nothing more forthcoming. For this study it was decided that initially, eight parents of learners with Asperger's Syndrome would be interviewed.

7. It will also be possible that additional informants will be interviewed or questioned depending on the outcome of the meetings with the initial respondents. If the researcher feels that insufficient information to complete this research has been gathered from the initial respondents, then other parents may be approached for permission to be interviewed.

8. The learners with Asperger's Syndrome would also be observed for some time in order to gain understanding of their impairments and the challenges which inclusion may produce for them.

1.6.5   Observation

In research, observation is defined as the unobtrusive watching of behavioural patterns of people in certain situations to obtain information about the phenomenon of interest (Johnson & Christensen 2000:147).

In this research learners with Asperger's Syndrome will be observed in order to attempt to discover whether the impairments listed in the literature review (the focus of chapter two) are evident in these learners. The learners' (in inclusive education settings) interaction with their teachers and peers will also be observed to ascertain how they respond to their peers as well as the adults around them. This could also help determine the necessary guidelines which can be offered to the teachers of these learners to ensure their constructive inclusion in the regular school.

With regard to this research, the researcher intends to take on the role of a participant observer.

1.6.5.1 *The role of the researcher: participant observation*

Participant observation has been defined by Denzin (quoted by Flick 1998:141) as:

> *… a field strategy that simultaneously combines document analysis, interviewing of respondents and informants, direct participation and observation, and introspection.*

The parents of the learners with Asperger's Syndrome will be asked for permission to allow the researcher to observe their children in their natural settings (both at home and school). The teachers will be asked if the researcher can spend some time during the school day observing these learners with Asperger's Syndrome. The main reason for this is so that the researcher can observe how these learners interact socially with their peers and adults. It will also allow the researcher to establish the validity of the answers given during the interviews. By observing the learners the researcher may be able to come to consensus between what was actually observed and the information gained from the literature study as well the interviews.

1.6.6   Ethnographic interview

Valle and Halling (quoted by Sherman 1997:49) describe the interview as being

> *... an interpersonal engagement in which subjects are encouraged to share with a researcher the details of their experience. The focus of the interview is on the life-world or experience of the interviewee and is theme orientated, not person orientated. The interview seeks to describe and understand the meaning of the central themes of the experience being investigated. The interview seeks descriptions of the experience itself without the subject's interpretation or theoretical explanations.*

As already mentioned, with regard to this research eight parents of learners with Asperger's Syndrome will be interviewed. The parents will be interviewed to obtain their views on the nature of Asperger's Syndrome and any ideas that they may have for successfully including the learners in the regular school. If, after the interviews, the researcher is of the opinion that sufficient information for the outlining of the guidelines for teachers has not been gained, additional parents would be incorporated into the study. An unstructured interview with a schedule will be utilised.

1.6.6.1 Unstructured interview with a schedule

The unstructured schedule contains a small number of topics or themes that the researcher wants to cover during the interview. However, the sequence of the interview will differ from interview to interview since the natural flow of conversation is followed (Gorman & Clayton 1997:126).

The topics for the unstructured interview will be identified during the literature research which may bring to light relevant questions for the researcher to ask during the interviews with the parents.

Once the observation and the interviews have been completed, data analysis and interpretation will then be performed.

1.6.7   Data analysis and interpretation

Data analysis is the process of bringing order, structure and meaning to the mass of collected data. It does not proceed in a tidy linear fashion. Rather, it is a messy, ambiguous, time-consuming, creative and fascinating process. The purpose of this process is to search for general statements about relationships among categories of data (Gorman & Clayton 1997:200).

Concerning this study regarding guidelines for the inclusion of learners with Asperger's Syndrome, it is the researcher's intention to use the same main themes which emerge from the literature studies (chapter two and three) and attempt to discover if these correlate with the information gleaned from the empirical study (chapter four). These major themes (from the literature study, interviews of the parents and observation of the learners) may place the researcher in a very propitious position to outline the necessary guidelines for the teachers of these learners in inclusive education settings. Before this can be attempted, the reliability of information gained from the interviews and observations needs to be discussed.

1.6.8   Reliability

In ethnographic research, the reliability of research results entails whether or not (or under what conditions) the ethnographer would expect to obtain the same finding if he or she tried again the same way (Peräkylä in Silverman 1997:203).

To ensure the reliability of this study, numerous strategies would be employed. Fieldwork would be conducted which will allow for corroboration to ensure the match between findings

and participants' reality. Attempts would be made to use low-inference descriptors through the use of tape recorders and field notes during the interviews (McMillan & Schumacher 1997:393). Once the interview has been conducted each participant would be asked to review the synthesis for accuracy of representation. It must be noted, however, that in interviewing the parents the researcher must exercise extreme caution and understanding because of the sensitivity of the issues discussed. The researcher should also be conscious that there may be a tendency for the parents to withdraw or be reluctant to offer information. Nevertheless, the parents are an essential and valuable source in ensuring the accuracy of the research undertaken. The observation undertaken could also help with ensuring the reliability of this research. By undertaking observation the researcher may be able to determine whether what occurs in the learners' natural inclusive setting correlates with the interviews and the information found in the literature research.

1.7 DIVISION OF CHAPTERS

This dissertation will comprise of five chapters. These are briefly outlined in this section.

➢   Chapter One: Introductory orientation and statement of the problem. This chapter is an overview of the study, rationale, problem formulation, problem statement, aims set for this research, definitions of concepts and description of the choice of the research methodology. This chapter places the study in perspective and orientates the reader to the nature of this study.
➢

➢   Chapter Two: The nature of learners with Asperger's Syndrome.   In this chapter the history and causes of Asperger's Syndrome will be debated. Seven impairments characteristic of Asperger's Syndrome will be discussed namely: social, emotional, cognitive, language, narrow interests and repetitive routines (inflexibility), motor clumsiness and sensory sensitivity. This chapter is essential for answering the first problem statement of this research, regarding the nature of Asperger's Syndrome. In this chapter it will also be shown that the social and emotional impairments of learners with Asperger's Syndrome are the most significant. Hence in the outlining of practical guidelines for teachers of these learners it may be necessary to emphasise these impairments so that teachers have a deeper understanding of how to respond to these diverse needs in their inclusive classrooms.

Chapter Three: Understanding learners with Asperger's Syndrome in inclusive education settings. In this chapter the policy of inclusion, and specifically the inclusion of learners with

Asperger's Syndrome will be debated. This chapter will begin with an exposition of the major trends towards inclusion. The new social model of disability will be a major theme of this chapter and here the necessity to respect the diversity of learners with Asperger's Syndrome and the changing of any negative attitudes towards these learners will be dealt with. The importance of the effective utilisation of various support networks (specifically parent empowerment) will then lead the chapter onto a discussion of in-service (and pre-service) training for teachers of learners with Asperger's Syndrome. This training prepares teachers to adapt the curriculum towards the needs of these learners (in other words the adoption a flexible curriculum), as well as the effective utilisation of visual aids.

Chapter Four: Research design and results. In this chapter the research design chosen for this study will be discussed in more detail. A summary of the empirical research will be given and finally the results of the interviews and observation undertaken will be discussed. As mentioned previously eight parents of learners with Asperger's Syndrome will be interviewed. The learners with Asperger's Syndrome will also be observed in their natural settings.

Chapter Five: Conclusions, recommendations and limitations. In this chapter the guidelines for teachers of learners with Asperger's Syndrome will be set out. This chapter will also discuss recommendations for further research. Finally any limitations of this research will be outlined. Final concluding remarks will be made.

1.8 CONCLUSION

This chapter has been critical for orientating and setting the focus of the research and ensuring that the research remains focused on its major theme, namely the outlining of practical guidelines for teachers of learners with Asperger's Syndrome in inclusive education settings. This has been accomplished by outlining the three rationales, the problem statement, defining the major concepts and describing the research design. The following chapter of this study will discuss the nature of Asperger's Syndrome and the actual impairments faced by these learners. This will hopefully increase both the researcher's and teacher's insight into the world of these learners.

CHAPTER TWO
THE NATURE OF LEARNERS WITH ASPERGER'S SYNDROME

2.1 INTRODUCTION

In chapter one it was stated that the main aim of this research is to develop practical guidelines for teachers to support learners with Asperger's Syndrome in inclusive education settings. It was also mentioned that to reach this aim a study of the nature and scope of Asperger's Syndrome (its history, causes and impairments) would be undertaken. Bauer (1996:9) points out the most important starting point in helping a learner with Asperger's Syndrome to function effectively in school is for the teachers (in fact all who will come into contact with the learner) to realise that the learner has an inherent developmental disorder which causes him or her to behave and respond in a different way from other learners. Too often, behaviours in these learners are interpreted as emotional, or manipulative, instead of the insight that they respond differently to the world and its stimuli (Bauer 1996:9).

This second chapter presents a literature review of the nature of the main impairments which are found in learners with Asperger's Syndrome. It was stated in chapter one that Asperger's Syndrome is currently characterised by significant impairments in social interaction and emotional relatedness (Tantam 2000:47). Thus, a greater focus will be given to the social and emotional impairments, noting, however, that there are other impairments (for example, cognitive, language, narrow interests, repetitive routines, motor and sensory sensitivity impairments). In each case it will be attempted to associate these to the social and emotional impairments. As Greenway (2000:470) points out no matter how Asperger's Syndrome is defined, there is no dispute regarding the centrality of the social impairments.

In this chapter a holistic perspective of learners with Asperger's Syndrome will be adopted because it is felt that the learners and their impairments cannot been seen in isolation but should be seen in their totality. The social impairments which are dominant in the learners with Asperger's Syndrome may encroach on, and even prompt the other impairments and can possibly impinge on the learner as a person-in-totality.

To begin this chapter it is important to understand the history as well as the causes of Asperger's Syndrome because this can give important background knowledge of this syndrome.

2.2 HISTORY AND CAUSES OF ASPERGER'S SYNDROME

2.2.1   History of Asperger's Syndrome

Hans Asperger first described the syndrome in 1944 (Asperger in Frith 1991:37). He was an Austrian psychiatrist and educator (Perlman 2000:221). Hans Asperger (1906-1980) lived and worked in Vienna. He qualified as a doctor and specialised in paediatrics. His work brought him into contact with a number of boys who found it difficult to 'fit in' socially. In addition to their poor social interaction skills, the boys had difficulties with the social use of language, together with a limited ability to use and understand gesture and facial expression. Also evident were repetitive, stereotypical behaviours, often with 'abnormal fixations' on certain objects (Cumine, Leach & Stevenson 2000:1).

Having noted the similarities in the behaviour of a number of these boys, Asperger, in 1944, wrote and presented his paper *Autistic psychopathy in childhood*. He recognised how severely the boys' impairments affected their everyday lifes, commenting that teachers despaired at the torturous efforts required of them (Asperger in Frith 1991:76).

Asperger was also aware of the boys' many positive features - they often had a high level of independent thinking, together with a capacity for special achievements - but he did not underestimate the impact of their individuality on others with whom they came into contact. He also noted their vulnerability to teasing and bullying (Asperger in Frith 1991:37;61). Although Asperger originally reported the condition only in boys, reports of girls with the syndrome have now appeared. Nevertheless, males are significantly more likely to be affected (Klin & Volkmar in Suniya, Burack, Cicchetti & Weisz 1997:214-215).

At the same time as Asperger was doing his research in Vienna, the psychiatrist, Leo Kanner (Cumine et al 2000:4:1) was working in Boston, USA. According to Volkmar, Klin, Schultz, Rubin and Bronen (2000:262), although similarities were evident in the work of Asperger and Kanner, neither researcher was aware of each other's writings. Kanner (1943:250) maintained that the learners he was describing had come into the world with innate inability to form the usual, biologically provided affective contact with people. Kanner (1943:250) went on to describe their behaviour as "… inborn autistic disturbances of affective contact …"; whilst Asperger (in Frith 1991:38) felt that the use of the word 'autism' was "… one of the great linguistic and conceptual creations in medical nomenclature."

Asperger's work was apparently buried in the carnage of World War II. It remained little known in the English-speaking world until 1981, when Dr. Lorna Wing of the United Kingdom reintroduced the condition as Asperger's Syndrome (Frith in Frith 1991:1; Goble 1995:17). Over the next twenty years, research on Asperger's Syndrome began to appear regularly in the United Kingdom and Scandinavia (Bankier, Lenz, Gutierrez, Bach & Katschnig 1999:43-44). Wing (1981:115) compared Asperger's writings to Kanner's early papers and noted significant similarities between the learners being described. The key difference was that the learners described by Asperger had developed grammatical speech in infancy - although the speech they had was not used for the purpose of interpersonal communication.

Against the background of this brief history of Asperger's Syndrome, and according to the holistic perspective of this research, the causes of Asperger's Syndrome are referred to because no discussion on the nature of Asperger's Syndrome is complete without considering its causes.

2.2.2   Causes of Asperger's Syndrome

As yet, the cause of Asperger's Syndrome is unknown. It is unlikely that there is a single cause - rather a set of triggers, any one of which, occurring at a certain time within a chain of circumstances, can cause Asperger Syndrome. The following are factors which may trigger the Syndrome: biological; pregnancy / birth; neurochemical; neurological which may lead to brain dysfunction (Cumine et al 2000:4).

Asperger's (in Frith 1991:84) findings certainly suggest a dominant mode of inheritance. Edelson (nd:1) concurs with this when he points out that researchers feel that Asperger's Syndrome is probably hereditary in nature because many families report having an 'odd' relative or two. Volkmar, Klin and Pauls (1998:460) however, maintain that research on genetic aspects of this condition is limited to a handful of case reports. Although current thinking is that Asperger's Syndrome is not directly inherited, continuing research looks at the possibility of some genetic basis (Cumine et al 2000:4).

From the above concise discussion of the causes of Asperger's Syndrome, it should be apparent that there is no one reason and no consensus as to the exact causes of Asperger's Syndrome. However, what is significant for this research, and which has already been mentioned, is the centrality of the social and emotional impairments. For this reason the discussion of

impairments of learners with Asperger's Syndrome begins with an exposition of the social and emotional impairments.

2.3 IMPAIRMENTS OF LEARNERS WITH ASPERGER'S SYNDROME

2.3.1   Social impairments

The social interaction impairments of learners with Asperger's Syndrome are well recognized (Koning & Magill-Evans 2001:23). They include socially and emotionally inappropriate behaviours, lack of appreciation of social cues, inability to interact with peers or to develop peer relationships, and an impairment in the ability to use non-verbal behaviours to regulate social interaction (Koning & Magill-Evans 2001:23).

To a great extent, society appraises an individual by the way they look, behave and talk. The learners with Asperger's Syndrome have no distinguishing physical features but are primarily viewed by other people as different because of their unusual quality of social behaviour and conversation skills (Attwood 1998:28;   Attwood 2000:88).   Trower (quoted by Barnhill 2001:260) argued that social behaviour is the most central and important characteristic of human beings. Given this assertion, learners with Asperger Syndrome are at clear disadvantage in coping with their social world.

Social impairments of learners with Asperger's Syndrome remain perhaps the most difficult to support. Some researchers (Asperger's Syndrome nd:5;   Klin & Volkmar in Suniya et al 1997:217-218), even suggest that the social impairments are the major impairment in Asperger's Syndrome.   In fact Asperger (in Frith 1991:37) himself stated:

> *In many cases, the social problems are so profound that they overshadow everything else.*

It was stated in chapter one that the most recent diagnostic criteria for Asperger's Syndrome, the *Diagnostic and statistical manual of mental disorders* (American Psychiatric Association 1994:74) mentions that the first criterion of Asperger's Syndrome is a qualitative impairment in social interaction and adds that the learner may lack social and emotional reciprocity. In other words, the learner may dominate the interaction. Marriage, Gordon and Brand (1995:58) also report that the most serious functional impairment of learners with Asperger's Syndrome was their lack of sociability.

Cumine et al (2000:39) indicate that these learners are not antisocial. Rather, they are asocial – at times wanting to be part of the social world, but not knowing how to enter it. Learners with Asperger's Syndrome do not pick up social skills incidentally, they need to be specifically taught.

It has also been pointed out that the social impairments of Asperger's Syndrome could be conceived as a 'social dyslexia' (Howlin 2001:1). As the dyslexic learner struggles with the alien world of print, so do learners with Asperger's Syndrome find themselves lost in reading social interactions and intent. In both situations, a naturally unfolding developmental process is stunted. The learners are often helpless, if left without the support and understanding of the adult world.

With regard to the social impairments of learners with Asperger's Syndrome, the following aspects will now be discussed: play with other learners; codes of conduct; personal space; eye contact; face perception; and the hidden curriculum. In each case the implication of the particular impairment for the teachers of these learners will be outlined in order to increase their knowledge of the specific impairment so that the teachers will be able to respond to the needs of these learners.

2.3.1.1 Play with other learners

Learners with Asperger's Syndrome tend to be socially isolated or loners (Myles, Barnhill, Hagiwara, Griswold & Simpson 2001:306). Although they want to have friends, they appear to be ineffective when interacting with others. This is an inability both to recognise another person's needs and to respond appropriately (Dychkowski 2000:4). Asperger (in Frith 1991:36) described a learner who was unable to become integrated into a group of playing children and was in fact not interested in them. Wolff (1995:7) quotes a learner who said:

> I just can't make friends ... I'd like to be on my own and look at my coin collection ... I've got a hamster at home. That's enough company for me... I can play by myself I don't need other people.

Moreover, learners with Asperger's Syndrome tend to be socially naive and to have difficulty reading social cues. They do not have the skills necessary for initiating relationships or for repairing them if something goes wrong (Zwaigenbaum & Szatmari in Schwean & Saklofske 1999:277). According to Lord (1999:2), because they cannot read social cues they do not give

the right social and emotional responses. They lack the desire to share information and experiences with others. These problems are less noticeable with parents and adults, but it leads to an inability to make age appropriate friends. This in turn can lead to frustration and subsequent behaviour problems.

What is evident a lack of understanding regarding the emotional aspect of friendships and their attempts at socialising remain ineffective. Often learners with Asperger's Syndrome want to establish friendships, but they lack the ability to develop and sustain such relationships. In other words they are aware of the presence of others even though their approaches may be inappropriate and peculiar (Asperger's Syndrome nd:3; Klin & Volkmar in Suniya et al 1997:217-218).

These learners are more self-centred than selfish. Some may be observers on the periphery of social play or prefer to be with much younger or older learners. When involved in joint play, there can be a tendency to impose or dictate the activity. Social contact is tolerated as long as the other learners play their game according to their rules. They cannot tolerate interference with their plans or rituals (Forder 1997:8). Sometimes social interaction is avoided not because of a lack of social play skills, but because of a desire to have complete control over the activity (Attwood 1998:30). The learners are not interested in doing the activities other learners want to do and are not inclined to explain what they are doing. The learners appear to play in a 'bubble' and may resent other learners intruding into their activities. When the learners play on their own and other learners are inquisitive or want to be sociable, they can be quite abrupt or even aggressive in ensuring their solitude. They often prefer to be left alone to continue their activity uninterrupted (Attwood 1998:30-31).

At school breaks the learners are often found on their own in a secluded area of the playground, sometimes talking to themselves or in the library reading about their particular interest. One learner, when asked why he did not talk to other learners in the playground, replied, "No, thank you. I don't have to." There is a strong preference to interact with adults who are far more interesting, knowledgeable and more tolerant and accommodating of their lack of social awareness (Attwood 1998:31). If teachers acknowledge that the learners with Asperger's Syndrome are more comfortable being alone at break, this could make the learners feel more relaxed and less anxious regarding the school routine. Obviously it would be preferable if the learners did manage to find some friends to talk to at break and become familiar with socialising

at break; but if the learners are content to just sit quietly and read, they should not feel compelled to be with the other learners.

This understanding of the difficulties that the learners with Asperger's Syndrome encounter with forming and maintaining friendships, will enable the teachers of these learners to understand the cause of their deliberate withdrawal from the other learners even though they may desperately want to be sociable. They may realise that the other learners see them as different, intentionally ignore them and probably do not want to make the effort to include them in their activities. This can make learners with Asperger's Syndrome very self-conscious and thus, they just prefer to be alone. With the necessary understanding of the difficulties with forming friendships, teachers are better able to respond positively to their needs.

Learners with Asperger's Syndrome can be indifferent to peer pressure for the latest toys or clothes, are rarely invited to parties and have few genuine friends. Younger learners can become indifferent to such isolation, content to play by themselves or with brothers and sisters. However, their social play skills are immature and rigid and they are often rebuffed by other learners. This is perhaps one of the saddest moments for parents (Attwood 1998:31). In today's modern society it may be the case that learners who do not follow the latest trends (for example wearing the 'correct' clothing or being seen at the 'accepted' venues on a Saturday night) are ostracised because they are different. Teachers need guidance of how to demonstrate to the other learners that everyone is different and unique and it is unjust for certain standards to be set for acceptance.

From this discussion regarding the learners with Asperger's Syndrome socialising with other learners and their difficulties in understanding and relating to other people, it should be clear that they do not understand the codes of social conduct.

2.3.1.2 Codes of conduct

Learners with Asperger's Syndrome do not seem to be aware of the unwritten rules of social conduct and will inadvertently say or do things that may offend or annoy other people (Attwood 1998:31-32). Their conversations are often marked by language considered inappropriate. They say exactly what comes to mind (Myles & Southwick 1999:15). Once codes of conduct are explained then the learners often rigidly enforce them, perhaps becoming the class policeman, honest to a fault when such behaviour actually breaks the code of conduct. Other learners are

determined to bend or break the rules, but learners with Asperger's Syndrome are intent on enforcing them (Attwood 1998:32). Wing (1997a:254) argues that some are so concerned about rules, that they publicly reprimand complete strangers they consider to be behaving incorrectly.

Attwood (1998:32-33) points out that strangers may consider the learners to be rude, inconsiderate or spoilt, giving the parents a withering look and assuming the unusual social behaviour is a result of parent incompetence. Teachers may not understand that the learners are not being rude, but did not know a more tactful alternative or appreciate the effect on other people.

Traditional speech and drama lessons can be used to encourage the learners how to act in social situations. The learners observe someone who is competent in social integration skills in natural settings, and watch videotaped examples, taking note of what they do and say. They then rehearse the social script, taking on the persona of someone they know to be successful in social integration (Attwood 2000:97).

Unawareness of the fact that learners with Asperger's Syndrome encounter difficulties with maintaining appropriate social conduct may cause the teachers to label the learners as discourteous and arrogant learners. Thus, teachers may need specific practical guidelines to help them in their endeavours of guiding these learners who may unconsciously act in a manner that is offensive or annoying. If teachers explain this impairment to the other learners, it may be easier for them to accept and understand the learner. They could even be able to laugh with the learners and use this as a coping strategy where any strange occurrence regarding the learners with Asperger's Syndrome is made amusing.

Related to this impairment of social codes of conduct is the misunderstanding that learners with Asperger's Syndrome have regarding personal space (Forder 1997:8).

2.3.1.3 Personal space

Learners with Asperger's Syndrome may not know how far away from another person to stand or sit. They may appear to be ignoring someone by sitting too far away from them, or facing the other way and conversely they can make other people feel uncomfortable by accidentally sitting or standing too close to them (Wilson 2000:3-4).

A proper understanding that learners with Asperger's Syndrome are not being intentionally offensive when they stand too far away or too close to teachers and other learners when contact is being made could make a difference for the teachers of these learners. Without this understanding, they may label the learners as ill-mannered.

Inappropriate use of eye contact has also been observed in learners with Asperger's Syndrome (Cumine et al 2000:19). This may make people feel uncomfortable and could also cause the social exclusion of the learners.

2.3.1.4 Eye contact

Clinical observation indicates that learners with Asperger's Syndrome often fail to use eye contact to punctuate key parts of the conversation, for example when starting their utterance, to acknowledge praise or interest, seek clarification, to read body language or to signify the end of the utterance (Attwood 1998:54). Research studies (Ellis, Ellis, Fraser & Deb 1994:257; Tantam, Holmes & Cordess 1993:111) have also suggested there is a lack of eye gaze when the other person is talking. There is also a failure to comprehend that the eyes convey information on a person's mental state or feelings. Clearly, learners with Asperger's Syndrome need to learn the importance of looking at the face and eyes of the other person, not just to locate them but to recognise and respond to the subtle cues given in facial expressions (Attwood 1998:54).

Jolliffe, Lansdowns and Robinson (1992:15) describe the extreme difficulties that learners with Asperger's Syndrome experience with eye gaze and looking at people's faces:

> *Looking at people's faces, particularly into their eyes, is one of the hardest things for me to do. When I do look at people I have nearly always had to make a conscious effort to do so and then I can usually only do it for a second. If I do look at people for longer periods of time, they usually claim that I seem to be just looking through them rather than actually at them, as if I am unaware that they are actually there. People do not appreciate how unbearably difficult it is for me to look at a person. It disturbs my quietness and is terribly frightening - though the fear decreases with increasing distance away from the person.*

Teachers may assume that these learners are being intentionally discourteous when proper eye contact is not made. Teachers who do not understand this impairment of eye contact may scold the learners for being silly and impolite, whereas the learners do not know better and are not

doing this consciously. However, if they were aware of this impairment and were given necessary guidelines, they may be able to support this impairment and ensure that it becomes a natural habit for these learners to consciously display correct eye contact.

The other learners may also find that this incorrect eye contact is very awkward and could possibly begin to mock the learner and exclude him or her from their activities. However, again if teachers were aware of this impairment and explained this to the other learners, they would be encouraged to accept the learner and persuade and remind the learner with Asperger's Syndrome to look at them when speaking.

Associated with this impairment of eye contact is that of face perception, which could be misinterpreted by the conversation partner as insulting or rude (Wilson 2000:3). This may lead to many painful misunderstandings and consequently, a reluctance for learners with Asperger's Syndrome to participate in conversation unless absolutely necessary.

2.3.1.5 Face perception

According to Ellis (quoted by Davies, Bishop, Manstead & Tantam 1994:1033-1034), faces are arguably the most important biological and social objects in our environment and they are certainly one of the primary means of perceiving a person to be a person and not an inanimate object. They are also the means of communicating much vital information to us, including facial familiarity, characteristics and attributes and emotional states.

Grossman, Klin, Carter and Volkmar (2000:375) support the idea that there are qualitative differences in how learners with Asperger's Syndrome process facial expressions. It was found that these learners performed worse than controls on tests of comprehension and production of facial and spoken expressions of emotion (Davies et al 1994:1034). According to this view, unusual processing of facial expressions is just one further manifestation of an innate inability to enter into reciprocal affective relations with others (Davies et al 1994:1034). Schultz, Gauthier, Klin, Fulbright, Anderson, Volkmar, Skudlarski, Lacadie, Cohen and Gore (2000:331) concur with this view when they argue that face-perception abnormalities may be a core feature of the social disabilities.

Teachers may not be accustomed to dealing with such an impairment of face perception and possibly need support, in the form of practical guidelines to help these learners improve these

specific skills. It can be very irritating for a teacher because learners with Asperger's Syndrome may not understand certain facial expressions. Much indirect learning in the class may be implied by the teacher's facial expression, for example, a teacher may smile at the learner when he or she achieves something. However, the learner does not understand the meaning of this friendly gesture. Similarly, the teacher may frown at the learner showing her concern but again the learner may not comprehend the meaning of this expression.

An interesting part of the social impairments of learners with Asperger' Syndrome concerns the hidden curriculum.

2.3.1.6 Hidden curriculum

Bieber (quoted by Myles & Southwick 1999:70) maintains that every school, and indeed every society, has a hidden curriculum - the do's and don'ts that are not spelled out but that everyone somehow knows about. According to Myles and Southwick (1999:70;77) learners with Asperger's Syndrome are at a disadvantage because they usually do not understand the hidden curriculum. They inadvertently break rules associated with the hidden curriculum and either get in trouble with adults or become further ostracized or hurt by peers. As a result, they require direct instruction on the hidden curriculum. Learners with Asperger's Syndrome need to know (a) teacher expectations, (b) teacher-pleasing behaviours, (c) learners to interact with and those to stay away from, and (d) behaviours that attract positive and negative attention. Understanding the hidden curriculum can make all of the difference to learners with Asperger Syndrome. As Bieber (quoted by Myles & Southwick 1999:72-73), argues it can keep them out of detention or worse, and it can help them make friends.

A misapprehension of the difficulties that learners with Asperger's Syndrome encounter with the hidden curriculum could infuriate teachers. For example, learners with Asperger's Syndrome may not realise that a natural part of the hidden curriculum is awareness that certain learners may be cruel and spiteful and that it is best to just keep away from them.   The learners with Asperger's Syndrome, in trying to develop social skills, may attempt some sort of friendship with these learners only to find that their efforts are unrewarded because of the meanness of these learners. Learners usually understand very quickly that certain teachers demand a particular behaviour. A particular teacher may expect that each learner's progress chart is brought to the class each day so that he or she can monitor their performance. Learners with Asperger's Syndrome may not comprehend this and feel that the teacher has already seen it once

so there is no need to produce the chart. This could cause conflict in each lesson because the teachers who do not understand this impairment might feel that they are deliberately being disobedient. If teachers understood this impairment and were given certain strategies for managing and even reducing these difficulties, the whole teaching experience may be more worthwhile and rewarding for all concerned.

This section has shown the centrality of the social impairments of learners with Asperger's Syndrome, and has outlined six important aspects related to the social impairments: namely play with other learners; codes of conduct; personal space; eye contact; face perception; and the hidden curriculum. It is important for teachers to be aware that learners with Asperger's Syndrome probably have to be taught these skills specifically and should be directly exposed to socially acceptable behaviour as this may not develop naturally. As Forder (1997:7) maintains learners with Asperger's Syndrome never totally internalise the vast repertoire of social skills and morés which 'normal' people assimilate as a natural process of social development.

The social impairments of learners with Asperger's Syndrome include socially and emotionally inappropriate behaviours (Koning & Magill-Evans 2001:23) and are thus greatly intertwined. For this reason the emotional impairments of learners with Asperger's Syndrome will now be outlined.

2.3.2   Emotional impairments

Difficulties with understanding emotions are widely acknowledged as a key feature of Asperger's Syndrome (Silver & Oakes 2001:300). Learners with Asperger's Syndrome often have immense difficulties in interpreting the emotional cues and clues present in the expressions, intonation and other body language of those with whom they interact. Yet, according to Forder (1997:7), these learners are not totally indifferent and often over-react (and proportionally under-react) in response to the emotional behaviour of others. There seems to be no schemata present upon which to scaffold emotional behaviour patterns.

Forder (1997:7) argues that young learners with Asperger's Syndrome do not appear to be concerned about making friends, nor can they effectively define friendship. A friend is often described as someone who gives one something. Correct responses such as 'it's someone you like', or 'somebody who helps you read and stuff' have to be learned so that they represent an accommodation within the learners' metacognitive scaffolding, but no more than this. The

Asperger's Syndrome learners' definition does not deal with emotions but practicalities Forder (1997:7).

Not only do their impairments concern the understanding of the emotional expressions of others, but the learner's own expressions of emotions are unusual, and tend to lack subtlety and precision. Attwood (1998:55-56) gives the example of a complete stranger being given a kiss on the lips, or distress is expressed quite out of proportion to the situation. A conversation may include appropriate advanced technical terms but events are described in terms of actions, not feelings.

According to Attwood (1998:60), the natural circumstances can also be used to learn the specific cues to identify feelings. A teacher can take advantage of a situation to point out the signals - for example, the furrowed brow and wagging finger or a prolonged stare and silence that have a very specific meaning and require a particular response. This is very relevant in the classroom where the learners can be oblivious to the subtle cues from the teacher that are so obvious to other learners. This is an area in which teachers may require guidelines in order to support these learners.

Learners with Asperger's Syndrome often have the intelligence to compete in regular education but they often do not have the emotional resources to cope with the demands of the classroom. These learners are easily stressed due to their inflexibility. Many are aware that they are different from their peers, thus self-esteem problems, self-fault finding and self-deprecation are common (Myles & Southwick 1999:15). Learners with Asperger's Syndrome, especially adolescents, may be prone to depression. Rage reactions/temper outbursts are common in response to stress/frustration. They rarely seem relaxed and are easily overwhelmed when things are not as their rigid views dictate they should be (Williams 1995:14).

It may be advantageous for teachers to realise that these emotional impairments may cause the learners to be isolated from the other learners and this could lead to depression. Teachers may be uncertain as to the best possible strategies to manage these emotional impairments. If they were given guidelines they could be in a better position to support and help these learners develop proper, meaningful friendships thus ensuring that their emotions are kept intact.

Related to both the social and emotional impairments are cognitive impairments which may also be encountered in learners with Asperger's Syndrome.

2.3.3 Cognitive impairments

Cognition is knowing in the broadest sense and includes the reorganisation of objects and attributing meaning to them. It includes the more specific aspects such as perception, concept formation, reasoning, thinking, fantasy and imagination (Van den Aardweg & Van den Aardweg 1993:41). Cognition enables humans to experience and process knowledge and information (Concise Oxford Dictionary 1996:266, s.v. "cognition").

Special consideration should be given to the Asperger's Syndrome learner's cognitive strengths and weaknesses. If the learner's relative strength is in visual reasoning, then flow diagrams, mind maps and demonstrations will enhance their understanding. If their strength is in verbal skills then written instructions and discussion using metaphors (especially metaphors associated with their special interest) will help (Attwood 2000b:6). Learners' visual strengths can be incorporated into certain guidelines that can be offered to the teachers of these learners so that they can enhance this visual strength of the learners.

With regard to cognition, the following two impairments have been noted in learners with Asperger's Syndrome: inflexibility in thinking and difficulty in comprehending theory of mind (Attwood 1998:114-117). These are discussed in the ensuing sections.

2.3.3.1 Inflexibility in thinking

Learners with Asperger's Syndrome often have difficulty with cognitive flexibility - in other words, they have a one-track mind. Their thinking tends to be rigid and they are not able to adapt to change or failure. They may have only one approach to a problem and need tuition in thinking of alternatives (Attwood 1998:117).

One of the unfortunate characteristics associated with this inflexibility is being less able to learn from mistakes. Teachers may report that the learners continue to persevere with the activity, having a 'mental block' and do not change their strategies if they are not working. An often-heard phrase is 'he doesn't learn from consequences' (Attwood 1998:117-118). Teachers should understand that these learners may not be able to appreciate that they should not replicate an error which has been previously rectified by the teacher. They may insist on repeating the same

errors in class and feel that the previous error is a completely different issue and not at all connected. This can make the learning situation more complex because in most cases, new learning may be based on previous learning.

The learners seem unable to cope with being wrong and become infuriatingly rigid when in a discussion or argument. Once the learners' mind is on a particular 'track', they appear unable to change, even if the track is clearly wrong or going nowhere. On these occasions it is best to just agree to have a different opinion (Attwood 1998:118). Teachers may be ignorant of how to tell these learners that they are wrong and may need to help in devising certain empathetic methods of conveying this information to the learners in certain instances.

A challenge facing learners with Asperger Syndrome relates to their difficulty in generalising knowledge and skills. They frequently have problems applying information and skills across settings with different individuals as well as integrating learned material and experience (Myles & Southwick 1999:5). With their 'one-track' mind, they may not recognise that what they have learnt can be used in a wide range of situations (Attwood 1998:118). As a result, teachers often voice concern over this lack of generalisation, misinterpreting the lack of symmetry between verbalisation and actions as intentional misbehaviour (Myles & Southwick 1999:5). This is an area of concern for teachers which this research plans to address.

Related to this failure of generalisation of learning to other situations and rigidity, is the cognitive impairment of a lack of theory of mind which is evident in learners with Asperger's Syndrome.

2.3.3.2 Difficulty in comprehending theory of mind

Theory of mind refers to the ability to think about thoughts and to attribute mental states to others (Blackshaw, Kinderman, Hare & Hatton 2001:148). Theory of mind means that we are able to think about other people's thinking - and, further, to think about what they think about our thinking - and, even further, to think about what they think we think about their thinking, and so on (Cumine et al 2000:19). This ability underlies much of our interaction with others, informing our understanding of others' behaviour and influencing our actions towards others. This is an ability everyone appears to have, which is so common as to have escaped specific investigation until relatively recently. In psychological terms, this is described as the ability to appreciate that other people have mental states: intentions, needs, desires and beliefs, which

may be different to our own (Cumine et al 2000:19). The theory of mind posits that being able to conceive of mental phenomena is the foundational base of human social interaction (Klin 2000:831). This skill develops from the age of around four years, whereby learners understand that other people have thoughts, knowledge, beliefs and desires that influence and explain their behaviour (Attwood 1998:112).

Learners with Asperger's Syndrome find it hard to understand what other people are thinking or feeling and find it difficult to relate to others. It is hard for them to say what they are thinking or feeling (Hoopmann 2001:62-63). This can be likened, in degree of severity, to the difficulties involved in learning to read for the dyslexic learner. In contrast, for the rest of us it is so effortless that we feel that we were born with it (Cumine et al 2000:20). In 1990, Baron-Cohen (Cumine et al 2000:19) described this as a form of 'mind blindness'. McCroskery (1999:1) defines this mind blindness as the inability to recognise that other people think and feel differently than oneself - the incapacity to visualise the mind states of others.

The experiment designed to reveal the characteristic deficits of theory of mind in Asperger's Syndrome is now quite famous and is known as 'The Sally / Anne test'. It was designed by Simon Baron-Cohen in 1985 to test the prediction that learners with Asperger's Syndrome would lack the ability to understand beliefs (Baron-Cohen 1985:41). In the Sally / Anne test, Sally and Anne are two dolls. Sally has a basket and Anne has a box. In the story, which is acted out in front of the learner, Sally puts a marble into her basket while Anne is watching. She then leaves to go for a walk. While she is away, Anne puts Sally's marble into her own box. Sally returns from her walk and wants to play with her marble. The learner is then asked, 'Where will Sally look for her marble?' The correct answer is, 'In her basket', for that is where Sally left her marble, and where she believes it still is. Learners with Asperger's Syndrome answer that Sally will look, 'In the box', because that is where the marble actually is - even though Sally has not seen Anne taking it from the basket and placing it in the box. This contrasts with the learners in the control groups who give the correct answer (Connor 1999:81-82; Cumine et al 2000:19; Greenway 2000:475-476; Fine, Lumsden & Blair 2001:287-289; Forder 1997:8-9).

Perner, Frith, Leslie and Leekham (quoted by Cumine et al 2000:21) explain an alternative experiment to the Sally / Anne test which can easily be replicated, is the Smarties test. In this, the learner is shown a Smarties tube and asked what he or she thinks it contains. Upon

answering 'Smarties' the learner is then shown the contents of the tube - a pencil. He or she is then asked what another learner will say if shown the tube and asked the same question. Typically, learners with Asperger's Syndrome will reply that it is a pencil. Even when the next learner is brought in and gets the answer wrong, the learners with Asperger's Syndrome will fail to see the point, the 'joke' as it were (Cumine et al 2000:19; Happé 1994:42-43).

According to Jordan and Powell (quoted by Cumine et al 2000:22), impairments with the theory of mind cause difficulty in understanding 'pretend', and differentiating fact from fiction. Learners with Asperger's Syndrome often have trouble with emotional nuances and multiple levels of meaning as contained in novels and are more at home with scientific, non-fiction texts (Forder 1997:6). Fiction emphasises social and emotional experiences, in contrast to non-fiction, which does not require an understanding of people and their thoughts, feelings and experiences to the same degree (Attwood 1998:114). Teachers may become very annoyed when learners with Asperger's Syndrome become restless and distracted when the rest of the class is entranced at story time. If the teachers comprehended the fact that it is the syndrome and not the learners who are causing the disruption, they may be able to respond positively to this disruption.

The emotional impairments of learners with Asperger's Syndrome were discussed earlier in this chapter, and here it was shown that these learners misread emotional expressions. Many learners with Asperger's Syndrome understand a limited number of emotions. They may only recognise two to three emotions along the continuum from extremely happy to very sad. Not only do they have difficulty recognising the emotions of others, they often have problems understanding their own feelings. They have difficulty understanding their own state of mind (Myles & Southwick 1999:8-9). Jordan and Powell (quoted by Cumine et al 2000:21) argue that these difficulties which learners with Asperger's Syndrome experience in understanding emotions - their own and those of others, lead to a lack of empathy and may be a result of the impairment of the theory of mind.

Jordan and Powell (quoted by Cumine et al 2000:21-22) maintain that difficulties with the theory of mind may lead to difficulties in taking into account what other people know or can be expected to know, leading to pedantic or incomprehensible language. Either no background information is given, so that the listener has no idea of what the subject of the conversation is, or every detail is given to the point of boring the listener completely. Teachers may find it very

frustrating when learners with Asperger's Syndrome are incapable of expressing themselves and they cannot perceive what learners are trying to express. If practical guidelines were set out for the teachers of these learners, they may be competent to respond positively to these learners' needs.

As Jordan and Powell (quoted by Cumine et al 2000:21-22) noted, inability to deceive or to understand deception is encountered because of the theory of mind. The learners with Asperger's Syndrome may become a tattletale insisting on always informing the teacher regarding those learners who disobey the classroom rules. This could make the learners very unpopular and cause further social impairments.

The concept of *meta-representational deficit*, which describes a situation where the learners cannot hold two conflicting ideas simultaneously, has also been used with regard to the Asperger's Syndrome learners' difficulty in comprehending the theory of mind (Connor 1999:83). For example, if an object is to be used as a 'pretend' for something else - say, a cardboard tube for a telephone - the learner must have a clear idea of what a telephone is and can recognise that the tube and the telephone are quite different objects (decoupling). The learners with Asperger's Syndrome do not engage in this kind of symbolic play. There is no capacity to cope with mental states such as (suspended) belief, or pretence. In order to simplify an explanation of a particular theme or concept, teachers may require the learners to assume that it is actually something else – learners with Asperger's Syndrome could have difficulties with this. Teachers may not perceive that they need to explain everything concretely and should not relate a particular concept to another concept however relevant it may seem.

While many learners with Asperger's Syndrome can develop this interpersonal understanding, it is believed to be delayed until between the ages of nine and fourteen, compared to age four in typical youngsters (Cumine et al 2000:19-20). Even at this later age, evidence suggests that these skills are only developed after very slow, effortful learning (Frith & Happé 1999:1). Teachers may now need to be aware that this particular skill may be developed in learners with Asperger's Syndrome but not in the same way as the other learners. This skill may have to be deliberately taught and require a lot of effort on the part of the learners. But the fact remains that with hard work and with support, it is possible that the learners can master this ability.

Frith and Happé (1999:1-2) go beyond the theory of mind perspective and question whether disorders of empathy also relate to a lack of self-awareness, of not understanding one's place in the world. Moreover, learners seem to lack an ability to reflect on their own experiences, thoughts and feelings. It can be asked if they can relate *their* inner thoughts to those of others (Safran 2001:154-155). This may cause difficulties for learners with Asperger's Syndrome when having to write, for example, an English composition requiring them to describe their feelings. If teachers were aware of this difficulty, they may adapt the topic of the composition to ensure that to begin with, the learners did not have to rely on their personal feelings and then perhaps try and slowly introduce the idea of expressing emotions.

These difficulties which arise from the theory of mind impairment may impede the learners' ability to interact socially in the classroom, and in the wider school environment. They influence not only their behaviour but also their thinking and thus ability to benefit from the school curriculum (Cumine et al 2000:22). Blackshaw et al (2001:148) concur with this view when they argue that difficulties in interpreting subtle social clues caused by a deficit in theory of mind are highly likely to influence the way in which people diagnosed with Asperger's Syndrome explain a social situation. Teachers may be unaware of this impairment of 'mind blindness' and thus unable to support these learners to develop a correct type of thinking.

Related to all the above impairments of cognition (rigid thinking and the inability to adapt to change and failure), socialisation (inappropriate behaviours, lack of appreciation of social cues, inability to interact with peers or to develop peer relationships, and an impairment in the ability to use non-verbal behaviours to regulate social interaction) and expressing emotions (difficulties in interpreting the emotional cues and clues present in the expressions, intonation and other body language of other people), language impairments are also evident in learners with Asperger's Syndrome.

2.3.4   Language impairments

The American Psychiatric Association (APA 1994:74) and the World Health Organisation (World Health Organisation 1989:257) refer to language skills in the criteria for a diagnosis of Asperger's Syndrome, but state: "There is no clinically significant general delay in language". Unfortunately this may be interpreted as an absence of any unusual qualities in language skills. By the age of five, learners with Asperger's Syndrome do not have a *general delay* in language,

but do have problems with specific language skills. The most significant is in the area of pragmatics (Attwood 1998:68).

Teachers need to appreciate that even though these learners have no physical disability and in fact may be more intelligent than the other learners, they could have eccentric conversing abilities. These eccentric abilities may cause extra stress and effort for the learners to cope in the classroom and require extra attention from the teachers. In order to assist teachers with their endeavours, this research aspires to outline practical guidelines for teachers to utilise when supporting the language impairments of these impairments.

Concerning the social aspects of the language impairments of Asperger's Syndrome, emphasis will be placed on the following seven aspects: pragmatics or the art of conversation; literal interpretation; prosody or the melody of speech; pedantic speech; an idiosyncratic use of words; verbal fluency and memory. It is expected that a deeper awareness and understanding of these seven aspects will increase the teachers understanding of the language impairments of learners with Asperger's Syndrome and in so doing contribute to the development of specific guidelines for the teachers.

2.3.4.1 Pragmatics or the art of conversation

With regard to pragmatics the problem is the use of language in a social context (Attwood 1998:68; Tantam et al 1993:111). On close observation, it will be noted that even while learners with Asperger's Syndrome are talking, they seem to be unaware of the listeners' verbal or non-verbal responses. These learners appear often to talk 'at' rather than 'to' you, giving information rather that holding proper conversations (Lord 1999:3). Speech may be fluent, but their communication or conversational as well as non-verbal skills are impaired. As one young man (quoted by Stanton 1999:1-2) aptly described it: "I learned to speak before I learned to communicate."

According to Attwood (1998:8), learners with Asperger's Syndrome may start the interaction with a comment irrelevant to the situation or by breaking the social or cultural codes. For example, the learner may approach a stranger in the supermarket, their first utterance being, 'Do you have a cylinder mower?', and then proceed to give a monologue demonstrating encyclopaedic knowledge of garden machinery. What is clear is that initiating a conversation has particular pitfalls as learners with Asperger's Syndrome may launch into a conversation

without reference to the ongoing conversation (if in a group) or strike up a conversation without referring to the generally accepted proprieties of connected or apposite ideas (Forder 1997:7).

Teachers need to explicate to the other learners that learners with Asperger's Syndrome could suddenly instigate a perplexing conversation or talk about something completely outrageous. If teachers were given certain coping strategies, this impairment could be easier for everyone to accept, thus creating a more comfortable and understanding environment.

The conversations of learners' with Asperger's Syndrome tend to be one-sided, repetitive, and focused on their own interests (Zwaigenbaum & Szatmari in Schwean & Saklofske 1999:277). If the conversation shifts beyond a favourite area of interest, they are likely to withdraw or to perseveratively return to the initial topic (Perlman 2000:223). They rarely ask others questions that are not tied to their own specific concerns, and it is very difficult to continue a conversation beyond a few initial statements. There is very little sharing of emotions, although the learners often express significant anxieties and worries (Zwaigenbaum & Szatmari in Schwean & Saklofske 1999:277). Body language and facial expressions of learners with Asperger's Syndrome can appear odd (stiff eye gaze rather than eye contact) and 'reading' these things in others gives rise to further difficulties (Lord 1999:3). Teachers should try and show these learners that they are indeed interested in what they are telling them but that there is a need to curb their conversations and to listen to the other parties' response and what they have to say. The other learners may also get frustrated, if when trying to socialise, learners with Asperger's Syndrome insist on talking obsessively and do not listen to them. This is not an easy task to accomplish and teachers may feel uncertain and doubtful of their abilities to amend such an impairment.

Learners with Asperger's Syndrome may not be able to value the signals which could be derived from any non-verbal behaviour. Tantam (2000:54) concurs with this view, when he argues that classroom problems are especially likely to occur in those learners with Asperger's Syndrome who have a particular impairment in non-verbal interpretation, since they are likely to find the social situation in the classroom difficult to understand. For example, if another learner makes a strange statement and then winks, the learner with Asperger's Syndrome may not realise that this is actually a sign meaning that the statement is fictitious and is intended to encourage him to join in the practical joke. Learners with Asperger's Syndrome may then proudly announce that this is just a prank. In this way they may become even more unpopular with the other learners.

A fascinating characteristic of this impairment of language, may be that the learners talk too much or too little. This can be related to the language impairment of verbal fluency.

2.3.4.2 Verbal fluency

Sometimes the genuine enthusiasm of learners with Asperger's Syndrome for their area of interest leads to garrulous speech. The learners are keen to demonstrate their knowledge and verbal fluency, as well as to learn new information about their interests. A specific subject may dominate their conversations, but it is an expression of their emotional and intellectual fascination (Attwood 1998:85-86). Once the conversation has begun there seems to be no 'off switch' and only ends when the learner's pre-determined and practised 'script' is completed. The supreme egocentricity of the learner with Asperger's Syndrome, as mentioned, leaves no room in his or her repertoire for listening to the conversation of others. They often make it obvious that they are not listening to other speakers, even when the speaker is speaking directly to them. That is not to say that most of us, quite often, are bored or disinterested with the conversation of others and that this is a peculiar trait of Asperger's Syndrome. The difference here is that learners with Asperger's Syndrome cannot dissemble as we have learned to do when we nod appreciatively or smile in the correct contexts. Learners with Asperger's Syndrome are unable to repair a dysfunctional conversation and also have trouble maintaining a topic with which they feel discomfort (Forder 1997:7; McCroskery 1999:1).

In contrast, some learners may have periods when they are genuinely 'lost for words' or even mute. Clinical experience has identified learners with Asperger's Syndrome who will only talk to other learners and their parents and are electively mute with other adults (Attwood 1998:86). One learner according to Attwood (1998:86) became mute as soon as he entered the school grounds.

Pertaining to the pragmatics of conversation, learners with Asperger's Syndrome may understand others in a very literal way (Cumine et al 2000:5).

2.3.4.3 Literal interpretation

Learners with Asperger's Syndrome tend to have a literal interpretation of what the other person says (Asperger's Syndrome nd:2; Attwood 1998:76). Literalness of language usage implies that nothing can be taken for granted in these learners' responses to instructions (Connor 1999:84-85;

Kerbel & Grunwell 1998:24; Kirkman 1996:2-3). With respect to this issue, Liane Willey (an adult with Asperger's Syndrome) writes in her book (1999:65):

> *I never considered a statement had more than one meaning. I always assumed the meaning I inferred was the intent of the speaker.*

The learner is not being deliberately annoying or stupid. Rather, these learners are less aware of the hidden, implied or multiple meanings. This characteristic also affects the understanding of common phrases, idioms or metaphors (Attwood 1998:76).

Teachers may need to understand and be aware of the learners' propensity for a literal interpretation, and to stop and think how their comment or instruction could be misinterpreted or confusing. The learners can feel uncomfortable when the teacher starts to tell jokes, uses double meanings, sarcasm, irony or puns.

According to Attwood (1998:77) learners with Asperger's Syndrome are often very confused by teasing. The rules of this game and the humorous intentions may not be recognized. Teachers may have to explain they were only joking. Attwood (1998:77-78) gives the example of a learner who was being asked about the events that caused him to bite the forearm of the principal. The interviewer, with a tone of voice and body language that implied teasing or joking, asked whether he bit him because he was hungry. The learner did not show any recognition of these cues, and calmly replied, "No, I had eaten my lunch." There is similar confusion when someone uses sarcasm, pretence or lies (Attwood 1998:77-78). These learners seem to lack a sense of humour which also results in bafflement with comprehending subtle jokes (Perlman 2000:223). When other learners pretend to be a person from a popular television programme or film, learners with Asperger's Syndrome are bewildered as to why they would change their name and character.

Teachers may find it extremely difficult to support this impairment concerning the literal interpretation of language. Thus, this research intends, by outlining certain practical guidelines, to increase the teacher's abilities to support the learners with such an impairment.

When listening to the speech of learners with Asperger's Syndrome, one may be aware that there is a lack of variation in pitch, stress, and rhythm or the melody of speech.

2.3.4.4 Prosody or the melody of speech

In conversation, it is natural to change vocal tone and volume to emphasise key words or indicate the associated emotion. In learners with Asperger's Syndrome there can be a lack of modulation. Such speech has a monotonous or flat quality, or an over precise diction with stress on every syllable (Attwood 1998:79).

Learners with Asperger's Syndrome may also have difficulty in interpreting the different tones of the voice of another. Most people can tell if someone is angry, or bored, or delighted, just from tone of voice. Learners with Asperger's Syndrome often cannot make these judgements (Cumine et al 2000:5).

Learners with Asperger's Syndrome must be told not to speak too loudly nor speak too quietly. This should depend on the distance between the other person and the voice should be softer when secrecy is needed (Segar 1997:8). With enhanced understanding of this aspect of strange intonation, teachers may realise that this development may not come naturally to learners with Asperger's Syndrome. It should be purposely enforced and continually reiterated until this becomes a natural phenomenon.

Pedantic speech impairments are also observable in the language abilities of learners with Asperger's Syndrome (Attwood 1998:80-81).

2.3.4.5 Pedantic speech

With respect to the 'adult-like', professorial speaking style of learners with Asperger's Syndrome, Williams (quoted by Forder 1997:6) notes that the pedantic speech and large complex vocabularies often give a false impression that these learners fully understand what they are talking about, when in fact they are merely parroting what they have heard or have read. According to Ghaziuddin and Gerstein (1996:585-586) pedantic speech may be defined as that type of speech in which the speaker conveys more information than the topic and goals of the conversation demand, violating expectations of relevancy and quantity. Sentence structure may have the formality and vocabulary may display the erudition expected of written language.

Teachers should be aware that these learners may possess a vast terminology giving the perception that they have an excellent command of the language. However, these learners possibly do not comprehend all the words that they use. Similarly, some learners have

remarkable reading abilities although one should check if they also understand the text. The ability to read fluently without understanding the meaning is known as hyperlexia (Dychkowski 2000:4; Lord 1999:3).

The idiosyncratic use of words has also been observed as a characteristic of the language impairments of learners with Asperger's Syndrome.

2.3.4.6 Idiosyncratic use of words

Difficulties in using the right words or forming conversations is part of semantic-pragmatic difficulties (Lord 1999:3). The learners appear to have the ability to invent unique words (or neologisms), are idiosyncratic or original in their use of language (Attwood 1998:82). Attwood (1998:82) gives the example of the girl who described her ankle as the 'wrist of my foot', and ice cubes as 'water bones'. In other words, they may use words in odd ways (Perlman 2000:222).

Teachers could use this ability to the advantage of learners with Asperger's Syndrome. However, it may be the case that teachers are unaware of this impairment and even label the learners as peculiar because they construct extraordinary, unique words. If teachers were given more insight into this impairment they may be more understanding and able to support these learners. It is the researcher's view that in order for this to be achieved teachers may require the necessary guidelines which is the objective of this study.

Finally, in this section on the language impairments of learners with Asperger's Syndrome the long-term rote memory will be discussed. Parents often remark on the learner's long-term memory (Attwood 1998:116-117).

2.3.4.7 Memory

Learners with Asperger's Syndrome usually excel at rote memory, that is learning information without understanding, but it can still be an asset. Attempts should always be made to explain everything in a way they can understand. The fact that they parrot information back does not mean that they know what they are talking about (Lord 1999:4).

Because of well-developed rote memory skills, learners with Asperger's Syndrome often give the impression that they understand concepts when in fact they do not. Often parroting gives the

impression that the learners have well-developed, higher-level comprehension skills, whereas comprehension is often actually only at the factual level (Myles & Southwick 1999:7).

If teachers recognised this strength of learners with Asperger's Syndrome, they may use it to their advantage. It may, however be the case that teachers are oblivious of the rote memory ability and require in-depth knowledge of this skill as well as constructive techniques to exploit this talent.

Having now outlined the seven aspects of the language impairments of Asperger's Syndrome (pragmatics or the art of conversation; literal interpretation; prosody or the melody of speech; pedantic speech; an idiosyncratic use of words; verbal fluency; memory), this study will now discuss the narrow interests and repetitive routine impairments which may be observable in learners with Asperger's Syndrome. Knowledge of these impairments will form the basis for the development of guidelines for teachers of these learners.

2.3.5   Narrow interests and repetitive routines

Perhaps the most characteristic feature of Asperger's Syndrome is the intense interests, hobbies, and fascinations shown by these learners (Attwood 1998:90). These two characteristics of Asperger's Syndrome have not been adequately defined in the literature. This is despite the clinical evidence that these characteristics have a significant influence on the sanctity of the family and the research evidence that this feature is relatively stable over time (Attwood 1998:89; Piven, Palmer, Jacobi, Childress & Arndt 1997:185).

2.3.5.1 Narrow interests

Many learners with Asperger's Syndrome have unusually intense and/or peculiar areas of circumscribed interests (Adreon & Stello 2001:267; Carrington & Graham 2001:42). Often they find something that really interests them and they become little geniuses in that area and will talk about that topic over and over again (Hoopmann 2001:62-63). They tend to become preoccupied with unusual topics such as television sitcoms, astrology, numbers, bus timetables and subways. The content of the preoccupation may change with development, but the intensity with which it is pursued in a solitary manner is maintained (Attwood 1998:90). In other words, the hobby is not pursued as a means of developing social relationships, but rather for its own intrinsic qualities. Often the learners become so focused that it is very difficult to distract them. At this point, the focus becomes a significant impairment in their lifes (Kohn, Fahum, Ratzon &

Apter 1998:293; Zwaigenbaum & Szatmari in Schwean & Saklofske 1999:277). These pre-occupations, usually in intellectual areas change over time but not in intensity, and may be pursued to the exclusion of other activities (Lord 1999:3).

Many people have a hobby, and having a special interest is not in itself significant. The difference between the normal range and the eccentricity observed in learners with Asperger's Syndrome is that these pursuits are often solitary, idiosyncratic and dominate the learners' time and conversations (Attwood 1998:93). This solitariness and idiosyncrasy could possibly hamper the socialisation of the learners with Asperger's Syndrome as they may only be interested in following their interests to the detriment of other more socially acceptable activities. Cumine et al (2000:53) concur with this view when they maintain that certain behaviours or interests appear to 'take over' at times at the expense of learning, social interaction or other activities.

It may be very frustrating when learners with Asperger's Syndrome are only interested in talking about their obsessive interest. They may show no interest in their classmates' conversations and insist on directing any conversation towards their own interests. With an understanding of this impairment, teachers may be more accepting and willing to attempt strategies to alleviate or exploit this narrow interest impairment to the learners benefit.

As already mentioned, repetitive routines are also a major characteristic of Asperger's Syndrome.

2.3.5.2 Repetitive routines

According to Howlin (1997:103) routine is essential for almost everyone if they are to organise their lifes in an effective way: leaving the house at a certain time, eating at regular intervals, developing regular patterns for washing, dressing, going to work or even pursuing leisure activities can be crucial if life is to run smoothly. It is only when such habits become so fixed that they disrupt other activities, or when a behaviour that was once acceptable can no longer be tolerated because of changing circumstances or expectations, that problems occur.

According to Fowler (2001:1), one of the most common characteristics that learners with Asperger Syndrome have is their dislike of change and difficulty in coping with change. They may be overwhelmed by even minimal change. They may find coping with everyday life a bewildering task without sameness and routine to help them control their environment

(Carrington & Graham 2001:43). This rigid routine appears to be imposed to make life predictable and to impose order, as novelty, chaos or uncertainty are intolerable (Attwood 1998:99). Many learners with Asperger's Syndrome do not seem to appreciate that there are times and situations when rules can be bent, renegotiated, or broken (Barnhill 2001:262). It can be very frustrating for all concerned. Routines will change from time to time, as they mature they are perhaps a little easier to reason with. This inflexibility shows itself in other ways too, giving rise to difficulties with imaginative and creative thinking. The learners tend to like the same old thing done in the same old way over and over again. They often cannot see the point of a story or the connection between starting a task and what will be the result (Lord 1999:4).

This impairment concerning repetitive routines and inflexibility can render learners with Asperger's Syndrome social outcasts who are disliked by peers as everything must be done specifically the way they want, and exactly when they want. Teachers may, however, require support in their endeavours of enlightening the other learners and making them more accepting and tolerant of the learners with Asperger's Syndrome. As Connor (2000:294) maintains tactful awareness among peers may reduce some of the social pressures and enhance the probability of acceptance into peer groups.

Learners with Asperger's Syndrome are frequently extremely clumsy (Tucker 1999:2). If teachers and the other learners do not understand this impairment, they may begin teasing and mocking the learner. The learner may begin to feel self-conscious and realise that he or she is not coping because of motor impairment and this could lead to further social and emotional impairments. The discussion will now turn to motor clumsiness.

2.3.6 Motor clumsiness

Motor clumsiness was one of the early defining characteristics that Asperger himself emphasised. He noted that movements are mostly stereotypic and have no expressive value (Asperger in Frith 1991:69). This symptom may be defined as an impairment of skills on standardised tests of motor functioning, below the expected level of intelligence, in the absence of a known neurological disease (Ghaziuddin & Butler 1998:44). Burgoine and Wing (1983:263) and Wing (1997a:253) suggested that 'clumsy and ill-coordinated movements and odd posture' form one of the major clinical features of this disorder.

This clumsiness is often manifested by very late walking and by later difficulties in fine and gross motor coordination, which can result in poor handwriting and 'sloppy' work in school, and difficulties in gym (Zwaigenbaum & Szatmari in Schwean & Saklofske 1999:278). Most commonly one sees difficulties in higher order motor planning, that is, in the initiation and execution of complex motor movements (Attwood 1998:103; Brasic 2001:4).

The American Psychiatric Association (APA 1994:74-75) make no direct reference to motor coordination. However, they have a list of features associated with Asperger's Syndrome that includes the presence of motor clumsiness in the pre-school period and the delay of motor milestones.

With regard to the motor impairments the following five important aspects will be discussed: locomotion; ball skills; balance; rhythm and handwriting. In each case it will be attempted to ascertain how the particular impairment may broaden the socialisation impairments of learners with Asperger's Syndrome. Teachers may, however, be in a more auspicious position to support these motor impairments if they were aided with practical guidelines.

2.3.6.1 Ball skills

Catching and throwing accurately appears to be particularly affected. When catching a ball with two hands, the arm movements are often poorly coordinated and affected by problems with timing, that is the hands close in the correct position, but a fraction of a second too late. One study noted the learners would often not look in the direction of the target before throwing (Manjiviona & Prior 1999:327).

Clinical observation also suggests the learners have poor coordination in their ability to kick a ball. One of the consequences of not being good at ball games is their exclusion from some of the most popular social games in the playground. They may avoid such activities because they know they lack competence, or are deliberately excluded because they are a liability to the team. Thus, they are less able to improve ball skills with practice (Attwood 1998:105).

Teachers should encourage the other learners to include learners with Asperger's Syndrome in their ball games and to explain that it is not always important to include only the stronger players in their games but to have the compassion to include and welcome the weaker ones as well. However, it may be the case that teachers do not understand that this could be the reason for the

reluctance of learners with Asperger's Syndrome to participate in sporting activities. They may feel that the learners are apathetic and even punish the learners for their unwillingness to participate. The motor impairments of learners with Asperger's Syndrome may make this problematic. If teachers were aware of the syndrome which is causing such withdrawal, they may be more sympathetic.

One of the motor impairments that may be noticeable in learners with Asperger's Syndrome may be complications with locomotion.

2.3.6.2 Locomotion

When learners with Asperger's Syndrome walk or run, the movements appear ungainly or 'puppet' like. Some learners walk without the associated arm swing. In technical terms there may be a lack of upper and lower limb coordination. This feature can be quite conspicuous and other learners may begin teasing, leading to a reluctance to participate in running sports and physical education at school (Attwood 1998:104). Le Roux, Graham and Carrington (1998:124) note that these learners often walk with a stiff and awkward gait. Other learners may also begin to stare at them and this could make them feel very self-conscious.

Teachers need to be aware of this and prevent any such happenings as this may possibly lead to the learners with Asperger's Syndrome withdrawing from the group and cause even further socialisations impairments. With the necessary guidelines, teachers will be in an advantageous position to support these learners and ensure acceptance in the school environment.

Concerning the motor impairments of learners with Asperger's Syndrome, balance has also been a noted characteristic.

2.3.6.3 Balance

There can be a problem with balance, as tested by examining the ability to stand on one leg with eyes closed (Manjiviona & Prior 1999:328). This may affect the learners' ability to use adventure playground equipment, and participate in activities in the gymnasium. This also could lead the learners to become unsociable, preferring just to be left alone. The learners could feel disheartened when they watch the others enjoying themselves climbing, jumping and playing fun games which require a certain degree of balancing dexterity. Teachers may not be familiar with any strategies that can be used to support such a motor impairment and as a result are perhaps

even apprehensive because of their lack of abilities to assist these learners. It is expected that with necessary guidelines such fears will be allayed.

Poor rhythmic dexterity is also a significant feature of the motor impairments of learners with Asperger's Syndrome.

2.3.6.4 Rhythm

When Hans Asperger (in Frith 1991:37) originally defined the features of this syndrome, he described a learner who had significant problems copying various rhythms.

This characteristic of rhythm has been described in one of Temple Grandin's autobiographical essays (quoted by Attwood 1998:107):

> *Both as a child and as an adult I have difficulty keeping in time with a rhythm. At a concert where people are clapping in time with the music, I have to follow another person sitting beside me. I can keep a rhythm moderately well by myself, but it is extremely difficult to synchronise my rhythmic motions with other people or with musical accompaniment.*

This may explain a feature that is quite conspicuous when walking next to learners with Asperger's Syndrome. As two learners walk side by side they tend to synchronise the movements of their limbs, much as occurs when soldiers are on parade. Their movements have the same rhythm. Learners with Asperger's Syndrome appear to walk to the beat of a different drum. This can also affect the learners' ability to play an instrument. They may excel with a solo performance but have considerable difficulty when playing with other musicians (Attwood 1998:108). Learners with Asperger's Syndrome may be aware of this impairment in rhythm and possibly will feel more comfortable walking alone, thus avoiding social contact with other learners, further contributing to negative social development. Teachers may need support in trying to make the other learners conscious of this impairment and motivating them not to tease and stare whenever they are walking together. In this way they may become more comfortable when they have to walk in line at school.

Handwriting may also possibly cause learners with Asperger's Syndrome anxiety in the classroom and this will be discussed in the ensuing section.

2.3.6.5 Handwriting

There may be difficulty with handwriting which can make the learners with Asperger's Syndrome vulnerable to teasing and lead to the avoidance of writing tasks in the classroom (Cumine et al 2000:53-54). The teacher may spend considerable time interpreting and correcting the learners' indecipherable scrawl. The learners may also be conscious of the poor quality of their handwriting and may be reluctant to engage in activities that involve extensive writing. Unfortunately for some learners, teachers and prospective employers consider the neatness of handwriting a measure of intelligence and personality. Learners with Asperger's Syndrome then become embarrassed or angry at their inability to write neatly and consistently (Attwood 1998:108).

According to Attwood (1998:108) modern technology can help minimise this impairment. Learners with Asperger's Syndrome are often very skilled at using computers and keyboards and could have special dispensation to type rather than write homework and examinations. The presentation of their work is then comparable to the other learners. In future the ability to write longhand will become much less important, to the great relief of thousands of learners with Asperger's Syndrome (Attwood 1998:108; Grandin 2001:2).

Teachers may feel that learners with Asperger's Syndrome are being deliberately defiant when their work is constantly untidy and illegible. Teachers may, because of their lack of knowledge, fail to realise that these learners are incapable of writing neatly. They may even mock, or worse punish the learners in front of the whole class further ostracising them from the group. Learners with Asperger's Syndrome may then decide to retreat even further and prefer to remain isolated, further weakening their social development. If teachers were aware of this syndrome and were familiar with different methods of supporting this impairment, a more positive learning atmosphere may be created.

Having discussed five motor impairments of Asperger's Syndrome (ball skills; locomotion balance; rhythm and handwriting), the focus of attention will now turn to sensory sensitivity.

2.3.7   Sensory sensitivity

Learners with Asperger's Syndrome may get overstimulated by loud noises, lights, strong tastes or textures, because of the heightened sensitivity to these things (Tucker 1999:2). Teachers should be sensitive towards this impairment which can perhaps frustrate the learning in the classroom. According to Aylott (2000b:853), almost everybody with Asperger's Syndrome has

problems with some of their senses. Tupper (quoted by Neihart 2000:227) concurs with this view, when he argues that extreme sensitivity to some kinds of sensory stimuli is common among learners with Asperger's Syndrome. Williams (quoted by Aylott 2000b:853) argues that having a heightened sensory awareness can explain Asperger's Syndrome as: "… simply an internal human 'normality' with the volume turned up."

The learners analysed by Asperger's (in Frith 1991:80) study displayed sensitivities in the taste, tactile, and auditory areas. In taste, Asperger found learners had very specific likes and dislikes, preferring very sour or strongly spiced foods. Relative to touch, many learners had a strong dislike for certain fabrics, could not tolerate the roughness of new shirts or of mended socks and experienced an aversion to having their fingernails cut.

Learners with Asperger's Syndrome also display extreme levels of noise sensitivity (Myles et al 2001:308). Clearly it is important that the teachers are aware of auditory sensitivity and try to minimise the level of sudden noises, reduce the background conversation of others and avoid specific sounds known to be perceived as unbearably intense. This will reduce the learner's level of anxiety and enable them to concentrate and socialise (Attwood 1998:133).

Learners with Asperger's Syndrome can be over stimulated by sensory stimulation or they can be soothed by it. The effect depends on the intensity, duration, variation, and of course, the individual. The five senses each play a part in the sensory stimulation of learners with Asperger's Syndrome: taste, smell, sight, sound, and touch (Jensen 1999:5).

Self-stimulation describes the process of giving oneself controlled sensory stimuli. The effect is relaxation. Everyone does this at times and people with nervous habits do this often. Common examples of self-stimulation are jingling the change in one's pocket, clicking a writing pen in and out, nail picking and nail biting, wringing of hands or brushing of hair. The list goes on and on (Jensen 1999:5). Learners with Asperger's Syndrome have lots of nervous energy which could possibly be managed with self-stimulation. Knowing this, teachers may accept actions that would generally be unacceptable, for example, rocking in a chair.

2.4 CONCLUSION

It chapter one it was stated that there is a lack of research regarding Asperger's Syndrome. As a result, there is a lack of knowledge regarding Asperger's Syndrome and hence there is a necessity to increase the teacher's understanding regarding the nature of this syndrome. In order to deal with this issue, this chapter examined seven impairments of learners with Asperger's Syndrome. The social and emotional impairments of learners with Asperger's Syndrome were given specific attention. Moreover, an attempt was made to relate the other five impairments (cognitive, language, narrow interests and repetitive routines as well as the motor impairments) to these social and emotional impairments. This in-depth understanding of the nature of Asperger's Syndrome will facilitate the researcher's task of outlining relevant guidelines for each of these seven impairments. It is believed that teachers of these learners will be able to utilise these guidelines in their endeavours of supporting these learners. With this greater understanding teachers of learners with Asperger's Syndrome will be in a position to positively respond to their needs and to assist their inclusion in any inclusive education setting. As Attwood (2000a:6) argued once these learners are understood and their point of view explained, teachers can accommodate these learners in their classrooms. The next chapter will focus on the concept of 'inclusion' and specifically the inclusion of learners with Asperger's Syndrome into the regular school community.

CHAPTER THREE
UNDERSTANDING LEARNERS WITH ASPERGER'S SYNDROME
IN INCLUSIVE EDUCATION SETTINGS

3.1 INTRODUCTION

The previous chapter outlined the impairments of learners with Asperger's Syndrome and the various implications of these impairments for the teachers of these learners. This chapter will now focus a discussion and exposition of inclusion (which was briefly defined in chapter one). It is expected that with such knowledge the researcher will be able to outline guidelines for teachers to respond appropriately to the needs of the learners with Asperger's Syndrome who, notwithstanding their impairments, may be found in their inclusive classroom. As Swart, Engelbrecht, Eloff and Pettipher (2002:183) argue, misunderstandings and misperceptions of the concept of inclusion appear to frustrate its implementation.

The discussion will begin with the major trends (both international and national) in the development of inclusion, which will lead to an exposition of the whole concern of the inclusion of learners with Asperger's Syndrome. This will channel the research towards outlining those factors that could play a role in the social inclusion of the learner and here the social model of disability will be adopted. This model explores how the environment can create the barriers and it focuses attention away from the learners and their impairments (Aylott 2000b:853). A greater understanding of the tenets of this social model may enable the teachers to support the impairments of learners with Asperger's Syndrome in their inclusive classrooms.

Karagiannis, Stainback and Stainback (in Stainback & Stainback 1996:3) state that one of the practical components of inclusive education is the development of a support network. This whole element will be examined in detail, especially the concept of parent empowerment, the effective utilisation of classroom assistants and community based support. These three aspects play a major role in assisting teachers in their accomplishments with learners with Asperger's Syndrome. In order for inclusive education to be effective teachers will not only need to be committed to change but must also be fully trained in appropriate methods to facilitate this change (Forlin & Engelbrecht 1998:217). In view of this fact, in-service and pre-service training of teachers will be considered as teachers may be unaware that valuable facilities, which may increase their knowledge of the nature of Asperger's Syndrome, exist for their benefit. Training could also give teachers useful ideas on maintaining an adaptable curriculum which may be

accommodated to the needs of learners with Asperger's Syndrome. The implementation of a flexible curriculum, Outcomes-Based Education with its different assessment techniques and the use of visual aids will be expanded upon in order to indicate how such teaching methods may support learners with Asperger's Syndrome. All this knowledge will also enable the researcher to outline the practical guidelines for the teachers of these learners.

The major trends towards inclusion will now be outlined.

3.2 MAJOR TRENDS TOWARDS INCLUSION

Both international and national patterns and trends regarding inclusion have undergone major shifts which have influenced the movement towards inclusive education in South Africa to a large extent. In line with current international trends, South African education is moving away from special education towards a policy of inclusion (Engelbrecht, Green, Naicker & Engelbrecht 1999:viii). This is reflected in national education policy developments since 1994, and is strongly supported by parent bodies, the Disability Desk of the Office of the Deputy State President and the disability movement. International and South African perspectives on inclusion are closely related to wider social concerns about human rights. In South Africa, the new constitution emphasises respect for the rights of all, with particular emphasis on the recognition of diversity. This implies an inclusive approach to education in the sense that all learners are entitled to appropriate education. This, according to Engelbrecht, Naicker and Engelbrecht (1999:viii), is only possible if a single education system is responsible for education provision, and not two systems (regular education system and special education system). However, in order for inclusion to be effective, schools, classrooms and teachers may need to be prepared to change and supported in doing so.

It is useful, as a starting point, to look at some of the wider developments out of which the inclusion movement is currently emerging. A practical starting point is the influential *Salamanca Statement and framework for action on special needs education* produced under the aegis of UNESCO in 1994 and increasingly serving as a key document in guiding inclusive developments internationally. This *Salamanca Statement* (UNESCO 1994:ix) proclaims that regular schools with an inclusive orientation are:

> *The most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all, moreover*

they provide an effective education to the majority of learners and improve the efficiency and ultimately the cost-effectiveness of the entire education system.

The guiding principle of the *Salamanca framework for action on special needs education* which accompanies the *Salamanca Statement* is that regular schools should accommodate all learners regardless of their physical, intellectual, social, emotional, linguistic or other conditions (UNESCO 1994:11-12). This should include disabled and gifted learners, street and working learners, learners from remote or nomadic populations, learners from linguistic, ethnic or cultural minorities and learners from other disadvantaged or marginalised areas or groups. In other words, inclusion is not simply about reconstructing provision for learners with disabilities, but is a means of extending education opportunities to a wide range of marginalised groups who may historically have had little or no access to schooling (UNESCO 1994:6). Thomson (quoted by Oswald, Ackermann & Engelbrecht 2000:307) saw the *Salamanca Statement* as "… the catalyst for the movement of paradigm shift towards greater inclusion of individuals with special education need."

Thus, the *Salamanca Statement* asserts that inclusion is a right, a right which appears to be *universal,* seeing the creation of inclusive schools as part of the creation of an inclusive society (Engelbrecht in Engelbrecht et al 1999:9). In this regard Kochhar and West (1996:2) point out that there are many reasons for pursuing the goals of inclusion and continuing to improve it. Learners with disabilities have received an education that is not equal to that given to other learners. Yet the ultimate rationale for inclusion is based not on law or regulations or teaching technology but on values.

At a national level, major changes were taking place as a result of the new democracy in South Africa. The South African Federal Council on Disability (SAFCD) called for the development of a single inclusive education system for South Africa. The central theme of the statement was clear (SAFCD 1995:1):

> *Learners with Special Education Needs (LSEN) have a right to equal access to education at all levels in a single inclusive education system that is responsive to the diverse needs of all learners, accommodating both different styles and rates of learning, as well as different language needs in the case of deaf learners where their first language is sign language, and ensuring quality education to all through appropriate*

curricula, organisational arrangements, technical strategies, resource use and partnerships with their communities.

The SAFCD was not alone in its call for a non-discriminatory type of education. The *Education White Paper 6. Special needs education* (Department of Education 2001:11), declares the following:

These values summon all of us to take up the responsibility and challenge of building a human and caring society, not for the few, but for all South Africans. In establishing an education and training system for the 21st century, we carry a special responsibility to implement these values and to ensure that all learners, with and without disabilities, pursue their learning potential to the fullest.

With this understanding of the major trends towards inclusion, the focus will now move to an exposition of learners with Asperger's Syndrome in inclusive education settings. The intent is to increase the teachers' understanding of the trend of inclusion, thereby enabling them to successfully include these learners in their inclusive classrooms. However, without practical guidelines, teachers may be powerless to accomplish such a task.

3.3 LEARNERS WITH ASPERGER'S SYNDROME IN INCLUSIVE EDUCATION SETTINGS

When learners with Asperger's Syndrome are made to feel different and isolated from the other learners they may begin to feel inferior. As Kenneth Clarke (quoted by Autism and Asperger's Syndrome Independent Living Association 2001:1) stated:

Segregation is the way in which society tells a group of human beings that they are inferior to other groups of human beings in that society.

In chapter one the concept 'inclusion' was explained as encompassing a single system of education dedicated to ensuring that all learners are empowered to become caring and competent citizens in an inclusive, changing and diverse society (Hall & Engelbrecht 1999:230).

Learners with Asperger's Syndrome are most likely to be enrolled at a regular rather than special school. Attwood (2000a:3) advocates inclusion with ordinary learners as it is important to have a peer group which demonstrates appropriate social behaviour and have the intellectual and social ability and motivation to learn how to relate to the learners and personally contribute to the development of their social skills. Hall and Niemeyer (2000:187-188) concur with this view

when they emphasise that social development in an inclusive setting is enhanced because it is 'normal or real world' and provides opportunities for social skill improvement and practise. Inclusive settings provide learners with and without special needs opportunities to interact, communicate, develop friendships, assist one another and work together. Furthermore, Willis (quoted by Hall & Niemeyer 2000:190) found that typically developing learners in inclusive settings gain skills and insights related to tolerance and the appreciation of human differences. In other words, inclusion centres on the belief that all learners will learn and grow through being exposed to the whole spectrum of normality (Clarke 1999:8).

This having been said, regarding the benefits of inclusion for learners with Asperger's Syndrome, the major trends relating to this process will be reviewed, specifically the social model of disability. If teachers were more conversant with the beliefs of the social model and certain practical guidelines relating to the social model were accessible, they may be able to include learners with Asperger's Syndrome constructively in their inclusive classrooms.

3.3.1 Social model of disability

As mentioned in chapter one, this research study is going to be conducted within the paradigm of the new social model. A paradigm is a set of beliefs that constitutes the researcher's ontology - the researcher's perceptions regarding the nature or reality of the world and what there is to know about it (Schurink in De Vos 1998:240). It will be shown that this paradigm could positively influence the inclusion of learners with Asperger's Syndrome into the regular school and ultimately into the broader social world.

The social model is based on the belief that the circumstances of people with disabilities and the discrimination they face are socially created phenomena and have little to do with the impairments of disabled people. The disability rights movement believes, therefore that the 'cure' to the 'problem' of disability lies in restructuring society. The social model therefore emphasises the shortcomings of society in respect of disability (South Africa. Office of the Deputy President 1997:10). Ultimately, this model shifts attention from the 'personal tragedy' of the individual towards the way in which the social environment within which disabled people have to live acts to exclude them from full participation (UNESCO 2001:21).

The *Education White Paper 6. Special needs education* (Department of Education 2001:17) states that inclusion focuses on overcoming barriers in the system that prevent it from meeting

the full range of learning needs. The *NCSNET/NCESS report, Quality education for all.*
Overcoming barriers to learning and development (Department of Education 1997:v) defines
barriers to learning and development as those factors which lead to the inability of the system to
accommodate diversity, which leads to learning breakdown or which prevents learners from
accessing education provision.

According to the social model, barriers to learning arise through an interaction between learners
and their contexts;   the people, policies, institutions, cultures, and social and economic
circumstances that affect their lifes (Booth et al 2000:14).

What should be clear is the difficulties which learners with impairments experience in the
education system cannot be explained simply in terms of the learners' impairments. Instead, it is
the features of the education system itself. The *Draft disability policy draft 3* (Burden nd:3)
concurs with this view when it states that society, its value systems and practices, and not
personal attributes are the causes of exclusion of individuals and barriers to learning and
development. Society, and not individuals, has to change so as to accommodate or include all
human beings effectively into one system.

According to Roe (1999:252), society is just ill informed. Society is embarrassed. When
learners with Asperger's Syndrome handle a conversation awkwardly, or behave strangely, they
get much the same response as if they had serious body odour. The social model of disability is
suggested in Roe's statement when he remarks that society is misinformed.

Teachers of learners with Asperger's Syndrome may not be aware that in some cases, these
learners are being constrained by the system (and hence society). If teachers were empowered
with such knowledge and practical guidelines, they may be able to ensure that a more humane
social model is adopted in their inclusive classrooms.

The social model is also based on the assumption that human diversity and the uniqueness and
dignity of each individual member are acknowledged and respected as being 'normal'
phenomena of an inclusive society (Burden nd:3). Flem and Keller (2000:192) stress that
teachers must have appropriate knowledge and competence that enable them to respond to the
diversity of learners. Perhaps if relevant guidelines were accessible for teacher of learners with
Asperger's Syndrome, they may be competent to cater for their diversity, thereby ensuring that

these learners are seen for what they can indeed accomplish and not for their differences and peculiarities. This may contribute towards the development of a more tolerant environment whereby the learners with Asperger's Syndrome differences are accommodated, accepted and respected.

3.3.1.1 Respecting diversity

According to Lazarus, Daniels and Engelbrecht (in Engelbrecht et al 1999:46), respecting diversity in the learner population (and other role-players in the learning community) means:

- Developing a genuine respect for all learners.
- Combating prejudice and discriminatory practices (anti-bias strategies), particularly against groups who have been most discriminated against in South Africa.

The *Education White Paper 6. Special needs education* (Department of Education 2001:6;16) concurs with this view of respecting diversity when it defines inclusion, amongst other things, as acknowledging and respecting differences in learners; and respecting the fact that all learners are different in some way and have different learning needs which are equally valued and an ordinary part of our human experience. Flem and Keller (2000:194) are of the same opinion when they claim that it is important to accept that learners are different and have different needs.

According to Putnam (1993:xiii), an inclusive classroom setting is one in which all the learners recognise each other's individual differences and strive to support one another's efforts. In more traditional classroom arrangements, neither competition nor individual work promotes acceptance of differences, in fact, they can actually prevent it. But diversity is celebrated within a cooperative context. Teachers need to understand the diversity of the learners in their classrooms, to identify their problems and to be able to give support to all their learners in order for them to learn and develop optimally (Prinsloo 2001:345). Diversity is not viewed as a problem to be overcome, but as a rich resource to support the learning of all (Booth et al 2000:12).

Providing education services in segregated settings remains one way of dealing with individual differences. However, inclusion as a curriculum concept and a practice seeks to minimise these differences and at the same time challenge the status quo (Le Roux et al 1998:122). The concept of inclusion represents a warm and embracing attitude that unconditionally accepts and accommodates learners with special education needs. Truly inclusive schools celebrate diversity

in ability, as well as in cultural, racial, ethnic and social background (Le Roux et al 1998:122). Stainback, Stainback, East and Sapon-Shevin (quoted by Knight 1999:3) capture this idea when they argue:

> *… the goal of inclusion is not to erase differences, but to enable all students to belong within an educational community that validates and values their individuality.*

Baron-Cohen (2000:489) suggests using the term 'different' rather than 'deficient' could mean the difference between whether the diagnosis of Asperger's Syndrome is received as a family tragedy, akin to being told that the learner has some other severe, lifelong illness, or whether the diagnosis is received as interesting information, akin to being told that the learner is right- or left-handed. According to Baron-Cohen (2000:490), learners with Asperger's Syndrome are different in ways that can be described in value-free terms: none imply any necessary disability. This might be a basic way of defining the difference between learners with Asperger's Syndrome and those without it.

Many features of Asperger's Syndrome may be redescribed in ways that are more neutral. In terms of Asperger's Syndrome, comprising a different 'cognitive style' may be described with no implication that this is better or worse than a nonautistic cognitive style. The cognitive impairments were addressed in chapter two and could for example, be described as being more object oriented, and more focused on detail. Being more object focused is clearly only a disability in an environment that expects everyone to be social - but this is really unjust. Thus, people who show the opposite pattern (of being more people focused than object focused) are not necessarily considered disabled. According to this view, people with Asperger's Syndrome would cease to be disabled as soon as society's expectations change (Baron-Cohen 2000:491).

Equally, learners with Asperger's Syndrome who have a strong narrow interest of an unusual nature (learning the names of every kind of bird) may be different to a typical learner who has only been interested in learning the names of common animals. But it can be argued that the narrow deep knowledge is no less valuable than the broad, shallower variety, and certainly not a necessary index of deficit (Baron-Cohen 2000:491).

If teachers perhaps understood and accepted that each learner in their inclusive class is unique and different, and instilled this concept (of how special differences can really be) in the other learners, more positive attitudes may be encountered. The *NCSNET/NCESS report* (Department

of Education 1997:15) states that negative and harmful attitudes towards difference in our society remain a critical barrier to learning and development. Consequently, the following section will outline how the attitudes of teachers may possibly influence (either positively or negatively) the inclusion of learners with Asperger's Syndrome in the classroom.

3.3.1.2 Attitudes

Forlin, Douglas & Hattie (quoted by Hornby 1999:155) suggested that a key factor in the effectiveness of inclusion must be the views of the personnel who have the major responsibility for implementing it - that is, teachers. Asperger (in Frith 1991:48) stressed that these learners often show a surprising sensitivity to the personality of the teacher and the teacher's underlying emotional attitude influences, involuntarily and unconsciously, the mood and behaviour of the learners.

Teachers' beliefs and attitudes are critical in ensuring the success of inclusive practices since teachers' acceptance of the policy of inclusion is likely to affect their commitment to implementing it (Hornby 1999:155; Knight 1999:6; McCoy quoted by Coombs-Richard & Mead 2001:384). The *Education White Paper 6. Special needs education* (Department of Education 2001:6-7;16), concurs with this view when it defines inclusive education and training, amongst other things as the changing of attitudes and behaviour to meet the needs of all learners. The changing of attitudes, however, may take time and is a complex process which involves moving, in a series of stages, from one set of attitudes to another (South Africa. Office of the Deputy President 1997:23-24).

Mercer and Mercer (1998:15) argue that the teacher's positive attitude towards learners with impairments is the key towards the successful integration of the learners in the regular class. In brief, the changing of attitudes and human behaviour concerning the manner in which diversity is perceived and handled is an important step towards the creation of inclusive systems and societies (Burden 2000:36).

However, one of the greatest hurdles disabled people face when trying to access inclusive education settings are negative attitudes. It is these attitudes that lead to the social exclusion and marginalisation of people with disabilities. Unfortunately negative attitudes are continually reinforced. Disability is portrayed as a 'problem' (South Africa. Office of the Deputy President 1997:23). Negative and discriminatory attitudes, on the part of teachers, towards difference,

resulting from prejudice against learners on the basis of race, class, gender, culture, disability, religion, ability, sexual preference and other characteristics, manifest themselves as barriers to learning and development. When such attitudes are directed towards learners in the education system, for instance by labelling or categorising, they are excluded from learning experiences and in doing so from full, quality and equal participation in learning in real-life situations (Burden 2000:36). Hence the reason for the next section which will discuss the provision of valuable support networks to the teachers. Any negative attitudes that teachers may have could possibly be eliminated by the efficient utilisation of support networks. It may, however, be the case that teachers are unaware of certain support networks which can assist them in their endeavours of educating learners with Asperger's Syndrome in their inclusive classroom. Thus, this research aims to expand the teachers' knowledge of certain support networks.

3.3.2   Support networks

According to Mastropieri and Scruggs (2000:27), the single most important element for successful inclusion is the attitude of teachers as well as teacher and administrator support. The *Education White Paper 6. Special needs education* (Department of Education 2001:28) considers that the key to reducing barriers to learning within all education and training lies in a strengthened education support service. A support network provides teachers not only with the opportunities to build on learners' strengths but the access to resources increase teachers' perception that they can have an impact on the education outcomes of the learners with special needs (Buell, Hallam, Gamel-McCormick & Sheer 1999:153).

The *NCSNET/NCESS report* (Department of Education 1997:55) also maintains that this support is necessary when it states that:

> *The separate systems of education which presently exist ('special' and 'ordinary') need to be integrated to provide one system which is able to recognise and respond to the diverse needs of the learner population. Within this integrated system, a range of options for education provision and support services should be provided.*

It is essential that partnerships are formed between key stakeholders who can support the transition process (UNESCO 2001:36). These include: all parents; teachers and other education professionals; professionals in other services who will be affected by the move to inclusion (e.g. health, social services); teacher trainers and researchers; national, local and school-level administrators and managers; civic groups in the community; and members of

minority groups at risk of exclusion (Karagiannis et al in Stainback & Stainback 1996:3; UNESCO 2001:36). Creese, Norwich and Daniels (2000:308) concur with this view when they argue that the role of a collaborative professional culture in schools is an important but unresearched aspect of school effectiveness and improvement. Teacher collaboration and teacher support must be assigned a prominent place in school life (Creese et al 2000:322).

According to Karagiannis et al (in Stainback & Stainback1996:3) collaborative consultations include individuals with a variety of abilities, who work together to plan and implement programmes for a diversity of learners in regular schools. The development of collaborative relationships among teachers so that expertise may be shared is crucial to the success in meeting the diverse needs of all learners in inclusive education settings (Thousand and Villa quoted by Hall, Campher, Smit, Oswald & Engelbrecht in Engelbrecht et al 1999:157).

With regard to this research, three valuable characteristics of this support network will be discussed, namely: parents, classroom assistants and community collaboration.

To begin the discussion on support networks, the importance of empowering and involving parents of learners in Asperger's Syndrome in this whole network of support is emphasised. It is expected that by increasing the teachers' understanding of the central role of parents, their views and ideas can be productively utilised when outlining the practical guidelines intended for the teachers who may now encounter the impairments of these learners (discussed in chapter two) in their inclusive classrooms.

3.3.2.1 Parent involvement and empowerment
The *Education White Paper 6. Special needs education* (Department of Education 2001:50) envisages that partnerships will be established with parents. It also states (Department of Education 2001:34) that its aim is to target parents since they are regarded as an important form of support. According to the *Education White Paper 6. Special needs education*, an essential and core part of the inclusive system is parents of learners with Asperger's Syndrome (Department of Education 2001:34). After all it is the parents who know their children best, possess in-depth and unique information about their child and who have had the most practical experience in dealing with these learners and are hopefully in the best position to offer support for the teacher (Goble 1995:23-24; Mullen & Frea in Koegel & Koegel 1995:184).

The *NCSNET/NCESS report* (Department of Education 1997:102) concurs with this idea of the importance of parent empowerment, when it states that parents and school personnel should bring the strength of their differences to the joint task of the learner's education. Parents should be involved in planning and local policy making, in the teaching and learning process itself, and in the development of a supportive learning environment for all learners. The *South African Schools Act. Act* 84 *of 1996* also endorses parent involvement. Throughout this *Act 84 of 1996*, reference is made to the rights and responsibilities of parents with regard to the education of their children (Republic of South Africa (RSA) 1996:3;6;8;17).

Connor (2000:295) argues that regular communication with parents is desirable. Both teachers and parents should recognise the individuality of the learners in question and be aware of the nature of seemingly minor events that may have a disproportionate impact upon the learners' level of confidence.

Because parents usually are the ones to insist on inclusion, establish the momentum, and drive the process, their role in the team is critical and can never be ignored or downplayed (Alper 1995:25; Gallagher, Floyd, Stafford, Taber, Brozovic & Alberto 2000:136). The need to involve parents as much as possible in assisting their learners is now universally acknowledged, for the following reasons. Parents have the right to become involved because these learners are their children, and because they are responsible first and foremost for educating their children (Du Toit 1997:145-146; UNESCO 2001:83). When parents and teachers work together, the development of the child can be supported and the needs of the child can be met more fully (Du Toit 1997:145-146; Marcus, Kunce, & Schopler in Cohen & Volkmar 1997:633-634; UNESCO 2001:83).

More than thirty-five years of research have made it undoubtedly clear that parent involvement is critical to learner success (Schumacher 2000:35). Myles and Simpson (quoted by Glassman 1999:8) and Thomas (1996:96) concur with this when they argue that without parent support, any major education reform is unlikely to succeed. Henderson and Berla (quoted by Schumacher 2000:35) clearly agree with this opinion when they state:

> *When parents are involved in their children's education at home, their children do better in school. When parents are involved at school, their children go farther in school, and the schools they go to are better.*

Parents are able to provide valuable information about their learner's situation (Du Toit 1997:145). Families (particularly parents) have the most extended contact with children in the early years and are their more effective educators (UNESCO 2001:123). Fox (quoted by Clarke, Dunlap & Vaughn 1999:235) are of the same opinion as evidenced by their contention that the involvement of families in the process of behaviour support has been described as being of special importance because of the amount of time that families spend with their children and because of the tremendous reciprocal influences that characterise parent-child interactions. Parents can help with the implementation of the support programme. Such involvement not only makes it easier to support these learners, but it also results in improved relationships between parents and school staff, increases the motivation of learners and results in better achievements, contributes to better school attendance, and reduces the incidence of premature school leaving (Du Toit 1997:145-146). UNESCO (2001:83) concurs with this when it states that learners will learn more successfully when there is harmony between expectations and opportunities to learn at home and at school.

If teachers were given practical guidelines regarding ways of involving parents in the inclusive education of their children, a more productive atmosphere may be encountered and teachers may be in a favourable position to respond to the needs of the learners with Asperger's Syndrome in their classrooms.

Teachers could effectively utilise a classroom assistant when responding to the impairments (discussed in chapter two) of learners with Asperger's Syndrome in their inclusive classrooms. This is a valuable form of support especially taking into consideration that a notable facet of the network of support may be the efficient use of classroom assistants.

3.3.2.2 Classroom assistants

Learning Support Assistants (LSAs) work in the classroom alongside teachers and learners. They support individual learners enabling them to be educated with their more able peers (Lacy 2001:157). According to Rose (2000:191;195), the efficient use of classroom support in responding to learners with special education needs in schools has been a topic of considerable debate in recent years. The effective use of LSAs is a key factor in developing moves towards greater inclusion.

There can be little doubt that the LSAs role within the classroom is an important one but it is not always the case that the potential benefits for deploying LSAs are fully realised in practice (Aird 2000:108). Ainscow (2000:77) concurs with this view when he states that the idea of using extra adults to facilitate the participation of learners is an excellent one, but many schools have yet to find ways of using them effectively.

Teachers of learners with Asperger's Syndrome could take advantage of the services offered by the community, after all a crucial part of the network of support may be the efficient manipulation of community based support. Teachers may, however, be unaware that such facilities are available for their utilisation and may not realise that such services may assist them in responding to the needs of these learners in their regular classrooms.

3.3.2.3 Community based support

According to UNESCO (2001:91), there is growing international evidence that even very disadvantaged communities have internal resources which can be mobilised. Weeks (2000:23) claims that community-based involvement is essential, with members of the community becoming involved in actualising the full potential of learners. For a school to be inclusive it will have thought through the demands it will make on external support agencies (Moore 1999:177). Booth et al (2000:45) stress the importance of creating a secure, accepting, collaborating, stimulating community in which everyone is valued as the foundation for the highest achievements of all learners.

Teachers of learners with Asperger's Syndrome may be unaware of the services which community organisations offer which may assist in improving the impairments of these learners and contribute towards their inclusion in the regular school. Thus, this research intends to make teachers aware of the benefit of such community organisations.

If teachers were aware of and attended pre-service and in-service training, they may obtain valuable ideas to support them in their endeavours of responding to the idiosyncraticies of these learners in their inclusive classrooms. Hence the reason for the next section which contemplates the importance of training for teachers of learners with Asperger's Syndrome.

3.3.3   Pre-service and in-service training

The *Education White Paper 6. Special needs education* (Department of Education 2001:18) states that classroom educators will be the primary resource for achieving the goal of an inclusive education and training system. This means that educators will need to improve their skills and knowledge, and develop new ones. Staff development at the school and district level will be critical to putting in place successful integrated practices. Tired and anxious teachers are unlikely to adapt to change effectively and this has negative implications for their learners (Hall et al in Engelbrecht et al 1999:163-164). The *Education White Paper 6. Special needs education* (Department of Education 2001:29) envisions that appropriate pre-service and in-service education and training will be given to educators.

Avramidis, Bayliss and Burden (2000:291) argue that providing extensive opportunities for training for prospective teachers in inclusive settings may support the development of confidence and competence. In a study completed by Roll-Pettersson (2001:52), he found that the majority of teachers (regardless of setting) expressed a need for beginning of year in-service training, regular and ongoing in-service training.   A study undertaken by Hay, Smit and Paulsen (2001:216) proved teachers did not feel equipped to implement inclusive education because they had insufficient training to deal with these classes.

Pre-service and in-service training may prepare the teachers with understanding of the importance of the curriculum which is adopted for their inclusive classrooms. The following section endeavours to discuss the issue of the 'curriculum' to set out guidelines for teachers to adapt their curriculum to respond to the unique impairments of learners with Asperger's Syndrome.

3.3.4   Curriculum

Teachers seeking to increase inclusion should strive to develop new ways of involving all learners through experimentation, reflection and collaboration, using planned access to a broad and balanced curriculum for all learners. Inclusive education, therefore, should encourage schools to reconsider their structure, teaching approaches, learning grouping and use of support so that they respond to the needs of learners (Farrell 2000:35).

Wilson (1999:111) states that teachers should start with the question 'What sorts of worthwhile learning activities actually suit what types of learners?' However, more inclusive curricula make

greater demands on teachers and they will need support in implementing them effectively (UNESCO 2001:95).

According to Attwood (2000b:1), learners with Asperger's Syndrome have to learn the traditional education curriculum but they encounter additional learning experiences and sources of stress than do other learners in their class. They have an additional curriculum, namely the social curriculum. With regard to the social curriculum learners with Asperger's Syndrome have to use their intellectual reasoning to determine the social rules of the classroom and the playground. Other learners do not have to learn social integration skills consciously but these learners have to decipher the social cues and codes and cognitively determine what to do and say in social situations. Asperger (in Frith 1991:57) encapsulates this view very clearly when he observed that the teacher who does not understand that it is necessary to teach these learners seemingly obvious things will feel impatient and irritated. Flem and Keller (2000:201) concur with this view when they argue very convincingly that the biggest challenge to the realisation of inclusion ideology appeared not to be the academic integration of students with disabilities into their classroom milieu, but rather their social integration.

Thus, these learners have to concentrate on an extra curriculum that leaves them intellectually and emotionally exhausted at the end of the school day. They also have difficulty reading and responding to the emotional signals of the teacher and other learners, coping with the complex socialising, noise and chaos of the playground, the unexpected changes in the school routine and the intense sensory experiences of a noisy classroom. Throughout the school day these learners rarely have an opportunity to relax (Attwood 2000b:1).

Teachers need to be conscious that the development of correct social skills does not occur naturally to learners with Asperger's Syndrome. Teachers may be faced with the very demanding and challenging task of assisting these learners to function correctly in a predominantly social school environment. However, with correct support and guidelines teachers may rewardingly accomplish this task and the learners could be accommodated in any inclusive education setting. A flexible curriculum possibly will assist teachers in this challenging but exciting undertaking. Hence the reason for the next section, which aims to increase the teachers' understanding of the importance of establishing a flexible curriculum which may empower the teachers of learners with Asperger's Syndrome to respond to their diverse needs in their inclusive classrooms.

3.3.4.1 Flexible curriculum

Central to the accommodation of diversity in our schools is a flexible curriculum and assessment policy that is accessible to all learners, irrespective of the nature of their learning needs. This is so since curricula create the most significant barrier to learning and exclusion for many learners. These barriers to learning arise from within the various interlocking parts of the curriculum (Department of Education 2001:31). Lazarus et al (in Engelbrecht et al 1999:46-47) also propose that one of the major features of inclusion is the development a flexible curriculum that meets the diverse needs of the whole learner population. In inclusive education practice, teachers must take responsibility for the learning of all their learners and demonstrate sensitivity to individual characteristics by using a wide variety of teaching techniques (Le Roux et al 1998:125). Under these circumstances all learners are likely to receive a curriculum experience which is tailored to their needs but within the context of a common framework and the ordinary classroom (UNESCO 2001:102). However, few regular teachers have received the training necessary to adapt their instruction to maximise learner achievement (Coombs-Richard & Mead 2001:383).

Teachers may at first find this a challenging task – after all transformation is not always so straightforward. However, if teachers are given the necessary support in the form of practical guidelines on how to modify their curriculum then they could eventually, without much effort, be able to adjust the curriculum, whenever the need arises.

Teachers who have adjusted their teaching to the Outcomes-Based Education (OBE) system may find, because of its flexible nature, that they can easily adapt the curriculum to the needs of learners with Asperger's Syndrome. An OBE curriculum is more flexible than the traditional curriculum and makes allowances for variations in learning rates, pace and style (Lomofsky, Roberts & Mvambi in Engelbrecht et al 1999:75-76). However, teachers may require guidelines to understand exactly how such a OBE system can enable them to respond to the impairments of learners with Asperger's Syndrome.

3.3.4.2 Outcomes-based education

OBE is a design for education which is learner centred and orientated towards results or outcomes. It is based on the belief that all individuals can learn. In OBE the curriculum is designed to promote attitudes, values and skills which are needed by the learners and the society. In this way the learners are equipped with what they should know to be able to participate

actively in society. It also includes a realisation that learners differ and that assistance may be needed to enable learners to reach their full potential (Department of Education 1997:vii; Naicker 1999:87-89).

The emphasis in this approach is on what learners know and can do at the end of a course of learning and teaching, rather than just on their completing specific components. The emphasis is on the achievement of outcomes and on the application of learning (Department of Education 1997:48). Outcomes are clear learning results that we want learners to demonstrate at the end of significant learning experiences. This means that outcomes are actions and performances that embody and reflect learner competence in using content, information, ideas and tools successfully (Spady 1994:2).

OBE is also a useful vehicle for implementing inclusive education. One of the most important features of OBE is that it is concerned with "… establishing the conditions and opportunities within the system that enable and encourage all learners to achieve those essential outcomes …" (Spady 1994:2).

The specific constraints of the traditional system related to time, calendars, grades, passing and failing, are now removed. The OBE system, however, does not consider these aspects important in achieving outcomes. The following premises of OBE validate this position:

- All learners perform successfully, but not at the same pace.
- Each successful learning experience is a stepping stone to more success.
- Schools are pivotal in creating the conditions for success at schools (Naicker in Engelbrecht et al 1999:21).

Learners with Asperger's Syndrome possibly need to feel worthwhile and that they are succeeding in their school work. If they are successful this may encourage them to continue and try even harder – success breeds success. The OBE system will assist in this regard as it values all learners as unique individuals and trusts that all learners can perform effectively. After all, the fundamental aim of OBE is for all learners to succeed, and school experiences are redefined as preparation for life rather than preparation for more schooling (Lomofsky et al in Engelbrecht et al 1999:75-76).

Group work may enhance the social acceptance of the learners. Providing the learners with a specific role in group activities and avoiding situations where they may be the last to be chosen will help to alleviate isolation. Group work may provide the opportunity for the learners to excel in a particular area and therefore be seen as an asset by the other learners (Martin 2000:26-27). OBE is, however, not a soft option. No one can claim that the new form of assessment will be easy, but the rewards for all those involved will be great. The teachers who clearly understand the implications and who take on the challenge of implementing it step by step will reap multiple rewards in terms of job satisfaction, total involvement in the educative process, and the development of learners into self-regulating, life-long learners. If it is professionally implemented, OBE can revitalise South African society (Archer, Rossouw, Lomofsky, & Oliver in Engelbrecht et al 1999:105).

In summary, if teachers follow an OBE system, they may be able to utilise the new forms of OBE assessment to ensure that learners with Asperger's Syndrome are being adequately assessed and accommodated in the inclusive classrooms. Much of the most useful assessment can be carried out by teachers themselves (UNESCO 2001:55).

3.3.4.3 Assessment

According to UNESCO (2001:55) the aim of assessment is to make it possible for teachers and schools to provide responses to a wide diversity of learners. It has to help teachers plan for learner diversity in their classrooms and has to help schools develop so that they become more inclusive.

Traditionally assessment has often been seen as a matter for 'specialists' such as medical and psychological personnel and for special educators. However, such specialists do not necessarily help the teachers to understand how the learners learn in the ordinary classroom, what barriers to learning the learners experience in the classroom, or how the teachers can help the learners to learn better. Teachers, on the other hand, work with learners on a day-to-day basis and in the ordinary classroom (UNESCO 2001:60).

Teachers have to develop the ability to carry out assessments alone or in collaboration with other professionals. The skills teachers need for assessment are not different in kind from the skills they use in their daily practice with all of their learners (UNESCO 2001:62). In fact, assessment promotes efficient and effective teaching. Classroom assessments provide the teachers with

feedback on their teaching and professionalism. They soon understand that assessing the achievements of the learners also assesses their own accountability (Archer et al in Engelbrecht et al 1999:101).

There have to be regular opportunities for teachers to observe learners engaged in individual and group learning activities and to analyse those activities. This form of assessment can be built into routine classroom activities, can utilise the materials normally available and can draw upon the skills that most teachers already possess in observing their learners. It does not demand specialist techniques or equipment (UNESCO 2001:60). This type of assessment becomes increasingly useful if it is undertaken on a recurrent basis (UNESCO 2001:61). The new approach to assessment replaces the old, traditional examination system where scores were the decisive fact in passing or failing. The new approach which is descriptive of the quality of learners' development encompasses wide-ranging styles of flexible assessments with intimate links to the curriculum. The practice of continuous appraisal is a powerful tool for improving everything which significantly impacts on education and training (Archer et al in Engelbrecht et al 1999:103).

Assessment in the inclusive classroom is thus a continuous process of information gathering to indicate the learners' degrees of progress towards demonstrating competence in desired outcomes as well as highlighting individual strengths and achievements (Archer et al in Engelbrecht et al 1999:111).

There is a range of other assessment techniques which teachers can use with ease. These include:
- Authentic assessment: instead of testing learners on rote learning, they are assessed on 'real-life' complex activities.
- Behavioural assessment: focuses on the assessment: of observable behaviour and the impact of environmental factors on that behaviour.
- Mastery assessment: breaks a complex task down into simpler sub-tasks and assesses the learner's performance of each sub-task as it is taught.
- Portfolio assessment: assembles a selection of the learner's work showing its development over time and invites the learner to contribute to self-evaluation (UNESCO 2001:61).

A good teacher will need all of these techniques at different times and in different circumstances (UNESCO 2001:61).

In the final analysis, OBE assessment is a strategy to motivate learners to strive towards mastering the criteria which define the specific outcome, so that they gradually take control of their own learning (Archer et al in Engelbrecht et al 1999:100). It may, however, be the case that teachers are unaware of these different assessment methods and do not understand how to utilise them in their inclusive classrooms. Thus, this research aims to increase the teachers' understanding of these assessment methods and how they can be utilised for the benefit of learners with Asperger's Syndrome.

Visual aids, including computers in the inclusive classroom, may be valuable tools for teachers to exploit when responding to the diverse needs of learners with Asperger's Syndrome.

3.3.4.4 Visual aids

Learners with Asperger's Syndrome process information more easily if it is presented visually (Myles & Southwick 1999:13-14). Maag and Katsiyannis (2000:7) maintain that teachers should consider incorporating many visuals (i.e. schedules, charts, lists, pictures). Visual information is more concrete than auditory information and allows for greater processing time (Myles & Southwick 1999:86).

Additional visual strategies include the use of a computer and keyboard, especially for those who have problems with handwriting (Attwood 2000b:6). In chapter two, it was noted that learners with Asperger's Syndrome are often very skilled at using computers and keyboards. Computer based learning has also enjoyed an increasing role in inclusive education with the development of more powerful personal computers available at lower costs (Standen, Brown & Cromby 2001:290). Huntinger (1996:112) maintains that computer applications provide the tools to make inclusion possible and easier. Learners with Asperger's Syndrome often enjoy having access to a computer and may be more able to understand material if it is presented on a computer screen. Material presented by a teacher may add a social and linguistic dimension to the situation, which can increase the learner's confusion (Attwood 2000b:6).

Tjus, Heimann and Nelson (quoted by Carrington & Forder 1999:6), maintain that computers can be so appealing to learners with Asperger's Syndrome. Computers are logical and consistent and can be an ideal learning tool for the learners. Multimedia programs can be used in a way that takes advantage of the skills of the teacher in providing rich conversational models and in

helping to motivate the learners' learning from the multimedia material. Computing technology offers some notable advantages over other instructional tools when dealing with learners with Asperger's Syndrome. The computer does not become bored with repetition. Given the same input, it will reply with the same answer. Humans are likely to respond in dissimilar ways to the same questions. Computers do not rely on body language to embroider meaning nor do they argue or delay gratification (Carrington & Forder 1999:9).

Silver and Oakes (2001:302) argue that computers can be programmed to build on learning experiences in small logical steps, progressing at the rate of the learner and incorporating reinforcement. Thus the whole learning experience can become a conditioned reinforced, increasing motivation. The material can also be selected to match the learner's cognitive ability. Photographs make stimuli as close to the real world as possible, assisting potential generalisations.

Teachers of learners with Asperger's Syndrome may be unaware that visual aids, especially computer technology, can assist them in their inclusive classrooms when educating and responding to the needs of learners with Asperger's Syndrome. If teachers were familiar with these valuable aids they may be in a favourable position to exploit these valuable techniques to the benefit of these learners.

3.4 CONCLUSION
This chapter began with a discussion of inclusion. The major trends (both international and national) in the development of inclusion were outlined. This set the focus for the main section of this chapter, namely learners with Asperger's Syndrome in inclusive education settings. In this section the major tenets of inclusion were outlined in an attempt to increase the teachers understanding of 'inclusion'. As Flem and Keller (2000:195;199) argue, successful inclusion is dependent on teachers' knowledge and competence, however teachers do not always have the competence needed for inclusion. The discussion of inclusion in this chapter has empowered the researcher to outline certain practical guidelines for teachers of learners with Asperger's Syndrome in inclusive education settings. Referring to his learners, Asperger (in Frith 1991:48) noted, "… however difficult they are even under optimal conditions they can be guided and taught, but only by those who give them true understanding and genuine affection."

This chapter on inclusion has thus resolved the second problem statement stated in chapter one concerning the issue of increasing the understanding of 'inclusion' in order to demarcate certain practical guidelines for the teachers of learners with Asperger's Syndrome in inclusive education settings.

Chapters two and three have presented a literature review of the impairments of learners with Asperger's Syndrome and how teachers can successfully include learners with Asperger's Syndrome in their regular classrooms. This knowledge will form the backdrop to the empirical research whereby the parents of these learners are interviewed and the learners observed in their natural surroundings. The issues which have arisen in these chapters have provided a basis for the questions for the interviews with the parents, as well as an understanding of exactly what to observe. In the next chapter the results of the research will be reported, bearing in mind all the information gained from the literature research.

CHAPTER FOUR
RESEARCH DESIGN AND RESULTS

4.1 INTRODUCTION

The qualitative investigation conducted as part of this study serves as an indispensable source of practical information in ascertaining and investigating the practice of inclusive education for learners with Asperger's Syndrome within the South African context. It was structured to complement the literature study that has been undertaken in chapters two and three. It is anticipated that the personal experiences of the parents' interviews and observations of the learners will provide valuable information for achieving comparative analysis. The literature study and empirical study, together, will provide a holistic perspective regarding the inclusive education of learners with Asperger's Syndrome.

In this chapter a summary of all the interviews, as well as the results of the observation undertaken will be discussed. The researcher intends to identify major themes and patterns which emerged from the literature study and use these themes and patterns to describe the outcomes of the interviews and observations. By identifying themes and categories out of the data, it is expected that a chain of evidence will be developed. The information will place the researcher in a favourable position to give meaning to the data and make certain conclusions regarding the guidelines which teachers of learners with Asperger's Syndrome require in their inclusive classrooms.

To begin with a more extensive discussion on the qualitative paradigm (which was briefly discussed in chapter 1) needs to be given. This will ensure that that the empirical study is conduced in a systematic and meticulous manner.

4.2 RESEARCH DESIGN

In chapter one the research design was described as the plan and structure of the investigation used to obtain evidence to answer research questions. According to McMillan and Schumacher (1997:34), the purpose of a research design is to provide the most valid, accurate answers possible to research questions. Since there are many types of research questions and many types of designs, it is important to match the design with the questions. Research design is a very important part of an investigation, since certain limitations and cautions in interpreting the

results are related to each design and also because the research design determines how the data should be analysed (McMillan & Schumacher 1997:34).

For this research a qualitative research design was chosen.

4.2.1   Qualitative research design

Qualitative research seeks to understand a particular social phenomenon in its natural setting. The objectives of qualitative research are to discover, describe and analyse the complexities of common phenomena through observation and involvement in a research setting. It is the role of the qualitative researcher to scrutinise commonplace occurrences because when observed for prolonged periods, common phenomena can reveal remarkable levels of complexity (Gorman & Clayton 1997:177).

As mentioned in chapter one, in a qualitative research design the specific procedures are identified during the research rather than specified ahead of time. Each step depends on prior information collected during the study.   The purpose is to understand the person(s) or phenomena.   Qualitative designs typically investigate behaviour as it occurs naturally in noncontrieved situation, and there is no manipulation of conditions or experience. In this sense qualitative designs are nonexperimental. The data also consist of words in the form of rich verbal descriptions rather than numbers (McMillan & Schumacher 1997:39-40).

According to Allan and Skinner (quoted by Parker 1999:54), qualitative research allows the researcher to remain receptive to new ideas, issues and undercurrents emerging in the study. This was especially necessary in the context of this study where the inclusion policy, which is still something relatively recent, is studied. It is possible that new developments, relating to the inclusion of learners with Asperger's Syndrome, may evolve during the process of this research.

A literature study is an important part of a qualitative research design. In chapter one, a literature study was explained as the reading of whatever has been published that appears relevant to the research topic.

4.2.2   Literature study

According to Johnson and Christensen (2000:41), the general purpose of the literature review is to gain an understanding of the current state of knowledge about the selected research topic.

Specifically, a review of the literature will tell the researcher whether the problem identified has already been researched. If it has, the researcher should either revise the problem in the light of the results of other studies, or look for another problem. If the problem identified has not been investigated, related studies may give ideas as to how to proceed and design the study so that answers to the problem can be obtained. A literature review can also point out methodological problems specific to the research problems being studied.

Gaining familiarity with the literature will also help the researcher after he or she has collected the data and analysed the results. One of the last stages of a research project is to prepare a research report in which the results of the study are communicated to others. In doing so the researcher not only has to describe the study conducted and the results found but also has to explain or interpret the results of the study. In trying to make sense of the data collected from a study it is often valuable to be aware of the literature because it can frequently provide clues as to why the effects occurred. If the researcher is familiar with the literature, he or she can also discuss the results, in terms of whether they support or contradict prior studies. If the study is at odds with other studies, the researcher can speculate as to why this difference occurs, and this speculation then forms the basis for another study to attempt to resolve the contradictory findings (Johnson & Christensen 2000:41).

The literature review can stimulate questions. It can assist the researcher in deriving an initial lists of pertinent questions to ask or behaviours that he or she may want to observe. The questions asked or observations made may change as the study progresses, but the prior literature can help in formulating the basis for proceeding with the research project (Johnson & Christensen 2000:41).

What should be evident from the above discussion of a literature study is that it is not a summary of various studies, but rather an integration of reviews and sources around particular trends and themes (Glesne 1998:21).

As mentioned in chapter one, an ethnographic research design would be chosen to assist the researcher in the task of systematically obtaining valuable information in order to outline the guidelines for teachers of learners with Asperger's Syndrome.

4.2.3   Ethnographic research design

Tedlock (in Denzin & Lincoln 2000:455) argues that ethnography is not simply the production of new information or research data, but rather the way in which such information or data are transformed into a written or visual form. As a result, it combines research design, fieldwork and various methods of inquiry to produce historically, politically, and personally situated accounts, descriptions, interpretations, and representations of human lifes.

Ethnography essentially involves descriptive data collection as the basis for interpretation. It represents a dynamic 'picture' of the way of life of some interacting social group. As a process, it is the science of cultural description (Burns 2000:393). Those working in the ethnographic tradition, thus, stress the need to see social life within the general context of a culture, subculture or organisation as a whole. The actions of individuals are motivated by events within the larger whole and thus cannot be understood apart from it (Burns 2000:397-398). Walford (2001:7) concurs with this view when he notes that ethnographers stress that we move within social worlds, and that to understand the behaviours, values and meanings of any given individual (or group) some kind of cultural context must be taken into account. In this respect, ethnography balances attention to the sometimes minute everyday detail of individual lifes with wider social structures. Ethnographers try to be holistic; they try to describe how the individual members of a group interact and how they come together to make up the group as a whole. In other words, the group is more than just the sum of its parts (Johnson & Christensen 2000:29).

What should be evident is that the ethnographer systematically works at deriving meanings of events. The ethnographer does not immediately decide the meaning of events. The observations, along with knowledge and experience, generate working hunches that will be checked out in subsequent data collection (McMillan & Schumacher 1997:428-429).

As already mentioned, in ethnography people are the experts concerning what the researcher wants to investigate. By interviewing the parents of learners with Asperger's Syndrome and observing the learners in inclusive education settings, the researcher hopes to gain much relevant information. Thus the parents of these learners form the sample for this study.

4.2.4   Sampling

The main criterion for sampling in qualitative research is the selection of information rich informants, groups, places and events (Bless & Higson-Smith 1995:106). In purposeful

sampling, researchers handpick the cases to be included in the sample on the basis of their judgment of their typicality. In this way, they build up a sample that is satisfactory to their specific needs. As its name suggest, the sample has been chosen for a specific purpose (Cohen, Manion & Morrison 2000:103). Thus this method enables the researcher to seek out groups, settings, and individuals where the processes being studied are most likely to occur (Denzin & Lincoln 2000:370; Silverman 2000:104). This means that researchers take a portion of the population and consider it to be representative (Strydom & De Vos in De Vos 1998:190). In addition, the person or groups who actually participated in the study are reported in a manner to protect confidentiality of data (McMillan & Schumacher 1997:434-435).

In chapter one it was stated that learners with Asperger's Syndrome would be observed for some time in order to gain understanding of their impairments and the challenges which inclusion may produce for them. From the observations, it is expected that the researcher will be able to gain fundamental information for the outlining of the practical guidelines for teachers of these learners.

4.2.5   Observation

Observation is an important way of collecting information about people because people do not always do what they say they do. It is a maxim in the social and behavioural sciences that attitudes and behaviour are not always congruent (Johnson & Christensen 2000:147).

Qualitative observation involves observing all relevant phenomena and taking extensive field notes without specifying in advance exactly what is to be observed. In other words, qualitative observation is usually done for exploratory purposes. Qualitative observation is usually done in natural setting. In fact, the terms, qualitative observation and naturalistic observation are frequently treated as synonyms in the research literature (Johnson & Christensen 2000:149).

Whenever researchers conduct qualitative observations, they must remember exactly what has been observed. In fact, the researcher is said to be the data-collection instrument in qualitative observation because it is the researcher who must decide what is important and what data are to be recorded (Johnson & Christensen 2000:149). For the purpose of this research the researcher will assume the role of a participant observer.

4.2.5.1 The role of the researcher - participant observation

According to Burns (2000:404), the participant observer investigator lifes as much as possible with, and in the same manner as, the individuals being investigated. Researchers take part in the daily activities of people, reconstructing their interactions and activities in field-notes taken on the spot, or as soon as possible after the occurrence. Participant observation has been described as "… a process of waiting to be impressed by recurrent themes that reappear in various contexts…" (Burns 2000:404).

In participant observation the researcher observes a field setting for an extended time (Johnson & Christensen 2000:151). The focus is on recording the constructed realities as demonstrated by the participants. The researcher attempts to gain a clear understanding of meaning by carefully noting language variations and linguistic patterns as well as nonverbal cues and social interactions. The observation is unstructured in the sense that almost anything may be significant, but the researcher does not record everything that occurs. Detailed descriptive field notes are recorded and analysed to construct meaningful themes, ideas, and other findings (McMillan & Schumacher 1997:40).

Participant observation serves to elicit from people their definitions of reality and the organising constructs of their world. Because they are expressed in particular linguistic patterns, it is crucial that the ethnographer studying learners in schools should be familiar with, and imperturbable toward, current juvenile word usage (Burns 2000:406).

The observations, together with the intended ethnographic interviews could enable the researcher to obtain the views of the parents as to the specific guidelines that teachers of learners with Asperger's Syndrome can utilise in their inclusive classrooms.

4.2.6   Ethnographic interview

An interview is a data collection method in which an interviewer (the researcher or someone working for the researcher) asks questions of an interviewee (the research participant). That is, the interviewer collects the data from the interviewee, who provides the data. Interviews that are done face-to-face are called in-person interviews. A strength of the interview is that a researcher can freely use probes (prompts used to obtain response clarity or additional information) (Johnson & Christensen 2000:140).

An interview is an interpersonal encounter and should be friendly. It is important that the interviewer establishes rapport with the person being interviewed (the interviewee). At the same time, the interviewer must be impartial to whatever the interviewee says. If the researcher reacts positively or negatively to the content of the interviewee's statement, it may bias the responses. It is also important that the interviewee trusts the researcher because without trust the research reports are likely to be biased (Johnson & Christensen 2000:140).

From the above, it can be seen that interviewing provides a way of generating empirical data about the social world by asking people to talk about their lifes. In this respect, interviews are special forms of conversation. While these conversations may vary from highly structured, standardised, quantitatively oriented survey interviews, to semi-formal guided conversations and free-flowing informational exchanges, all interviews are interactional (Holstein & Gubrium quoted by Silverman 1997:113). For this particular research unstructured interviews with a schedule will be conducted.

4.2.6.1 Unstructured interview with a schedule

The interview is structured in the sense that a list of issues which have to be investigated is made prior to the interview. The list will contain some precise questions and their alternatives or sub-questions depending on the answer to the main questions. But it is a non-scheduled interview in the sense that the interviewer is free to formulate other questions as judged appropriate for the given situation. Respondents are not confronted with already stated definitions or possible answers, but are free to choose their own definitions, to describe a situation or to express their particular views and answers to problems. Here again, the influence of the interviewer can be considerable. It is therefore important that one refrains from influencing the respondent by the way one asks questions. At the same time one should be alert and detect missing information and ask for it to be supplied. Improper recording of answers can also result in incomplete and un-objective information. This type of interview presupposes some prior information, an understanding of the problem under investigation, and a need for more specific information (Bless & Higson-Smith 1995:107).

Dialogue between researcher and subject allows the interaction to move in new and perhaps unexpected directions, thereby adding both depth and breadth to one's understanding of the issues involved. Such self-perceptions and enhanced understanding may be achieved in no other way, making this a cornerstone in qualitative research (Gorman & Clayton 1997:45).

As mentioned in chapter one, eight parents of learners with Asperger's Syndrome would be interviewed. Once the interviews have been the completed, the data will need to be analysed and interpreted.

4.2.7   Data analysis and interpretation

Qualitative data analysis is primarily an inductive process of organising the data into categories and identifying patterns (relationships) among the categories (McMillan & Schumacher 1997:501). Inductive processes generate a more abstract descriptive synthesis of the data.

Analysing qualitative data is an eclectic activity; there is no one 'right' way. Most qualitative researchers are wary about prescriptions. They wish to avoid standardising the process, because a hallmark of qualitative research is the creative involvement of the researcher. There is no fixed formula; data can be analysed in more than one way. Each analyst must find his or her own style of intellectual craftsmanship. Although there are no strict rules that can be followed mindlessly, the researcher is not allowed to be limitlessly inventive. Qualitative analysis should be done artfully, even playfully, but it also demands a great amount of methodological knowledge and intellectual competence (McMillan & Schumacher 1997:505).

In qualitative data analysis the primary tool is an investigator's innate human ability to collect enormous amounts of information and to make sense of it. But this tool must be honed through practice and used with patience. To begin with, qualitative data analysis is a test of the researcher's ability to think and process information in a meaningful and useful manner (Gorman & Clayton 1997:201). Qualitative data analysis is thus a complex task (Gorman & Clayton 1997:202).

With regard to this study the responses to the results of all the verbatim accounts of the interviews will be transcribed. Different categories relating to the research topic will be formed and the information from the interviews with the parents, as well as the observations undertaken will be analysed and slotted into these categories. This will make the information collected more relevant and useful for the actual demarcation of the practical guidelines for teachers of these learners. However, the reliability of the data collected needs to be established.

4.2.8   Reliability

In qualitative studies, researchers are concerned with the accuracy and comprehensiveness of their data. Qualitative researchers tend to view reliability as a fit between what they record as data and what actually occurs in the setting under study, rather than the literal consistency across different observations (Bogdan & Biklen 1998:36).

Chatman (quoted by Gorman & Clayton 1997:137) argues that:

> *Reliability pertains to the degree to which observations are reported as consistent with some phenomenon during the lifespan of the inquiry. Unlike quantitative measurements, which often applies an instrument (e.g. a thermometer) or a mathematical formula, in ethnographic research, it is the researcher who judges the findings as reliable or not.*

As mentioned in chapter one, to ensure the reliability of this study, numerous strategies would be employed. Observations, together with the interviews will be correlated with the literature study to determine the match between findings and participants' reality. Parents interviewed would be asked to peruse through the researcher's summary of the discussions and confirm that all data have been captured accurately.

Thus, the following section, analyses all the interviews and observations, in an attempt to gain practical experience from the results of the empirical study to be able to outline the necessary guidelines for teachers of learners with Asperger's Syndrome in inclusive settings.

4.3 SUMMARY OF EMPIRICAL RESEARCH

The following table presents a summary of all the interviews.

TABLE 4.1 Summary of interviews

	Jo	**T**	**Co**	**L**	**R**	**C**	**M**	**J**
Social impairments								
Difficulties playing with other learners	1	1	1	2	2	1	2	1
Unaware of peer pressure	1	2	1	2	3	1	3	2
Unaware of social conventions	1	1	2	1	1	1	1	1
Incorrect distance between listener	1	1	1	1	2	3	1	1
Incorrect eye contact	1	1	1	1	1	1	1	1
Body language / face perception misunderstood	1	3	3	1	1	1	1	2

Misunderstanding of the hidden curriculum	1	2	1	2	3	1	1	2
Emotional impairments								
Emotional instability	1	1	3	1	3	1	1	3
Depression	2	2	3	2	2	2	2	2
Awareness of his or her differences	3	3	3	1	1	1	1	1
Temper tantrums	1	1	1	1	3	1	1	1
Cognitive impairments								
Visually orientated	1	1	1	1	1	2	1	2
Inflexibility in thinking								
One track mind / double-barrelled instructions	1	1	1	1	1	1	1	2
Inability to learn from previous mistakes	1	1	1	1	3	2	1	1
Inability to accept failure	1	1	1	1	1	1	1	1
Difficulty in comprehending theory of mind								
Enjoyment of non-fiction books only	1	3	2	1	1	1	1	1
Inability to explain his or her emotions	2	1	2	1	1	1	1	2
Lack of empathy	2	1	1	1	3	1	1	1
Expectation that others know their thoughts	1	1	1	1	1	1	1	1
Inability to deceive	3	1	1	1	3	1	1	1
Difficulties with pretend play	1	3	1	1	2	1	1	3
Language impairments								
Pragmatics or the art of conversation								
Difficulties repairing a conversation	1	3	1	1	2	2	2	1
Verbal fluency								
One sided conversations	1	1	1	1	1	1	1	1
Literal interpretation of comments	1	1	1	1	1	1	1	1
Prosody or the melody of speech								
Unusual tone of voice (monotone)	1	1	2	1	2	2	3	1
Pedantic speech	1	1	3	1	3	3	3	1
Idiosyncratic use of words	2	2	1	3	1	1	2	2
Exceptional long term memory	2	1	1	2	2	2	2	1
Narrow interests	1	1	1	1	1	1	1	1

Repetitive routines								
Elaborate routines	2	1	1	2	1	1	1	1
Unsettled by sudden change	2	1	1	1	2	1	1	2
Motor impairments								
Poor motor coordination	2	1	2	3	1	1	1	1
Dislikes competitive sports	2	1	2	2	1	1	1	1
Odd gait	2	3	1	3	3	2	1	2
Poor balance abilities	2	2	1	3	1	3	3	2
Strange rhythm	3	1	1	3	3	2	3	1
Illegible handwriting	2	2	2	3	1	1	2	2
Sensory sensitivity								
Taste sensitivity	3	1	1	1	1	1	1	1
Touch sensitive	1	2	2	1	3	1	2	1
Sound sensitive	1	1	1	2	2	2	2	1
Inclusion	2	2	3	2	2	2	2	2
Society								
Social adaptation to specific learners' needs	3	3	3	2	2	2	2	2
Blame for poor parenting	2	1	1	1	3	3	1	3
Society's inability to respect learners' diversity								
: teachers	2	2	2	2	2	2	1	3
: peers	1	2	1	2	2	2	2	3
Teachers' positive attitudes essential	1	1	1	1	1	1	1	1
Support networks								
Easy to cooperate with teachers	2	1	2	2	2	1	3	2
Parent empowerment								
Acceptance when first diagnosed: Mother	1	1	1	1	1	1	1	1
: Father	1	1	1	2	1	3	-	1
➢ Immense parent knowledge of the	2	2	2	2	2	1	2	2
syndrome	1	2	1	1	1	1	2	1
➢ Importance of parent involvement in	1	1	1	1	2	1	3	3
school life	3	3	2	3	2	3	3	3
➢ Classroom assistants								
➢ Utilisation of community based support								

Curriculum								
Teachers' use of favourable teaching methods	3	1	3	2	2	2	3	2
Social skills training	1	1	1	1	1	1	1	2
Relevance of subjects in the curriculum	3	3	1	3	3	3	3	3
Outcomes-Based Education								
The effectiveness of OBE	3	2	2	3	3	2	3	2
Group work promoting learning	3	3	1	3	3	3	3	3
Different assessment forms promoting inclusion	2	3	2	3	2	2	3	3
Visual aids utilised in inclusive classrooms	2	1	2	3	3	2	2	2
Positive implications of computer education	1	1	2	1	1	2	2	2

<div style="border:1px solid black; padding:10px;">

Key for the above table

1. **Strongly agree or impairment predominantly present.**
2. **Neither agree nor disagree / or impairment to some extent present.**
3. **Strongly disagree or impairment completely absent.**

</div>

4.4 DISCUSSION OF RESULTS

Eight parents of learners with Asperger's Syndrome were interviewed. These learners were also observed in their natural settings. The learners ranged in ages between the ages of six and fourteen. Of the eight learners, six were placed in regular classrooms, one learner was in a special class in a regular school and one learner had just begun schooling in a special school, having completed both his nursery school and grade 0 year at a regular school. Of the eight learners, only three of their fathers were willing to be interviewed. The others preferred to leave the discussion to their wives – the one learner had no contact with his biological father.

As mentioned in chapter one, for the data analysis of this study, different categories relating to the research topic will be formed. The findings of the interviews with the parents, as well as the observations undertaken will be analysed and slotted into these categories. From this, it is expected that certain patterns will emerge, generating useful and relevant information. The latter will enable the researcher to determine the actual guidelines which teachers can utilise in their inclusive classrooms when educating learners with Asperger's Syndrome.

4.4.1   Social impairments

From the interviews with the parents and the observation undertaken, the social impairments of these learners became very evident. All eight parents noted that their children need support with socialisation and need to be taught specifically how to socialise. Most parents interviewed agreed that the social impairments are the most significant. Two parents felt that, although the social impairments are conspicuous, the impairments appear as a 'package' and depending on the degree of severity, it is difficult to be convinced that one is more significant than the other.

4.4.1.1 Difficulties playing with other learners

Five learners observed displayed extreme difficulties in interaction with their peers. With regard to the other learners observed, their skills in playing with friends had improved considerably and through learned behaviour they had learned to be more accommodating towards their peers. One mother even noted that her son has recently become very cooperative because he had learned that this is how he will have friends. However, he still cannot comprehend why or when they are unkind to him or when he is irritating them.

A father mentioned that his son cannot predict another person's frame of mind and misses even the least subtle cues and gestures. He is only comfortable playing with other learners who have disabilities because they do not interfere with his requirements and let him get on with what he is comfortable playing. A mother remarked that when friends are encouraged to come and play, the whole visit is very strained and the children do not have an enjoyable time. This was apparent when the researcher had occasion to visit the home and a friend was invited to play. The children never managed to complete a game as the learner with Asperger's Syndrome wanted to play with his computer continually.

From the researcher's observation of these learners, the reality of the impairments regarding the forming of friendships became obvious. The one learner has recently managed to become part of group of boys and his mother was delighted with this progress. However, on observation of the group of boys at play, the researcher noted that the learner with Asperger's Syndrome tended to dominate the play and always wanted things done his own way. Fortunately, these other boys were accepting and understanding and generally gave into his requests.

Two of the other learners with Asperger's Syndrome were real loners and tended to keep to themselves at break and shy away from the other learners. This was evident to the researcher

when observing these learners during their break time, where they sat alone on a step eating their lunch.

4.4.1.2 Unaware of peer pressure

With regard to awareness of peer pressure, there was no consensus among the parents' responses. Half the learners were extremely oblivious of peer pressure, living in a world of their own and displaying a careless attitude towards the latest fashions and what their peers were wearing. A smaller group was very conscious of their peers and always wanted to wear the same clothes as them. The one mother noted that her son had devised his own way of handling peer pressure which usually involved walking away or removing himself from the situation. The other three learners observed were influenced by modern trends in certain aspects only, for example, not caring about clothes worn but caring about toys or skateboards or vice versa.

It was interesting for the researcher to observe that one learner with Asperger's Syndrome was uninterested in the fact that many of the other children at his school were playing with a swing bat at break to practise their batting skills. Even though this seemed to be the latest trend, and everyone was pushing for a turn, he was not interested in pursuing this activity.

4.4.1.3 Unaware of social conventions

In chapter two it was stated that learners with Asperger's Syndrome, being impulsive and not aware of the consequences, say the first thing that comes into their mind. Strangers may consider the learner to be rude, inconsiderate or spoilt, giving the parents a withering look and assuming the unusual social behaviour is a result of parent incompetence (Attwood 1998:32-33). With the exception of one parent, all the parents interviewed agreed that their children were unaware of social conventions and did indeed make inappropriate actions and comments at inopportune moments. The one mother revealed that her son has no idea of what he should or should not say in the circumstances that he finds himself. At the supermarket he will introduce himself to anyone and tell them that "My name is T. I like trains. My brother's name is W. I came out of my Mummy's tummy and the doctor cut her tummy and all the nurses thought I was cute. My mummy's name is W and she does not like …. ." This will all be said without hesitation. He does not understand why he should not do this. Another mother explained that it helps if she prepares her son in advance. When it was his birthday party, she told him not to say anything offensive about any of the presents even if he disliked them. However, she noted that

he is very reactive and often says things before thinking about them or before his mother can stop him.

This impairment became evident to the researcher when the one learner immediately reacted to the beauty spots on her face. On introduction he looked directly at her face and asked what the beauty spots were. If the researcher had been unaware of his condition, she would have felt very uncomfortable and cast him as an extremely rude child. On another occasion the same learner inquired of one of his peers the reason for such an ugly school bag. It was evident that the other child was very hurt because this was a brand new school bag of which he was so proud.

4.4.1.4 Incorrect distance between listener

With the exception of one learner, all learners observed displayed incorrect standing distance between the listener. Yet even this particular learner usually only talks to his family and familiar persons and is not often found conversing with peers. Five parents interviewed were adamant that their children's standing distance was incorrect as the majority would stand too close or even on top of the person they were talking too. One mother commented that only when she talks to her son will the distance between them be acceptable. When communicating with other people, he will stand too close to the other person. Another mother felt that although her son's standing distance is correct now, it was inappropriate when he was younger as he would withdraw slightly from people as a four year old.

The researcher noted that the one learner stood right on top of her when showing her his school photo. He was so close that she could feel him breathing on her face. If she had been unaware of his condition, she may have become very irritated and even admonished him to move. However, he was just trying to be friendly and wished to show off his school class photo of which he was so proud. On another occasion, the researcher observed how the same learner stood right on top of his teacher when showing her his school book. It was almost as if physical contact was made.

4.4.1.5 Incorrect eye contact

Learner's with Asperger's Syndrome often fail to use eye contact to punctuate key parts of the conversation, for example when starting their utterance, to acknowledge praise or interest, seek clarification, to read body language or to signify the end of the utterance. Recent research

(Attwood 1998:54; Tantam et al 1993:111) has suggested there is a lack of eye gaze when the other person is talking (see chapter two).

All the parents interviewed agreed that there were problems with maintaining eye contact. Many parents were adamant that this was a major impairment and felt that correct eye contact has to be taught because it is not intuitive and not always expressive. Five of the learners were more comfortable with people they knew and would at times make correct eye contact with their family members. It seems as if this is a skill that can be easily taught and reinforced. One of the learner's eye contact had improved, because his mother continually requests him to look at her and reinforces the idea that it is good manners. The one mother sensed that the cause of her son's incorrect eye contact was perhaps because there was "no sharing of information." This impairment was very easy for the observer to observe: only one of the learners made direct face contact with the researcher and this was after his mother had told him specifically to look at the researcher when talking to her. On all the other occasions when simple conversation was attempted by the researcher with these learners, no eye contact was made. It was very strange to try and talk to these learners who refused to make proper contact. It felt as if they were not interested in the conversation and just wanted to remove themselves from the room.

4.4.1.6 Body language / face perception misunderstood

Two of the learners observed battled with this concept. When a very irritated or serious face is simulated, the learner will consider it funny and persist on laughing. Instead of concentrating on the angry face, he concentrates on how funny it looks. This particular learner's mother had to make physical contact with him by sitting right next to him. She did this to impress upon him that he must look in her face and really concentrate because she is upset with him and it was no longer a joke. Other learners observed had no problems at all with body language and, when tested, instinctively understood the meaning of a smile or a frown.

The other parents interviewed remarked that body language was not instinctive for their children as they had to be directly taught the meaning of a smile, frown or a cross face. The one mother is used to explaining her feelings and outlining everything explicitly. For example, when shouting at her son, she would state clearly that she was very cross.

The researcher observed the one learner completely misapprehended the teacher's shrug. The learner was being particularly difficult and the teacher was battling to make him write down his

homework. After five minutes of persuasion she just shrugged her shoulders and walked away. The learner just asked her if it was time for him to go home and remained unaware that she was frustrated with him.

4.4.1.7 Misunderstanding of the hidden curriculum

Half of the learners observed completely misunderstood the hidden curriculum. These learners did not understand their teacher's expectations unless they were continually reinforced and then only after repetitions, did they begin to internalise the teacher's expectations.

The rest of the learners observed had to be taught correct methods of behaviour specifically. As the one mother noted her son coped in the classroom by following the actions of the other learners. The one father mentioned that his daughter would have to be reminded of the teacher's expectations. This was not because she had forgotten, but because she wanted to do it "her" way and she in effect tested how serious the teacher (or parent) is about the need for change. Once she realised that the change was really necessary, she was co-operative.

It was significant for the researcher to observe how on two occasions at the end of the school day, the teacher had to admonish the same learner to take out his homework diary. Apparently the teacher expects the learners to all open their homework diaries when the intercom messages are made at the end of the day. Evidently all intercom messages are made five minutes before the end of each school day to ensure that the learners remember any messages to be conveyed to their parents. On another occasion, with another learner, the researcher observed the learner receiving a demerit slip because his profile had not been brought to the lesson. This particular teacher expected all the learners to have their profiles next to them during each lesson. These profiles are used to record any misbehaviour on the part of the learners which had to be signed by the parents and learners themselves. The learner with Asperger's Syndrome misapprehended this concept and was thus often in trouble with this particular teacher.

4.4.2 Emotional impairments

4.4.2.1 Emotional instability

As noted by one of the parents, the emotional stability of these learners is not easy to determine, as this may also change from time to time and depend on the situation. Certain parents agreed that their children displayed signs of emotional instability. The one mother remarked that her son was just not a happy child and did not display emotions like other learners. She often wished that she knew how to make him really feel happy. Another parent alleged that her son

displayed emotional "ups" and "downs." He would be extremely content and jolly for a few days and then all of a sudden this would change and he would become sad and disillusioned. A bad report or reprimand lead to "I will just kill myself" type of replies. Three of the parents maintained that their children's emotional stability was comparable to the other regular learners.

It was, not a simple matter for the researcher to observe this characteristic trait in the learners. However, on the one occasion she observed a learner, extremely happy and jolly, telling his mother about his latest discoveries on his new website. The next time the researcher had occasion to observe this particular learner he was sitting alone, seeming very unhappy sitting in a corner eating his school lunch. Nonetheless after much deliberation it became evident to the researcher that he was actually content this way and if forced to socialise on the playground, he would be very unhappy.

4.4.2.2 Depression

With the exception of one parent, all the parents found this a very difficult aspect to comment on. In five cases the learners were still too young to experience depression and the parents were often ignorant as to what childhood depression actually entailed. The one parent believed that her son's moods always depended on the type of day he has had, so it was not really depression rather a form of anxiety which everyone feels at times. His mother usually tried to make him snap out of it very quickly by explaining things and showing him the lighter side of what he was thinking. She always told him how handsome and clever he was and that she loved him dearly.

This was also nearly an impossible task for the researcher to observe. The majority of the times when these learners were observed, they displayed absolutely no emotions at all and presented expressionless faces. It was not possible to determine how these particular learners were feeling and if there were signs of any depression.

4.4.2.3 Awareness of his or her differences

Five learners observed realised that they were different. Others lived in a solipsist universe and were uninterested in what was going on around them. The one parent noted that, according to her son, he was the centre of the universe and the only one that was important.

One couple reckoned that even though their daughter realised she was different, she accepted the situation. This was because the parents tried to treat her as much as possible like any other normal child and emphasised that she was just as important and special as everyone else.

4.4.2.4 Temper tantrums

With the exception of one learner, all the learners displayed some form of aggression or frustration in the form of temper tantrums. Discipline was best achieved by 'time outs'. Corporal punishment served only to scare and frustrate everyone. In addition, these learners often boasted an astounding pain threshold, although two of the parents admitted that a hiding seemed to help to arrest a tantrum. One parent commented that their psychologist felt that the temper tantrums may also be needed to release frustration due to feeling constrained at school and having to behave properly. Another parent sensed that the temper tantrums can be exacerbated by tiredness, hunger and thirst. Twice the researcher had occasion to witness temper tantrums: once when the researcher was talking to the mother, the child wanted her attention. When he saw that it was not forthcoming, he began interfering with his brother which led to a fight. He ran away screaming and slammed the bedroom door which caused further problems. On the other occasion, with a different learner the teacher walked into the class and announced a surprise that day. Because the class had been so clever, they could all begin writing in pen and no longer only in pencil. This learner burst into tears and started screaming because he did not have a pen with him. However he did not realise that it was unused, in his stationery case.

4.4.3   Cognitive impairments

4.4.3.1 Visually orientated

All of the parents interviewed agreed that their children are more visually oriented, however only one had vaguely heard of social stories. The other parents were interested in the notion of social stories (see chapter two). With the exception of one, (who perceived that as far as schoolwork is concerned, this is beyond the capabilities of social stories) all felt that these ideas may be effective.   The example was given of when the one learner's father went away on a business trip and the plane was diverted to Durban because of bad weather. The child was very upset and could not understand what had happened until his mother drew a picture describing the whole scenario and immediately he became calmer.

The researcher had an opportunity to observe an extra mathematics lesson with one of the learners. The teacher was attempting to revise the six times table and the learner was really battling to grasp this concept. The teacher then started using pictures and drawing circles. This seemed to help as the learner started to answer all the questions correctly. On another occasion, with a different learner, the class assignment was a history comprehension on the topic of the Second World War. The learner with Asperger's Syndrome was battling to answer the questions and obtained very low marks for this assignment. The researcher suggested to the teacher to use a colourful flow chart which depicted the relevant information. The task was again given to the class with a different set of questions. The improvement in the outcome of this assignment was remarkable. The learner obtained over eighty percent for this assignment.

4.4.3.2 One track mind / double-barrelled instructions

All the parents agreed that their children were narrow minded and found double-barrelled instructions almost impossible to accomplish. One mother even remarked that she was so accustomed to only giving single instructions to her son or having to repeat the second part of a two-part instruction. She admitted that as he gets older, this could become a problem in his performance of written tests.

The researcher observed the teacher instructing the class to pack their books back into the desks and take out their lunches ready for break. The learner with Asperger's Syndrome only packed away his books and sat down again. He never took out his lunch until the teacher came up to him and asked him where his lunch was. On another occasion with a different learner the teacher told the class to rule off their last work in their mathematics books and write the date with the heading 'subtraction'. The learner with Asperger's Syndrome only ruled off in his book and did not even attempt to write the date and heading. Only when the teacher asked him why he had not written the date and heading did he take out his pen.

4.4.3.3 Inability to learn from previous mistakes

Six parents interviewed agreed that their children were unable to learn from previous mistakes. They claimed that their children would continually repeat the same errors even though they had previously been told that that their actions were wrong and should not be repeated in the future. Only one parent felt that her son would learn from previous mistakes. Another parent mentioned that her son might not understand why he was wrong but would remember the incident and avoid the same incident again.

On one occasion the researcher observed the teacher telling the learner with Asperger's Syndrome that he must not print in his English creative writing book even though this was allowed in the other books. It was evident that this was difficult for the learner to understand and on all the future occasions when the researcher scrutinised this learner's creative writing book there was a mixture between cursive and printing. On another occasion with a different learner, the teacher told the learner that he must not throw his pencil sharpenings on the floor but rather place them in the dustbin. Twice the researcher observed this learner just throwing the sharpenings on the floor even though the teacher had admonished him to place them in the dustbin. He clearly never ascertained from his teacher's previous admonishment that he should not repeat this action.

4.4.3.4 Inability to accept failure

All the parents interviewed agreed that their children could not accept the occasions when they were told that they were wrong. The one mother remarked that even if her son eventually realised that he was actually wrong, he found it extremely difficult to accept. Another parent considered that her son misconstrued that yesterday's rules may not be applicable today. He is very persistent and insists that he is correct otherwise he becomes very angry.

During the one mathematics lesson, the teacher returned the mathematics tests that the class had recently written. The learner with Asperger's Syndrome started to scream that he was so stupid and should not have lost marks because he actually knew the correct answers. This was a very difficult encounter for the teacher and disrupted the rest of the class. On another occasion with a different learner, the physical education teacher told the learner that he was not holding the cricket bat correctly. The teacher attempted to demonstrate the correct manner to the learner. However, before he could do this, the learner just run away into the changing rooms and refused to participate in the rest of the lesson.

4.4.3.5 Enjoyment of non-fiction books only

Six parents interviewed mentioned that their children read books primarily for information and did not understand the concept of story books. One mother mentioned that her son only took out scientific or activity and game related books from the library and school media centre. Another mother remarked that even though her son's reading ability was very good, he would only complete his school reading and refused to read any novels just for fun. He only read books that

dealt with topics that really interested him. Yet, another mother commented that her son just does not have the time to read with so much school work and it takes him even longer than other learners to complete his homework.

Only one of the learners really enjoyed fiction books and would sit quietly during story time. He also had an amazing ability to make up stories himself. For homework he often received a picture book and had to make up a story relevant to the pictures. He found this activity extremely straightforward and would come up with incredible stories. He also noticed minute details. For example, he noticed in the one book that the taps were not ordinary taps and he brought this into his story. He really had no problems in this area.

During two media centre lessons observed, the researcher noticed that the books taken out by the learners with Asperger's Syndrome related to their specific interests (in other words non-fiction books). On one occasion the researcher overheard the librarian trying to encourage the learner to take a brand new fiction book which was very popular amongst the other learners. This learner blatantly refused the librarian's offer, insisting on rather taking out a book on computers.

4.4.3.6 Inability to explain his or her emotions

Five parents interviewed maintained that their children experienced difficulties with emotions, particularly expressing and explaining their own feelings. The one parent mentioned that even if she notices that her son is feeling extremely upset, he will not be able to express these feelings to her. The other parents interviewed maintained that on a basic level their children could explain their emotions, but sometimes these explanations are quite eccentric.

The researcher observed one learner with Asperger's Syndrome crying because he was being teased by his peers. When the researcher went up to this learner and asked him why he was crying, he just walked away. A response was given to his teacher when she asked him why he seemed so sad and his eyes so red. However, he failed to tell the teacher that he was feeling miserable because the other learners were teasing him.

4.4.3.7 Lack of empathy

Six parents interviewed were adamant that their children displayed a lack of empathy and could not understand that others have feelings. A mother explained that her son did not realise that an apology would help the other person feel better. He, however, apologised all the time, but this

was only because he was trying to get out of trouble and not because of other people's feelings. He has also learnt that this prompted a positive response from his mother. He would repeat the same thing again a few minutes later. Another mother commented that her son was inclined to only think of himself and what he wanted. He considered himself the only one who was important and could not understand that others also have feelings.

A father shared that, through learned behaviour, his son now knows that saying that he loves his father and giving him a hug (sometimes at the most inappropriate times) will earn him a reward.

This impairment became evident, particularly in observation of the one learner who displayed no empathy towards his sister when she dropped hot food on her lap while cooking in the kitchen. All he was concerned about was who was going to clean up the mess and what would they now eat for lunch if the food was spoilt. On another occasion, with a different learner, the researcher overheard the teacher telling the class that the two pets which the class had adopted from the SPCA, as one of their outreach programmes, were involved in an fight and quite seriously hurt. She said that if the class sat quietly, she would tell them the full story. The learner with Asperger's Syndrome continued unconcerned sharpening his pencils and was uninterested in hearing the full story. This was in contrast to the rest of the class who quickly sat at their desks quietly eagerly awaiting the teacher's elaboration.

4.4.3.8 Expectation that others know their thoughts

All the parents agreed that their children expected others to know their thoughts and often had to be enticed to tell the day's events. When recounting an incident, important details were omitted because the learner could not understand that the other person was not actually present at the actual point in time and could not possibly know the exact details. The one mother perceived that when telling a story or relating something that happened to her son, he would often leave out the place it happened and the circumstances. He once told a story at school about being pulled on a tube behind a speedboat on Lake Malawi but left out all the facts that set the scene: the lake, being there on holiday and the boat pulling the tube with a rope.

This impairment of expecting people to know their thoughts was easily noted by the researcher. The teacher asked a learner with Asperger's Syndrome why his uniform was covered in chocolate. He just answered that it was because he was good and then in the same breath went

on to tell her about his new puppy. He failed to explain that the music teacher had offered a reward of a chocolate to each learner who received fifteen merits in her specific merit book.

4.4.3.9 Inability to deceive

Two learners with Asperger's Syndrome observed understood the significance of telling a lie and could convincingly deceive others in order to evade trouble or having to perform a task that they did not want to. On the one occasion the learner with Asperger's Syndrome told the teacher that he was late for class because the prefects made him clean the playground after break. This was a blatant lie as the researcher had seen the learner dawdling back to class, often stopping to kick pebbles with his shoes.

On the other hand, the other six learners could not comprehend that there were times when it was bad-mannered to tell the truth. They felt that it was lying to tell someone that their clothes were smart, when in actual fact they detested them.   A noteworthy perception of a mother was that this impairment could prove a problem in class especially if her son always told the teacher when other learners had been naughty. This made him unpopular amongst the others. The researcher overheard the learner with Asperger's Syndrome telling the teacher that the learner sitting next to him was planning to ask her to be excused from the class to go to the toilet, when in actual fact he did not need to go but just wanted to phone his mother and ask if he could go home with another learner. The frustration on the teacher's face was evident. Half an hour later, he again told the teacher, that the same learner was calling him strange names. The whole class situation was very difficult for the teacher to manage.

4.4.3.10 Difficulties with pretend play

In chapter two it was stated that because of the Asperger's Syndrome learner's tendency towards concreteness, problems in developing (imaginative) play may occur in that objects are not used as representations of something else: a cardboard tube is a cardboard tube, not a telescope. The purpose of games, such as playground football, may not be appreciated and the use of coats for goalposts would be very puzzling (Connor 1999:84-85).

Two parents mentioned that their children managed to engage in pretend games. One learner in particular was very imaginative in his play, continually made up games and played them quietly

to himself. One father said that his daughter has hardly ever been seen engaging in imaginary games, and he knew that she could use her imagination in play at only a basic level.

Five parents interviewed agreed that their children had problems with pretend games. One mother noted that her son could not understand why his sister wanted to dress up in her mother's clothes and pretend to be a mommy to all her dolls.

On observation of the learners at play the researcher never witnessed any engagement in pretend games. One learner enjoyed playing on his own in the sandpit throwing sand in the bucket and pouring it out. The learners observed at break were frequently sitting alone and eating their lunch minding their own business.

4.4.4   Language impairments

All the parents interviewed agreed that their children displayed some form of language impairments. In certain cases the learners' language development was normal up to a certain age and then regressed. However, many of these learners had undergone speech therapy and improvements had often been realised.

4.4.4.1 Difficulties repairing a conversation

Only one of the learners experienced no difficulties in regard to repairing a conversation. He would stop and demand an explanation when he did not understand something - repairing conversations was thus not an obstacle for him.

It was noteworthy for the researcher to discover that the one learner would continue asking questions until he was satisfied that he has received the answer he wanted. Even if it was not the correct answer, he was happy. This particular learner asked the teacher why the class had to bring their swimming costumes the next day when it was not their usual swimming lesson day. The teacher tried to explain that it was because it was trials for the inter-house gala. The learner's immediate response was, "so in future this is our new swimming lesson day." It was clear that he expected the teacher to say that their swimming day had changed, whereas in actual fact this was not the case.

Three learners observed would ask for clarification if they were comfortable with the people they needed to ask. However, they would prefer to leave the subject or change to a topic that they were familiar with if it required asking people they were unfamiliar with.

The other learners observed displayed definite impairments with repairing a conversation and would rather remain confused than ask questions. One mother remarked that if her son was confused, he would pretend not to hear what had been said or insisted on giving an answer which he liked, whether it made sense or not.

The researcher had occasion to observe the one learner with Asperger's Syndrome in an English language lesson. The teacher described the correct usage of verbs and adverbs and gave the class an exercise to complete. From the look on the learner's face, it was evident that he did not understand what had to be done. However, he just sat quietly staring into space instead of asking the teacher for help as she had so often requested the class to do if they were confused. Only after the teacher saw that he was not completing his work and came up to him, did he say that he did not know what to do.

4.4.4.2 One sided conversations

Chapter two referred to the fact that the conversations of learners with Asperger's Syndrome tend to be one-sided, repetitive, and focused on their own interests. They rarely ask others questions that are not tied to their own specific concerns, and it is very difficult to continue a conversation beyond a few initial statements (Wing 1997a:253; Zwaigenbaum & Szatmari in Schwean & Saklofske 1999:277). From the researcher's observation it was noted that often the learners would just ramble on about their own interests and would not really take note of the listener's (the researcher's) reaction or even the comments made by the listener. Once they began talking on a subject of interest, there seemed no end.

All the parents agreed that their children were uninterested in the other parties' side of the conversation. They would only talk about their own interests or at least be interested while it was to their advantage. The one mother commented that a 'conversation' with her son was very one-sided, and only lasted while it was to his benefit. A proper conversation with him was not really possible as he could switch subjects unexpectedly. Another mother explained that her son refused to listen with interest if the conversation was about anything except if it was related to something he specifically wanted to know.

On the one occasion the teacher (during a biblical instruction lesson) asked the learner with Asperger's Syndrome, to explain to the class why Samson lost his strength. She had read them this story the previous week and the class had had to answer some questions as a class assignment. The learner started to answer that Samson was a strong man and then suddenly went on to tell the teacher about his weekend where the family visited the planetarium and that he was going to space in a space rocket because he would be an astronaut. On another occasion with a different learner the teacher asked the class to relate their weekend happenings as a form of news on a Monday for a class discussion. The learner started off by saying that "On Friday afternoon …" and suddenly stopped. He then started talking about the television programme on National Geographic that he had seen concerning the development of steam trains, giving all the facts and details which really did not interest the class at all.

4.4.4.3 Literal interpretation of comments

All the learners found the concept of 'literal interpretation' exceptionally challenging. Every comment made was understood only in its literal sense and no comprehension of any implied meaning was taken. A mother described the example of the weather report that forecast a cold front was approaching. Her son immediately asked where was the back as, according to him, if there was a front there must be a back. Another example given by different mother was noteworthy. On one occasion the music teacher lost her temper and shouted at all the boys, saying that if they did not want to participate they could just leave. Her son literally did just that, he got up and left. He told his mother that he had left the class because the teacher meant what she said. Although she explained to him that she was being facetious, he still could not understand that she would say something that she did not mean.

These learners also had to be taught the meaning of idioms and metaphors directly. It seemed though once the particular idiom or metaphor had been explained, the learners generally tended to remember them. However, as one mother noted, there are so many metaphors and idioms, it was impossible to directly teach all of them. Jokes were also misunderstood. The learners could not see the point of jokes. One learner told her father that jokes irritated her. It was almost a form of jealousy, since she could understand how the other parties to the joke were enjoying themselves.

On the one occasion the learner with Asperger's Syndrome showed his teacher some mathematics homework he had completed. He had managed to get them all right. The teacher said to the researcher that she was "over the moon" as his work has improved so much. The learner could not understand this and asked, "How do you go over the moon?" On another occasion, during an extra lesson, the teacher asked the learner a difficult question and said to him that for this particular question he would have to put on his thinking cap. He immediately burst into tears and said that he did not have such a cap to wear.

4.4.4.4 Prosody or the melody of speech

In chapter two it was mentioned that there is a lack of variation in pitch, stress, and rhythm, or the melody of speech of learners with Asperger's Syndrome. There can be a lack of modulation such that speech has a monotonous or flat quality, or an overprecise diction with stress on every syllable (Attwood 1998:79). With regard to this characteristic of tone of voice, while listening to the learners, the researcher felt that there were definite tendencies of monotony. The one learner, in particular, appeared to be whining as if he was spoiled. He tended to raise his voice and moan as if he was complaining loudly about something.

However, not all the parents interviewed agreed that there were signs of monotony in their children's voices. One mother stated that her son's voice is normal except that he tends to copy other people's facial expressions and their manner of talking.

Another mother did not feel that her son's tone of modulation was monotonous although there was some hesitation in her response. After watching this particular learner, and listening to him tell his mother about his latest website search result, the researcher felt that there were indications of a single, monotonous tone in his voice. It could possibly be that his family are accustomed to his tone of voice and do not notice anything strange.

However, half of the parents agreed that their children definitely displayed an unusual tone of voice. One parent mentioned that his daughter spoke far too loudly and slowly and always sounded as if she was angry or cross. Yet, anther mentioned that her son's monotonous voice was particularly noticeable when he became exited, as then his tone of voice would be extremely high pitched.

A significant comment was made by a parent who mentioned that as her son's confidence has grown, his tendency to mumble has ceased.

4.4.4.5 Pedantic speech

Half of the parents interviewed admitted that their children's speech displayed evidence of pedantry. One father commented that his daughter's speech was filled with stereotyped phrases, even her incorrect usage of grammar was stereotyped. Another mother has often been asked if her son has had elocution lessons as he sounds like an adult when he talks and even has a foreign accent similar to a British accent. This was evident to the researcher when listening to him speak. In particular, his formation of specific exact sentences was marked. When listening to this learner describe the picture of a steam train which he had drawn, it was clear to the researcher that there were definite signs of pedantry. His use of the vocabulary was extensive and sophisticated, even though he was only a six year old. He, for example described his picture "as actually an automotive industrial design of the twentieth century." Such a complex sentence would be meaningless to any of his peers. A different learner once described the game of 'monopoly' which the family often plays as "an interesting encounter of thought provoking recreation", clearly a complicated sentence for a ten year old.

Another mother mentioned that she could always decipher what her son means because she was very familiar with her son's situations. However, others sometimes found it difficult to understand her son.

The other four parents interviewed felt that their children's speech did not evidence any signs of pedantry. They used simple words in uncomplicated sentences and did not use ostentatious words. However, speech therapy may have assisted in this regard as the majority of the learners had attended speech therapy.

4.4.4.6 Idiosyncratic use of words

Three parents interviewed agreed that there were definite signs of idiosyncrasy in their children's vocabulary. These children were original in their language usages and would often make up silly words which could only be understood if the person was familiar with the context of the conversation. The other parents generally felt that their children's vocabulary was slightly idiosyncratic but improvements had been made as a result of general maturity or being exposed to proper language usage.

This was not an easy impairment to observe and in many cases these learners were very quiet and did not want to engage in any conversation. However, on two occasions with two different learners the observer noticed that these learners displayed difficulties making themselves clear to their teachers because of their strange usage of English vocabulary and tendency to make up eccentric meaningless words. The teachers had to clarify with the learners exactly what they were asking and even after this there was evidence of confusion. This led to much frustration for both the teachers and learners. In one case, a temper tantrum erupted. The one learner was trying to explain to the teacher that he was sick the previous day and had to take "midicane" – which turned out to mean medicine.

4.4.4.7 Exceptional long term memory

As mentioned in chapter two, Attwood (1998:116-117) noted that a defining characteristic of learners with Asperger's Syndrome was their long term memory and their excellence at rote memory - learning information without understanding.

Three parents interviewed stated that their children had exceptional long term memory. The one mother commented that her son had an exceptional long-term memory for events and facts. He could remember just about anything. When answering a question, his parents had to make sure that they gave the correct answer, because he would remember their exact answer, and then reject anything to the contrary.

The one mother revealed that her son's long term memory is exceptional but yet he would have difficulties retelling a story that had been told to him. He would find it difficult to remember the facts and sequence of events. Two parents remarked that when their children were younger, they had exceptional memories but this ability has declined with age and now they have other things on their mind.

An interesting fact was that the one learner often forgot things that he had learned at school. It was possible that he was not interested in these topics and this was why he did not bother to remember them as he remembered virtually everything about computers. This became evident to the researcher when she asked the learner about the history of the computers and when the first computer was invented. It was fascinating to hear his answer with exact facts and dates which he rattled off without referring to any written source. However, when the researcher

asked the same learner about the history of mankind (evolution) which they had recently learned in a history lesson, he could not relate anything and shied away.

4.4.5 Narrow interests and repetitive routines

4.4.5.1 Narrow interests

In chapter two it was stated that a characteristic feature of Asperger's Syndrome is the intense interests, hobbies, and fascinations shown by these learners. They tend to become preoccupied with unusual topics. The content of the preoccupation may change with development, but the intensity with which it is pursued in a solitary manner is maintained (Attwood 1998:90). All the learners observed presented with obsessive interests, though their parents noted that they seemed to change from time to time. One learner was obsessed with computers. Other obsessive interests ranged from space, to trains, chess and other board games, lightening, power tools, snooker, electricity, transformers, bikes, rap music and skateboarding.

Controlled access has helped some of the learners' parents manage this impairment. The psychologist advised one couple that it would not accomplish anything if they stopped their son from pursuing his obsession completely. They should rather encourage him slowly to follow other pursuits and even use it as reward when another task has been completed. Yet another mother remarked that the family utilises close contracts. When they have negotiated the deal in advance, her son is usually satisfied when asked to cease the activity.

The researcher observed that the walls of the one learner's room were full of skateboard pictures and famous skateboarders. The only book lying on his bed was a skateboarding magazine. When the researcher asked the learner about one particular picture, his face lit up and he started telling her about this particular skateboarder's achievements. However, when the researcher asked the learner about school and which was his favourite subject he refused to talk – it was as if he did not hear or care to answer the researcher's questions.

4.4.5.2 Repetitive routines

In chapter two it was mentioned that learners with Asperger's Syndrome often impose rigid routine on themselves and those around them, from how they want things done to what they will

eat. Six parents interviewed all mentioned that their children enjoyed a set routine. The one mother in particular, mentioned that if her child does not jump into his father's bed each morning then his whole day is disrupted. Another parent commented that she allows her son his routines, as it is much easier and better for her sanity. Yet another mother noted that her son thrives on reassurance. He has developed the obsessive routine that the microwave should stop at '7' and insists on greeting all his classmates by hand in the morning and in the afternoon. This was easy for the researcher to observe as when this learner arrived at school, he went directly to each member of the class and shook their hands and then proceeded to the next class to carryout the same routine.

The researcher observed how the one learner would sharpen all his pencils at the beginning of the school day even though there were some pencils that definitely did not need sharpening. On a second occasion a few weeks later the researcher visited the class again. She noted how as the bell rang for the start of the day, the learner would get out of his desk with all his pencils and proceed to the dustbin and begin sharpening his pencils. Apparently if this routine is not performed, the learner's whole day is disturbed.

Two learners observed had not developed any specific elaborate rituals that must be completed. However, the one learner insisted on playing the same game with the same toys in the same sequence each day. Another learner enjoyed the idea of his mother reading him a Bible story and praying. If this did not occur, he asked her to please come and read.

Five parents interviewed agreed that sudden change caused their children instability. The one particular learner was very unsettled when the family moved house and was perturbed about the route to the new house. When the family built a security fence and painted the roof another colour, he became incredibly difficult. If one mother took a different route to school, her son would become totally distraught and would undergo a temper tantrum. She decided that she had to familiarise him to some sort of change, after all life is full of changes and he must accept that other possibilities exist. So in spite of temper tantrums, she used alternative routes. When his family were aware that change was causing the problem, they found ways of dealing with it, by always preparing him for change. His parents explained everything to him beforehand and tried not to present him with surprises.

A father sensed that his son accepted change and did not really become unduly upset by changes in routine or expectation. However, he believed that at times some of his son's tension is internalised. Two different parents mentioned that if warned beforehand, the change will be more readily accepted. Their children must be explicitly told, for example, that they are going shopping at a certain time and must be ready.

On one occasion the researcher observed how unsettled one learner with Asperger's Syndrome became when the teacher announced that break would be earlier that particular day. The school was expecting a group of outside people to come and talk to the learners on study skills and the time of this talk would interfere with the usual break. The learner could not comprehend that they would still have break but that it was half an hour earlier. He became very difficult, demanding the teacher's attention. On another occasion, the same learner became very distraught when told that the class was going to begin the day with a English comprehension and not the usual mathematics lesson, which would take place immediately after the comprehension. The researcher also observed a different learner erupting into a temper tantrum because the teacher told the class that the computer teacher was absent and they would have to go to the library teacher instead who would show them a video. This learner was so upset, even though the rest of the class was delighted to go and watch a video in the library.

4.4.6   Motor impairments
4.4.6.1 Poor motor coordination
It chapter two it was pointed out that learners with Asperger's Syndrome are extremely clumsy. Indeed this was one of the early defining characteristics that Asperger (in Frith 1991:69) emphasised. Parents mentioned a certain amount of motor clumsiness regarding these learners. Only one of the learners displayed no signs of motor impairments; his motor coordination in all regards was perfect.

Five parents were adamant that their children displayed poor motor coordination. A mother perceived that her son was extremely clumsy, drops things, bumps things, bumps into other people and was exceptionally accident-prone. He has to be constantly told to be careful.

The researcher observed one learner playing tennis and although he showed evidence of real enjoyment, he was not very good and would often miss hitting the ball. Another learner was

observed during the physical education lesson. He really battled to kick the ball into the soccer goal post even though it was an easy target and all the other learners succeeded.

4.4.6.2 Dislikes competitive sports

None of the eight learners really enjoyed competitive sport. Three of the learners tolerated sport. One learner even admitted to his mother that he had attempted to join the school cricket team because if he did something, like cricket, the teachers and other learners may begin to respect him. It seemed like the learner's necessity for always controlling and dominating the situation and dictating the rules of the game compelled these learners to abstain from participating in such activities. The researcher's observation of the learners at the physical education lessons, showed that these learners often tired very easily and were not comfortable participating in such lessons. One learner, however, seemed very happy when playing tennis but once he started to lose it was clear that he was not enjoying himself. It became apparent to the researcher that these learners' misconception of terminology like 'winning' and 'losing' and the inability to accept failure caused them to withdraw from sport. Hence they were ostracised from their peers and became even further loners.

4.4.6.3 Odd gait

Two learners observed displayed signs of an extreme odd gait and appeared skew and off balance most of the time. Three learners observed displayed absolutely no signs of an awkward walk and there were no peculiarities in this area. The other three learners presented with gaits that were slightly peculiar, but nothing so serious to cause their peers to tease them.

These impairments were very easy for the researcher to observe when the learners were on the playground and even moving from class to class. The researcher took particular note of the one learner's gait and agreed that there were definite signs of a peculiar walk but unless directly observed, it did not merit attention. From the researcher's observation, it became clear that the parents' comments regarding their children's gait were accurate.

4.4.6.4 Poor balance abilities

Two learners observed displayed poor balance abilities. They were very cautious when trying anything remotely daring, and would not attempt anything that they are afraid of.

Three of the learners evidenced excellent balance abilities. One mother explained that this is probably due to the skateboarding and bike riding which may have improved balance. One mother remarked that though her son loves playing on the playground equipment, he would stop playing on a jungle gym or swing the minute other learners came to play even though he was enjoying himself immensely.

The other learners displayed a certain amount of balance insecurities. One mother, however, noted that when her son was a small child, he was petrified of climbing and would not dare to play on any jungle gym. However, through sensory integration he has become more confident and has learned that these activities are fun.

During one physical education lesson the learners had to follow an obstacle course. The activity required the learners to swing with a rope over a small puddle of water. The particular learner with Asperger's Syndrome refused to take hold of the string and just sat on the grass and stared into space. It was clear that he was afraid because he experienced difficulty with balance. A different learner was observed carrying a cup of tea for his teacher. He walked extremely slowly, taking one step at a time. His cautiousness was clearly identifiable.

4.4.6.5 Strange rhythm

With regard to rhythm three learners displayed peculiarities in this regard. The one mother stressed that her son enjoys music and tries to dance, but a "hippo would be far more elegant."

Half of the learners observed presented no problems in this regard, and could all keep a beat exceptionally well. One learner loved to dance and sing. However, this created a social problem because he would just start dancing whenever he heard music (even in a shopping center), which was not always socially acceptable.

The researcher observed the one learner watching television and all of a sudden one of his favourite music tunes was played. He started to dance in front of both his mother and the researcher. He managed to copy the professionals dancers' movements very well. However, another learner observed during a music lesson could not follow the teacher's steps when she was trying to train them for the end of year concert. It was disheartening to see the frustration on both the teacher's and learner's part.

4.4.6.6 Illegible handwriting

Only one of the learners observed revealed a perfectly neat and acceptable handwriting, as opposed to two of the learners who displayed extremely illegible handwriting. The one particular learner found it difficult to write neatly on a straight line. Sometimes his letters were on the line; in other instances they were below or above the line. Fortunately his teachers have accepted this and try their best to decipher what he has written. His mother noted, however, that this could become a problem in later years especially with regard to formal examinations. Oral tests have been arranged for one learner and this seemed to be much easier than written tests. Three learners were too young to determine if there were any cause for concern.

The one learner only wrote neatly when medication was prescribed. However, when the medication was terminated, his handwriting regressed but not to the point where untidy work became a problem. The fact, however, that he worked and wrote so slowly could become a problem as he often struggled to copy everything off the board so quickly. There were always notes from his teachers saying "please complete" which indicated that he wrote too slowly.

The writing of these learners was easy for the researcher to scrutinise. The one learner's writing was a pleasure to see and most of his books had neat work stamps and stickers, as opposed to another learner whose writing was very illegible and difficult to decipher. Another learner's handwriting was very easy to read but many 'i' letters were not dotted and most of the 't' letters were not crossed.

4.4.7   Sensory sensitivity

According to Aylott (2000b:853) almost everybody with Asperger's Syndrome has problems with some of their senses (see chapter two).

4.4.7.1 Taste sensitivity

With the exception of one learner, the learners showed evidence of impairments regarding taste sensitivity. All of these learners were extremely fussy eaters and were very particular with what they consumed. 'Junk food' was favoured by most of these learners, but this is typical of many children.

On two occasions the researcher observed a particular learner eating his school lunch, which consisted of a brown bread apricot jam sandwich, cut into four squares with no crusts. His

mother mentioned that if she tried to give him something else to eat for school lunch or the same lunch cut differently, he would not even attempt to eat it at all. A different learner was observed eating a chelsea bun contrary to his mother's recent injunction, that it was almost lunch time and he was not to take the bun because it would spoil his lunch.

4.4.7.2 Touch sensitive

With regard to the sensitivity to the feel of clothing, again only one learner displayed absolutely no abnormal sensitivity to touch. Half of the learners observed evidenced heightened sensitivity to touch and in the majority of cases these learners were very particular with regard to the feel of clothing. These learners were also averse to physical contact and would recoil whenever such contact was forced upon them.

The researcher witnessed the sudden recoil of one learner with Asperger's Syndrome as soon as the teacher patted him on his head as a sign of praise. On another instance, with a different learner, the researcher accidentally touched the learner when passing in the classroom. This learner put his head down and continued walking very briskly away.

4.4.7.3 Sound sensitive

All the parents interviewed agreed that their children displayed impairments with regard to sound sensitivity. One mother commented that her son often complained that the sounds in the classroom were very distracting and he found it difficult to concentrate. However, in many cases major improvements had been accomplished, often just as a result of maturity.

The researcher observed the one learner putting his hands over his ears when the siren sounded for a fire drill. Another learner became very distraught whenever the intercom buzzer was sounded. The researcher observed him shaking his head from side to side when the buzzer was sounded. It was as if he was trying to eliminate the noise.

4.4.8   Inclusion

With the exception of one parent, all the other parents interviewed agreed that inclusion should be practised for learners with Asperger's Syndrome. They generally felt that an inclusive environment was essential because this is where their children were going to have to conduct

their future lifes. However, they agreed that this was not an easy task and the whole environment had to be carefully and correctly structured to ensure that these learners do in actual fact prosper, for example, smaller classes, with properly trained teachers.

It was difficult for the researcher to determine whether inclusion was the best situation for these learners. What was evident was that in the smaller classes, the learners prospered far better than those who were placed in a large class (approximately forty-five learners). The individual attention that the teachers could offer, in these smaller classes, was extremely beneficial.

4.4.9 Society

4.4.9.1 Social adaptation to specific learners' needs

None of the parents interviewed agreed that society would adapt to the specific learners needs. In fact three parents argued that society would never even attempt to make allowances for these learners' idiosyncrasies. A father commented that society cannot even accept 'normal' people with different skin colours, cultural norms and habits. Another mother remarked that her immediate family cannot accept her son and often complained about his behaviour so there is no way that the larger social world would be prepared to change for her son.

The other parents mentioned that there will always be some people who are kind and accepting and others who are self-centred and unsympathetic to learners with disabilities. In theory, society's adaptation appeared an ideal to the parents but the practicalities need to be taken into account.

4.4.9.2 Blame for poor parenting

Before any diagnosis was made, half of the parents interviewed were continually blamed for bad parenting. One couple was often told by the person criticising that if he or she could have their son for a few days, he or she would sort him out with proper discipline. However, according to a learner's mother, he would sort them out. As indicated by one mother this demonstrated people's lack of understanding of the syndrome.

4.4.9.3 Society's inability to respect learners' diversity

Only one parent agreed that his daughter's teachers respected her differences and were prepared to spend extra time with her explaining and reinforcing the work covered in class. This was

opposed to another parent's experiences with teachers. She believed that it was because teachers have no idea of the syndrome, and were not interested in these learners.

All the other parents generally felt that it depended on the particular teacher. Some teachers were much more accommodating than others. A father perceived that only if teachers identified and knew all the disorders affecting the learners in their classrooms, would they be able to respect his son's diversity.

In certain instances it was heartening to observe how the teachers were willing to make allowances for these learners idiosyncrasies. In one particular case the teacher made sure the learner was allowed to sharpen his pencils before the first lesson began even though it was disruptive for the other learners. She managed to make sure that they were kept busy until they were all ready to begin the day. However, on observing the same learner, with another subject teacher it was evident that she was not prepared to tolerate his differences and was struggling to make him adapt to her classroom management system. She, for example, insisted on him waiting his turn, even though it was clear that this was extremely difficult for him.

With regard to the peer group, only one parent agreed that his daughter's peers respected her differences and were over-protective towards her. One mother sensed that her son's peers were accepting because of their particular age group (teens). They all felt out of place anyway. Previously problems in this area had been encountered.

Two parents doubted that the peers, and in particular wider society, would respect their children's differences. Their children would have to acquire appropriate social methods of conducting themselves in public and certainly not the other way round.

Three parents perceived that there would always be some in the peer group that accept the child's differences and others that feel that they are different and should be avoided. The one mother would have liked to see the other learners in her son's school informed of his differences. She wanted his peers to understand that he sometimes ignored them because of his syndrome, not because of discourtesy. According to her, more publicity is needed to bring this disorder to the attention of everyone.

It was pleasing for the researcher to observe how the one learner was always encouraged by his peers to perform the correct actions and be at the correct places at the correct time. The

researcher overheard this particular learner being informed, by one of his peers, that it was time to change for physical education. He was urged that they should not delay because they would be late and the instructor was very strict about punctuality. However, this was not the norm and many other learners with Asperger's Syndrome were often found alone at break. One learner was continually teased by his peers and it was disheartening for the researcher to observe the others ridiculing him.

4.4.9.4 Teachers positive attitudes essential

All the parents agreed that it was critical for the teachers to project a positive attitude towards these learners. These learners definitely respond to the positive attitude of the teachers and any teacher with negative attitudes would not succeed in educating them. If the teachers (as one of the parents mentioned) focused on the potential of learners and viewed their teaching as a challenge, they would reap many rewards. According to one mother, a school depends on the teachers' and the principals' attitudes towards learners with learning disabilities. She believed that her son cannot change. However, people's attitudes in dealing with him have to change.

It was significant for the researcher to observe the change in the one learner when a new teacher arrived to take the lesson. He immediately became disruptive and uncooperative as opposed to the previous lesson where he had sat quietly and listened to the teacher. On further observation (and discussion with his mother) it became evident that this teacher did not accept the learner's mannerisms and continual failure to comply with the class rules.

4.4.10 Support networks

The researcher's observation revealed that no outside assistance was offered to teachers of learners with Asperger's Syndrome. No collaborative or team teaching was practised at any of the schools which the researcher visited.

4.4.10.1 Easy to cooperate with teacher

Two parents interviewed were adamant that their children's teachers were easy to cooperate with and willing to listen to any suggestions that they may make. This was opposed to another mother who, from previous experience of being extremely involved in her son's education, found the teachers to be particularly uncooperative and refused to listen to any of her perspectives.

The other parents generally felt that it depended on the individual teacher and certain teachers were easier to cooperate with than others. None of these parents had actually experienced such cooperative efforts and their answers were based on their intuition.

4.4.11 Parent empowerment

4.4.11.1 Acceptance when first diagnosed

All the mothers had fully accepted their children's impairments. It was wonderful to observe how caring and concerned the mothers were. They only wanted to achieve the best for their children. Most mothers actually felt a sense of relief when a formal diagnosis was made because they were now in a position to help their children contend with their impairments. They felt the quicker they ascertained the problem, the better the chances of achieving results.

With regard to these learners' fathers, most of them were exceptionally supportive and accepting of their children's impairments. Only one father could not totally accept that his son was different and denied the diagnosis of Asperger' Syndrome. He continued to believe that there was nothing wrong at all with his son.

One father clashed frequently with his son because their personalities are so similar since both are perfectionists. According to the mother, her husband also evidenced clear symptoms of Asperger's Syndrome. Whenever the researcher had the opportunity to witness the other fathers' rapport with their children, it was delightful to detect their concern and interest for them.

4.4.11.2 Immense parent knowledge of the syndrome

None of the parents interviewed had undergone any formal training on Asperger's Syndrome, however, they had all read extensively on the syndrome from books and Internet sources. The practical experience of living daily with such a child also helped these parents to develop appropriate approaches which work for their unique child. Their responses to the researcher's questions, showed that these parents were competent and extremely knowledgeable on their children's syndrome.

4.4.11.3 Importance of parent involvement in school life

Six parents interviewed agreed that the involvement in their children's education was essential and critical to any form of success. According to one mother, it is essential to keep in regular contact with the teachers mainly so that they could avoid any problems before they became too embedded or too difficult to resolve.

One parent felt that there had not been any necessity for them to be closely involved in their son's education. When problems have arisen, they have been informed and together sorted them out.

Only one mother felt that, from previous experience, she had been excessively involved in her son's schooling and this caused further problems. She, however, admitted that it is impossible not to be involved in her son's education when teachers are punishing him unnecessarily.

On many occasions when the researcher visited the relevant schools, certain of the mothers were working as voluntary workers at the school, for example, helping in the library to cover books or serving in the tuckshop. Many of them were also 'class mothers' whose responsibility consisted of organising the class fundraising. The one parent insisted on waiting at the end of each day to speak to the teacher to find out if there had been any problems during the school day and what homework needed to be completed.

4.4.11.4 Classroom assistants

Two parents interviewed felt strongly that no personal aides could help these learners in the regular classrooms. One father mentioned that there were very real money constraints and his daughter would never be able to cope with the same workload as learners her own age. This was opposed to five of the parents who were in favour of personal aides. One father, specifically noted that normalisation is only achieved through learned behaviour (learned from "normal learners"). This can be an extremely complicated task for the teacher considering that learners with Asperger's Syndrome need considerable individual attention. A possible alternative is the 'mentor' approach where the learner has his or her 'own' teacher within the class headed by the 'actual teacher'. However, these parents agreed that funding was a problem and they did not foresee the government sponsoring individual aides for their children. In those cases where classroom assistants were utilised, the family had to pay their salaries personally.

A mother supported the idea of personal aides up to a certain age. She stressed that the learners need to start trying to take responsibility for themselves and it will increase their self-esteem when they realise that they can manage themselves.

None of the learners observed were fortunate enough to be exposed to the services of their own personal aide guiding and helping them cope in the inclusive classroom. However, it is believed that these personal assistants could make an immense difference in the classroom. On two occasions, the researcher quietly repeated the teacher's instructions to a learner with Asperger's Syndrome. This enabled the learner understand and complete the work assignment just because the instructions were reinforced.

4.4.11.5Utilisation of community based support

Generally the parents were oblivious to any community involvement in the education of their children. Only one parent was aware of some form of community involvement. However, this community involvement was to obtain additional funds for the school and not for the exclusive benefit of her son.

There were no signs of any efforts to involve the wider community in the schools that the researcher visited. The one teacher mentioned to the researcher that such efforts would be a "waste of time and would bring no rewards, just extra work and longer hours for the teachers."

4.4.12 Curriculum

4.4.12.1Favourable teaching methods

The use of favourable teaching methods was generally very difficult for the parents to comment on. In many circumstances the parents were unaware of any specific teaching methods that the teachers had attempted in the classrooms. One parent mentioned that the same teaching methods could be utilised by two different teachers and a positive response only given to the one teacher and not the other. Two parents found that the more structured and organised the environment, the better their children responded. It had proven very beneficial when one teacher adapted her classrooms strategies to provide a more structured atmosphere.

Three parents interviewed mentioned the need for patience and tolerance. However, one mother was adamant that teachers are not concerned at all about these learners because they have enough to cope with. "With forty learners in a class, never mind learners with learning

disabilities, they are neither equipped nor interested." According to her, learners with Asperger's Syndrome really have nowhere to go.

In observing the various lessons of the different teachers, the researcher noted that for these particular lessons hardly any visual aids were utilised. The lessons consisted mainly of spoken directions informing the learners exactly what should be accomplished. The lessons were then completed with written worksheets to be completed during the remainder of the lesson. On the few occasions when overhead transparencies were utilised, they merely consisted of notes to be copied by the learners into their books. No diagrams or colourful illustrations were ever employed.

4.4.12.2 Social skills training

With the exception of one, all the parents interviewed agreed that social training would be exceptionally advantageous and a requisite for the inclusive classroom of learners with Asperger's Syndrome. As one parent argued, even the regular learners leave school with the inability to fill in a simple registration form.

The parents that showed an unfavourable attitude towards social skills felt that even though social skills training is a useful suggestion, it probably would not be of much appeal. They maintained it is very difficult to teach learners with Asperger's Syndrome the correct tone of voice, correct social behaviour and so forth.

No social lessons were, as yet, offered at the schools in which the researcher visited, even though a few teachers mentioned to the researcher that this could be a worthwhile undertaking. The closest to a social skills lesson that the researcher observed was a life orientation lesson. The learners were required to write in their books an interview with the teacher explaining why an extension on the recent school assignment was required. After the lesson, the researcher noted that the learner with Asperger's Syndrome had started off his interview correctly, but had then written about a totally different subject.

4.4.12.3 Relevance of subjects in the curriculum

Only one parent was satisfied with the subject choice that the schools were offering. She believed that it is important for a young learner to have exposure to various school subjects as this stimulates life.

The other seven parents interviewed maintained that there were indeed irrelevant subjects (or parts of subjects) taught at the schools. One father insisted that these subjects only meet the needs of a few learners who are interested in that particular subject. After all, if specific learners are interested in individual subjects, they can uncover the relevant information from other sources (like libraries, travel bureaus and so forth).

The researcher observed that the subjects taught at the schools remained the traditional categories of subjects taught in the past. Although most of the subject names had changed, the actual content taught remained the same as in previous years.

4.4.13 Outcomes-Based Education

4.4.13.1The effectiveness of OBE

The majority of the parents interviewed did not feel competent to comment on whether OBE was an effective approach. They did not understand the system and were often confused by the terminology utilised in the report system. The one mother mentioned that OBE had been attempted in many overseas countries, but quickly abandoned and she worried whether the learners will indeed finish school with a decent education. Ultimately, all the parents wanted to know is whether their child had passed or failed and the actual percentage obtained.

Half of the parents interviewed displayed hesitant views towards this education system and claimed that although the theory may sound encouraging, the practicalities for implementing such a system were completely different.

In the schools visited by the researcher, it was noted that the teachers had adopted certain aspects of the OBE system (like the terminology) but incorporated this with the traditional teaching methods. In other words the system that they were generally following was a mixture of the old and the new. For example, although the new subject HSS (Human Social Sciences) was adopted, the learners' books showed that in reality the two subjects (history and geography) were still taught separately under the umbrella term 'HSS'. This was evidenced by the learners who had two HSS books. When the researcher studied the contents of these books, the first one was the traditional history curriculum and the second was the traditional geography curriculum. There was no assimilation of these two subjects.

4.4.13.2Group work promoting learning

Only one of the parents interviewed felt that group work was an effective teaching strategy. Yet, even this mother admitted that her son's class has yet to start working in groups and he would need to be taught how to function adequately in a group.

A mother sensed that her son may become lazy when working in a group. He may refuse to attempt those aspects of the work that he finds difficult because he knows that the others would complete the tasks for him. In an OBE environment these learners with Asperger's Syndrome will learn nothing by merely following what others are doing. One mother had occasion for concern when the other members of her son's group complained to the teacher that her son was delaying them and not contributing towards the group assignment. Interestingly, one of the fathers mentioned that if per chance his son worked in a group, he would insist that everything must be done the way he wanted it.

Of all the lessons observed by the researcher, only one employed the system of group work. In this particular case, it was evident that the learner with Asperger's Syndrome was a non-participant and, for the majority of the lesson, sat quietly staring out the window. The other members of the group obviously were familiar with this particular learner as he was ignored and never encouraged to contribute towards the group effort.

4.4.13.3 Different assessment forms promoting inclusion

Four parents interviewed strongly disagreed that the different forms of assessment were promoting inclusion. In fact, in many cases they felt that these methods were causing negativity. The one mother believed that peer assessment was not objective. Her son was extremely upset because his group gave him 6/10 for a project. He believed that it was because the other members of the group were not his best friends. Self-assessment is also a virtual impossibility. The same mother, a secondary school teacher herself, did not use these forms of assessment, nor do any of her colleagues. Assessment is making it more difficult for teachers as it involves extra work and administration.

The other four parents admitted to being ignorant of these different forms of assessment and found the whole report system very complex and difficult to understand. Many expressed the inclination to learn more about this system.

During the researcher's observation, there were no occasions when these different forms of assessment were utilised in the classrooms. On enquiry from the various teachers, it was mentioned that they did not really apply the different forms of assessments nor did they have any intention of using them in the near future.

4.4.13.4 Visual aids utilised in inclusive classrooms

The general feeling amongst the parents interviewed was that they were not present during the class lessons and were, thus, unsure about the utilisation of visual aids. However, they all felt that such aids could be very beneficial for their children and an increase in their use should be adopted by the teachers. The one mother mentioned that her son's teacher utilised visual aids as part of her general teacher strategy and not because of her son's Asperger's Syndrome.

Most of the lessons observed by the researcher utilised the overhead projector, but as mentioned previously, they consisted of notes for the learners to copy. No other visual aids were employed. Even in a geography lesson no map was used when the teacher described the physical location of the different African states.

4.4.13.5 Positive implications of computer education

Certain parents interviewed were adamant that their children would respond positively towards computer education. These parents felt that computers had a definite place in the classroom and were largely underutilised.

Half of the parents interviewed felt that computers were desirable as a tool to learning in the inclusive classroom but could not replace the physical presence of a teacher. Computers should not be used the whole day and should only be one method of teaching.

Besides the formal computer lessons, no additional computer education was provided. Possibly as a result of the lack of funds to set up an additional computer centre (or individual computers in each classroom), no education software was being utilised in the inclusive classrooms.

4.5 CONCLUSION

In this chapter a summary of all eight interviews has been undertaken. These have complemented the observations performed by the researcher. The use of interviews based on the experiences and perceptions of parents of learners with Asperger's Syndrome and

unobtrusive observation of the learners in their natural surroundings have enabled the researcher to evaluate the information found in the literature study. This has also helped determine whether indeed the impairments (listed in chapter two) are evident in these learners and whether inclusion (as outlined in chapter three) is being practised acceptably in the schools. This has placed the researcher in the position to draw inferences and reach a synthesis between the empirical study and the literature review. The focus of the last chapter will thus be the articulation of significant conclusions and the formulation of relevant recommendations.