

University Of Strathclyde
School of Education

**Identifying Children with Characteristics
of Asperger Syndrome in Schools in Malacca,
Malaysia:
Examining the Range of Characteristics of
Children with Autism In The Special Education
Units**

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requirements for the degree of Master of Philosophy

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ABSTRACT

This study aims to identify children with characteristics of AS amongst children with a diagnosis of autism in special education units (SEUs) and mainstream classes in schools in Malacca, Malaysia, to examine the differences in the characteristics of children with a diagnosis of autism in the SEUs, to assess the usefulness of an information pack for parents and teachers, and to evaluate whether the identification process and the information pack for the SEUs teachers, has influenced their practice.

This study was undertaken using a standardised rating scales for parents and teachers which was specifically formulated to identify individuals with AS. These findings were then compared to the children's scores in different tests (IQ, play, Theory of Mind, language and social communication) in which children with AS usually score higher and to GADS parent interview scores, which offer more information on the developmental history of each child. In the mainstream classes, the identification of children with characteristics of AS employed a screening test completed by class teachers for each child in their class.

The findings indicated that it was difficult to differentiate children with characteristics of AS from children with autism. The findings also not supported the DSM-IV diagnostic criteria for AS 'no language and cognitive development delays'. Therefore it supported that autism is a spectrum and DSM 5 (2013) which has merged subtypes of autism into one umbrella diagnosis called ASD. It was also found that the social communication impairments and restricted, repetitive stereotyped patterns of behaviour could differentiate people with autism into three levels (requiring support, requiring substantial support and requiring very substantial support) as indicated in the DSM 5. The findings that children with autism have very uneven profiles with wide range of abilities indicated the importance of individualise support and focus on each child as unique.

Findings of this study should be interpreted with caution because of the small number of participants, limitation of the methodology and standardised instrument used in the study.

The additional questions found that there are still lack of information regarding ASD for parents and teachers in Malaysian context. Therefore they really appreciated the information pack that have been given to them. Teachers indicated that they have higher level of understanding and expectation on children's potential learning and development after have more knowledge on ASD.

It was found that there are a lot of similarities in the findings of this study when compared to research from other countries e.g. characteristics of children with ASD, estimated prevalence of children with AS and support for the new diagnostic criteria (DSM 5, 2013). Therefore more research, knowledge and awareness on children with ASD in Malaysian context could be developed from this study.

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GLOSSARY

Glossary of key terms

Pervasive developmental disorders (PDDs)	An umbrella term describing a group of disorders with persistent and all-encompassing characteristics
Autistic spectrum disorders (ASDs)	A continuum of developmental disorders including Kanner's autism, Asperger's syndrome and PDD-NOS
Asperger's syndrome (AS)	A pervasive developmental disorder described by Hans Asperger
Autism	A lifelong, developmental disorder
PDD-NOS	Pervasive developmental disorder not otherwise specified, which is also called atypical autism
Triad of impairments	A group of three specific areas of deficit found to occur in individuals with autistic spectrum disorder (social interaction, communication and imagination)
Theory of Mind	The ability to appreciate that others have thoughts and feelings which result in action

CHAPTER 1

INTRODUCTORY CHAPTER

1.1 Introduction

Autism, also known as autistic spectrum disorder (ASD), is a complex developmental disability which impairs social communication and interaction in individuals. Individuals with autism are characterised by three main symptoms i.e. qualitative impairment in social interaction with others; qualitative impairment in the way they communicate; and restricted, repetitive and stereotypic patterns of behaviours, interests and activities (DSM-IV-TR, American Psychiatric Association, 2000; ICD-10, 1993).

Children with ASD have a wide range of intellectual abilities. Some have learning difficulties with no speech and may have limited ambulation. Others, especially those diagnosed with Asperger syndrome (AS), have a high IQ, speak in full sentences and are very active. The term ‘autistic continuum’, which refers to the varied forms of the multi-dimensional, multi-profile condition, was first used by Wing and Gould (1979), but in subsequent publications Wing switched the term to ‘autistic spectrum disorders’ (ASDs) to indicate the non linear relationship between one form of autism and another.

The DSM-IV-TR, (APA, 2000) names several subtypes of Pervasive Development Disorders (PDDs). Three subtypes can be associated with normal intelligence and intact formal language skills: Asperger syndrome (AS), the so-called high-functioning subgroup of autism (HFA) and pervasive developmental disorder not otherwise specified (PDDNOS). While children with AS are distinguished from HFA based on the non display of significant general delay in the development of their cognitive and language abilities, individuals who do not meet the full criteria for the three domains are categorised in the PDDNOS group (Filipek, Accardo, & Baranek, 1999). However, in the new DSM-5 diagnostic manual published in 2013, these subtypes of autism were merged into one umbrella diagnosis called Autism Spectrum

Disorder (ASD). Severity is based on social communication impairments and restricted, repetitive patterns of behavior. They were classified into 3 groups based on their severity level i.e.

level 1 – requiring support

level 2 – requiring substantial support

level 3 – requiring very substantial support

It should be clear that individuals with such different ability levels need to be approached and supported in different ways, even in different settings. Cumine, Leach & Stevenson, (2000) also note that diagnosis should allow for a degree of prediction as to the possible developmental outcome, though care must be taken to allow for successful intervention in the form of education and therapy. Since ASD is a lifelong condition, it is important that diagnosis and intervention are done at an early stage to allow for greater opportunities for strengths enhancement, avoiding secondary behaviour effects and offering strategies for coping, which would ultimately protect individuals needs throughout their lives (Cumine et al., 2000; Volkmar & Klin, 2005).

Peeters & Gillberg (1999) believe that any diagnosis or assessment of autistic individuals must be accurate, as these individuals, just like other typically developing children, require the same degree of diversity in terms of educational opportunities. Furthermore, for children with AS or HFA, their higher IQ means a better prognosis (Ben-Itzack & Zachor, 2007), and studies show that these individuals are very responsive to a host of psychologically based interventions (Birkan, McLannahan & Krantz, 2007).

1.2 Context of the Study

Malaysia is one of the most rapidly developing countries in South East Asia. It consists of thirteen states and three federal territories; Malacca is the third smallest state. Malacca sits upon the southwestern coast of the Malay Peninsula, with the state of Negeri Sembilan to the north and Johor to the east. The capital is Melaka Town.

The state of Malacca covers an area of 1,950-km², or 0.5 percent of the whole area of Malaysia. The state is divided into three districts: Central Melaka, Alor Gajah and Jasin.

Knowledge and awareness

Knowledge of autism in Malaysia has increased in the last few years. However, public awareness of autism is still far from satisfactory (Azizan, 2008). Furthermore, a local investigation conducted by Dolah, Wan Yahaya & Chong (2011) found that the majority of respondents do not have even basic knowledge about autism. They do not understand about autism in general and how to recognise the symptoms. Feedback from respondents also suggested that the reasons for this are lack of knowledge, awareness given by the authorities was not enough, level of education, lack of expertise and facilities, high cost and lack of related research in this areas. In the investigation, two content experts from National Autism Society of Malaysia (NASOM) confirmed that the lack of relevant knowledge in Malaysian society is the main reason for autistic children being left out.

The knowledge and awareness on the subgroups of autism or ASDs such as Asperger syndromes, classic autism and PDD-NOS is also insufficient in Malaysia. It can be seen in the list of categories of children with learning disabilities whose educational services are being provided by the Ministry of Education (Special Education Act, 1996) which only include:

- i. Down's Syndrome
- ii. Mild Autistic Tendency (Autism)
- iii. Attention Deficit and Hyperactive Disorder (ADHD)
- iv. Minimal Mental Retardation, and
- v. Specific Learning Difficulties

Subgroups of autism or ASDs such as Asperger syndromes, classic autism and PDD-NOS are not included in the category of children with learning disabilities in the

Special Education Act (1996) as shown above. Even the term used 'Mild Autistic Tendency (Autism)' is not clear and not in the diagnostic criteria commonly used internationally e.g. the DSM-IV and ICD-10.

Prevalence in Malaysia

There are no specific official rates of autism prevalence in Malaysia. It was quoted by two Malaysian experts in autism that the prevalence is one in 625 (Azizan, 2008). However the experts also wary of the number since the survey for the prevalence was only done in Perak (1 of 14 states of Malaysia). One of the experts suggests that the overall Malaysian prevalence may be closer to the prevalence rate in the United States (1 in 150). Furthermore he indicates that if the prevalence is taken as a standard for Malaysia, everyone should be concerned because there would be more than 3000 new cases in a year.

Diagnosis

In Malaysia, there is a lack of a proper system of screening and diagnosis for children with special needs including autism (Ching Mey, 2005). At this moment, there is no standard methodology in detecting autism. Every centre uses different techniques in diagnosing autistic children (Doleh et al 2011). Ching Mey, (2005) proposed a model of multidisciplinary assessment as shown in the figure 1.1, which is still not compulsory used by the government hospitals but it is being practiced by some professionals in the private hospitals. In the early screening stage, survey of the child's behaviour and skills need to be done by the teachers or the parents to determine if the child needs further assessment. In the second stage, the child need to be assessed by professionals i.e. pediatrician, psychiatrist (child psychiatry), Psychologist (with training in special education) and special education teacher to provide a diagnosis. After that, assessment on the child's development and academic needs should be done to provide documents and records toward writing an Individual Education Plan (IEP) for the child.

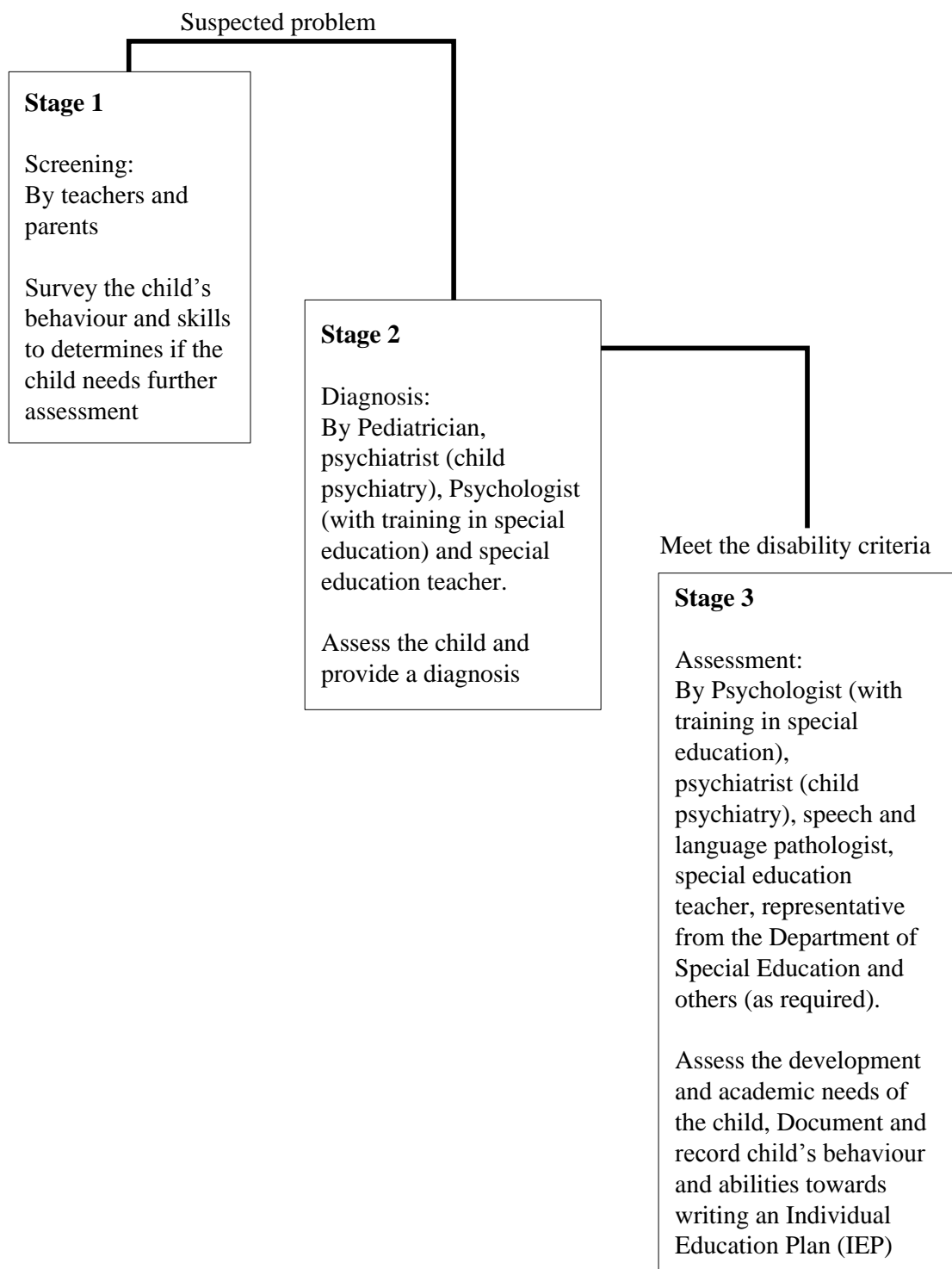


Figure 1.1 : Diagnostic Process suggested by Ching Mey, (2005)

Azizan, (2008) revealed that the problem to implement the multidisciplinary model as suggested above is the shortage of health specialists such as physiotherapists,

speech therapists and psychiatrists in Malaysian hospitals. To make matters worse, the expert added that not many are interested in working with children with special needs, especially autistic children since there is not much motivation for these specialists to work with special children (Azizan, 2008). Therefore sometimes it takes weeks or even three months to get appointment to see the specialist. The expert also concern that the special classes currently are not adequate for autistic children therefore parents need to teach their children at home or sending them to Non Government organisation (NGO)-run centres such as NASOM (Azizan, 2008).

Since there are lack of knowledge and awareness, the latest prevalence and standardised diagnostic process of children with ASD in Malaysia as discussed before, this study will examine the range in the profile of children with ASD in Malaysian context. This study will also look whether there are any children with characteristics of Asperger syndrome among them. Hopefully this research will help to increase the level of knowledge and awareness about children with ASD in Malaysian context so that the children will be given more appropriate support.

1.3 Rationale of the Study

Asperger syndrome is not fully recognised in Malaysian government schools, particularly in Malacca. From about 1,308 children with learning disabilities in the special education units of 137 National Primary Schools (Sekolah Rendah Kebangsaan) in Malacca (Malaysia Ministry of Education, 2009), none has been registered officially as having Asperger syndrome (Malacca Education Department, 2009). Most children with characteristics of ASDs have been recorded as having autism or learning difficulties.

However, the key prevalence study of Asperger syndrome in 8 to 16year olds suggests a rate of 30 in 10,000 (0.3%) (Ehlers & Gillberg, 1993). Before this, it was originally thought that the incidence of Asperger syndrome was about one in a thousand children, a similar incidence to that of autism (Attwood, 1998). Moreover, surveys focusing on a broader definition of ASDs, of which autism is a single form, have reported progressively rising numbers, e.g. recent studies indicated that rates for

both ASDs and autistic disorder are three to four times higher than 30 years ago (Fombonne, 2003). A review of 37 epidemiological studies conducted in 13 different countries and regions between 1966 and 2004 concluded that the best estimate of the prevalence of all ASDs in Europe and North America combined is approximately 60 in 10,000 (0.6%), or 1 in 160 (Fombonne, 2005).

Even though there is no representative sample for the Asperger syndrome population in Malaysia and the authors argue that the increasing number of individuals with AS may well be a result of changing diagnostic criteria and awareness, it shows that the population of children with Asperger syndrome has dramatically increased. Therefore, it is not impossible that the prevalence has also increased in the Malaysian population.

Individuals with autism spectrum vary in their personality, personal attributes and difficulties, their specific needs will vary too (Jordan & Powell, 1995). Findings on the outcomes or prognosis of individuals with ASDs also varied (Howlin, Goode & Hutton, 2004); therefore the variances in the features of children with ASDs need to be observed in Malaysian schools. Furthermore, Special education in Malaysia stressed that children should be educated according to their ability level. However, most of the research in these areas came from Western countries. Some of the issues e.g. the range in the characteristics of children with autism were thought very useful to be examined within a Malaysian context. It will be very useful as a guideline for parents, teachers and the responsible parties to ensure that children with autism get the appropriate education and support.

In relation to this, the current study aims to examine what is the range in the characteristics of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia (to see the similarities and differences that exist within children with diagnosis of autism) and to discover whether there are any children with characteristics of AS in five government schools in Malacca, Malaysia (as a preliminary study of the prevalence of AS in the Malaysian population) or to examine which characteristics could differentiate children with characteristics of AS from autism. After any identification or diagnosis process, concise yet comprehensive, helpful and positive information is crucial,

especially for parents searching for information on the disorder and for appropriate support or treatment (Mulligan, Steel & Macculloch, 2010). Therefore, in this study an information pack would be created, distributed and assessed to help parents and teachers understand more about ASDs and enable them to provide more appropriate support for children with ASDs.

A recent study by Toran, Yasin, & Tahar, (2010) investigated the level of training, knowledge and confidence regarding autism in 112 special education teachers from a few states in Malaysia; it found that most of the teachers agreed that they had not received comprehensive teachers' training in the areas of diagnosis and characteristics of children with autism, effective teaching and learning strategies, hands-on experience and collaboration with parents and teachers. Therefore, the teachers found that they lacked knowledge about autism and had less confidence teaching autistic children. In order to resolve this problem, the authors suggested that formal teacher training should take into account a constituent of knowledge on autism.

In conclusion, to ensure that more appropriate support for children with ASD can be provided, more studies on the characteristics of these children should be done in the Malaysian context.

More specifically, the aims of this study are to:

- To identify children with the characteristics of AS in a few schools in the state of Malacca, Malaysia.
- To examine the range of the profile of children with a diagnosis of autism in the special education classes at several schools in the state of Malacca, Malaysia.

Additional objective (a light-touch audit):

- To do a brief review or a light-touch audit of the teachers' and parents' reaction to the information pack

1.4 Research Questions

In relation to the objectives as indicated above, this study seeks to answer the following questions:

1. Would the characteristics reported by the parents and teachers, standardised tests and checklists for any child diagnosed with autism in the special education units and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?
2. What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.

Additional Question (a light-touch audit)

1. How do parents and teachers draw upon the information obtained from the information pack?
2. How do teachers draw upon the identification process of children with characteristics of AS and the information and strategies obtained from the information pack?

In light of this, it is clear that this current study which examining the range in the profile of children with diagnosis of autism will provide very useful knowledge about the characteristics, difficulties, strengths and needs of children with ASD in Malaysian context whereas identifying children with characteristics of AS within children with a diagnosis of autism will provide significant knowledge about assessment, diagnosis and prevalence of children with characteristics of AS in Malaysian context. Furthermore, an information pack containing relevant information on the characteristics of ASD, how teachers and parents can help children with ADS, support agencies in Malaysia, suggested reading and useful

website links related to ASD would be given to the parents and teachers after the assessment process would be very useful to them.

1.5 Significance of the Study

This study is significant for several reasons. First, it will provide valuable information regarding the process and instruments that could be used, particularly by educators or teachers, to identify children with characteristics of AS in their classes, since children with these characteristics are not currently fully recognised in Malaysian government schools. Therefore, more appropriate intervention, teaching and learning strategies could be implemented towards children with characteristics of AS, who usually have an average or above normal IQ range.

Second, the information gathered through this study could provide much-needed information to policy makers and other researchers in Malaysia who wish to investigate a larger sample of children with characteristics of AS. To the best of this researcher's knowledge, which is based on an extensive review of relevant literature, no other research in Malaysia has been directed at investigating children with characteristics of AS. Moreover, only a few studies examined children with autism (Philip, 2005). Hence, it is assumed that the outcome of this study will prove to be a valuable addition to the field of ASDs research in Malaysia.

Third, this study could give a clearer and more realistic view of children with autism and children with characteristics of AS in Malaysian government schools; therefore, it could be used by the Special Education Division of the Ministry of Education to improve the quality of education for children with ASDs in Malaysia. It could also provide insight for many other government and non-government institutions that provide education and services for children with special needs, regarding the characteristics and needs of children with ASDs. Furthermore, since children with AS usually have an average or higher IQ, they may have better outcomes in the future (Ben-Itzack & Zachor, 2007). Some children have also been shown to be very amenable to a variety of interventions (Birkan et al., 2007). Therefore, appropriate actions could be taken to support them, e.g. to pursue an area of interest and become

an expert in that area, which, over time may lead to success in adulthood (O'Brien & Daggett, 2006).

Finally, this study may enhance clearer understanding of children with ASDs amongst teachers, parents and people in Malaysia, therefore offering them more support, opportunities and inclusion in their education and social lives.

1.6 Structure of the Study

This study includes ten chapters. **Chapter one** is the introduction and includes the background of the study, a discussion of the rationale and significance of the study, and presentation of the research aims and questions. **Chapter two** discusses the Malaysian context to give an overview of general education and special education in Malaysia. **Chapter three** is a review of the background literature related to the topic of the present study, including the autism, the triad of impairments, Asperger syndrome and autism in Malaysia. **Chapter four** describes the rationale of the research questions and design, which have been linked to the literature review. **Chapter five** describes the design and justification of the instruments used in the study. **Chapter six** describes the information pack developed and used in the study to give some information about ASD to parents and teachers after their child's assessment. **Chapter seven** explains the method, procedures and outcome of the pilot study. **Chapter eight** explains the method and procedures of the main study. **Chapter nine** reports the main study results. **Chapter ten** discusses the findings in relation to the research questions and the evaluation of the methodology. **Chapter eleven** concludes the research by summarising the findings, making recommendations and outlining its contributions.

CHAPTER 2

MALAYSIAN CONTEXT

2.1 Introduction

This chapter provides a background to the issues to be discussed in this thesis which include the context of the study (the country profile, cultural background and Malaysian general school structure and system). Topics on the special education in Malaysia and teacher education will also be discussed.

2.2 Context of the Study

2.2.1 Country Profile

Malaysia is a developing country located in Southeast Asia. It is adjacent to Singapore (in the south) and Thailand (in the north). Malaysia comprises of Peninsular Malaysia or West Malaysia and East Malaysia. West Malaysia consists of Penang, Kedah, Perak, Pahang, Selangor, Kelantan, Terengganu, Malacca, Negeri Sembilan and Johor while East Malaysia comprises Sabah and Sarawak. Malaysia covers an area of 329,847 km², with a total population of 28.33 million in 2010.

Malacca, where this study will take place, is one of the fourteen states in Malaysia. It sits upon the south western coast of the Peninsula Malaysia, with the state of Negeri Sembilan to the north and Johor to the east. The capital is Melaka Town. The state of Malacca is a small country which covers an area of 1,950-km², or 0.5 percent of the whole area of Malaysia. The state is divided into three districts: Central Malacca, Alor Gajah and Jasin.

The population of Malaysia consists of many ethnic groups. The biggest race of the Peninsular are Malays (50.6%), Chinese (23.7%) and Indians (7.1%), while in Sabah and Sarawak the largest ethnic are Kadazan and Iban. Malaysia's population has diverse religious beliefs. The main religions practiced by the people of Malaysia are

Islam, Buddhism, Hinduism and Christianity. Various ethnic groups in Malaysia live with their own cultural practices. Every race has their own food, clothing and special celebrations. However, there are also elements of this culture that is shared by all Malaysians. Mutual respect for each other's culture is a privilege of the people of Malaysia.

Traditionally, the main source of revenue was from agriculture, mining and quarrying. In the early 1990s, Malaysia embarked upon a plan to industrialise the country. The plan aims to attain the status of a fully developed industrialised nation by the year 2020. A new vision (Wawasan 2020) was introduced by the former Prime Minister of Malaysia, Mahathir Mohamad during the tabling of the Sixth Malaysia Plan in 1991. Nine strategic challenges have been outlined to achieve the vision:

Challenge 1: Establishing a united Malaysian nation made up of one Bangsa Malaysia (Malaysian race)

Challenge 2: creating a psychologically liberated, secure and developed Malaysian Society

Challenge 3: Fostering and developing a mature democratic society

Challenge 4: Establishing a fully moral and ethical society

Challenge 5: Establishing a matured liberal and tolerant society

Challenge 6: Establishing a scientific and progressive society

Challenge 7: Establishing a fully caring society

Challenge 8: Ensuring an economically just society in which, there is a fair and equitable distribution of the wealth of the nation

Challenge 9: Establishing a prosperous society with an economy that is fully competitive, dynamic, robust and resilient

In his speech, 'Malaysia: The Way Forward' (1991), the former Prime Minister stated that besides striving to be a fully developed nation:

'... Malaysia should not be developed only in the economic sense. It must be a nation that is fully developed along the dimensions: economically, politically, socially, spiritually, psychologically and culturally. By the 2020, Malaysia can be a united nation, with a confident Malaysia society that is democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous and in full possession of an economy that is competitive, dynamic, robust and resilient'

(Abu Bakar, 2001:246)

As a developing country, Malaysia has experienced rapid growth both economically and socially within these few years. The Malaysian Government has targeted to become a developed country by year 2020. However, this goal does not mean that Malaysia would like to be the developed country in economic terms only. Instead 9 challenges that have been outlined in the 'Wawasan 2020' (2020 vision) shows that Malaysia is committed to making progress in all areas, including political, social, spiritual, psychological and cultural development.

2.2.2 Cultural Background

Malaysia is a multi-cultural society. The main ethnic groups are the native Malays followed by populations of Chinese, and Indians. The ethnicities retain their religions (Muslim, Buddhist, Christian and Hindu), customs and way of life. However there are also some culturally commonalities among these different ethnic e.g. the family is considered the centre of the social structure. The family is the place where individuals can be guaranteed both emotional and financial support. Therefore if any parents have children with special needs, one of the main coping strategies is through family support (Ting & Chuah, 2010).

A local study by Zasmani (1993) stated that children with disabilities has significant impact on different aspects of the family system. The behavioural characteristics of the child present significant stress on parents. This is because, to most parents, a child reflects a personal achievement as many parents harbour high hopes and

aspirations for their children. Zasmani (1993) further describes that a normal child may be seen as a reflection of personal adequacy, while a handicapped child indicates a sense of failure. Parents of a handicapped child undergo an intense crisis after they first learned of the diagnosis. They express negative feelings of grief, hopelessness, anger or rejection and even depression. Parents of handicapped children generally experienced embarrassment, disappointment and more difficulties when taking the children out to public places (Zasmani 1993).

Malaysians of various races practice their own culture and way of life. At the same time they try to tolerate each other in order to maintain a harmony life. Malaysians are very concerned about family relationships and always keep the good name of their family. For most ethnic groups in Malaysia, the presence of child with disabilities in their family gives negative impact on their social and emotional health.

2.2.3 Malaysian General School Structure and System

The school system in Malaysia provides four stages of formal schooling, six years of primary schooling, three years of lower secondary, two years of upper, and two years at the sixth form level as shown in Table 2.1 (EPRD, 2003:11). It is now a common practice for Malaysian children to attend kindergarten before entering formal schooling.

Table 2.1 : Malaysian Formal School Structure

Stages	Age
Sixth Forms (2 years) (Lower and Upper six)	18+ and 19+
Upper Secondary (2 years) (Form 4-form 5)	16+ and 17+
Lower Secondary (3 years) (Form 1-form 3)	13+ - 15+

Table 2.1 : Malaysian Formal School Structure - continue

Stages	Age
Primary (6 years) (Standard 1-standard 6)	7+ -12+
Kindergartens (1 -2 years)	5+ and 6+

Kindergartens

Education at the pre-school stage is provided by the government, private institutions and semi-agencies. Parents are able to choose and send their children to one of the pre-school settings but usually they choose to send their children to the government's pre-school because of fully funded by the government.

Primary schooling

Education at the primary level is free and compulsory in the government funded school. In the private schools, parents still have to pay for the fees. Parents may choose either the National schools, National type schools (for non-Malay children) or private school. The main aim of education at this level is the overall development of the child with a firm foundation in the basic skills of reading, writing and mathematics, as well as inculcating thinking skills and moral values across the curriculum.

Primary education is divided into two phases. Phase I is from year 1 to year 3 and phase 2 from year 4 to year 6, and children progress from year 1 to year 6 automatically. At the end of year 6 all children are required to sit for the common public examination, the Primary Schools' Achievement Test (UPSR). The main reason for this assessment is to gauge whether children have acquired the minimum standard set by the Ministry in the subjects of Bahasa Malaysia, Mathematics and English Language. The UPSR results are also used by the Ministry of Education to select children for residential schools. These are regarded as elite schools by the Malaysian general public.

Malaysian primary schooling practices Primary Schools' New Curriculum (KBSR) in all primary schools since 1988. The main emphasis of KBSR is on the acquisition of the three basic skills of reading, writing and mathematics, especially for phase 1 of primary education. KBSR consists of three main study areas: communication, man and his environment, and individual self- development. The curriculum subjects and domains under each of the components are shown in Table 2.2 (EPRD, 2002: 27).

Table 2.2 : The KBSR Curriculum

Area of study	Component	Subject
Communication	Basic skills	<ul style="list-style-type: none"> - Bahasa Melayu/National Language - English - Pupil's own language - Mathematics
Man and the environment	- Spiritual values and attitudes	<ul style="list-style-type: none"> - Islamic religious education - Moral education
	- Humanities and environment (phase 2 only)	<ul style="list-style-type: none"> - Science - Local study
Self-development	- Living skills (phase 2 only)	<ul style="list-style-type: none"> - Living skills
	- Co-curriculum	<ul style="list-style-type: none"> - Sport - Uniform bodies - Clubs

An important aspect of the KBSR is the component of remedial education. Teachers who teach children in the mainstream classes are required to give remedial education to children who experience difficulties with academic learning or who lag behind their peers in academic attainment. An important outcome of this practice is the early identification of children with learning problems in mainstream primary schools. Children who have serious difficulties interacting with KBSR requirements are given remedial education. If teachers found any child that couldn't follow the mainstream curriculum after given remedial education, the child will be placed in the Special Education Units/Classes (SEUs) (if the school has SEUs). If the school did not have SEUs, the parents need to find and place the child in nearby school with SEUs. Children with learning difficulties taught in SEUs follow a modified version of

KBSR. Many of the basic skills in literacy and numeracy (especially those taught in phase 1 primary) are retained in this modified curriculum. Added to this modified curriculum is the component of self-help skills and personal management.

Secondary schooling

After completing primary schooling children are promoted to lower secondary education irrespective of their performance in the UPSR examinations. Promotion in lower secondary 1 to secondary 3 is also automatic. Children from the National primary schools are admitted into lower secondary classes and those from the National type primary schools undergo a year of transition before entering lower secondary 1. This is to enable children from National type primary schools to be proficient in Bahasa Malaysia, which is the medium of instruction in all government funded secondary schools. At the end of the lower secondary schooling, all children will sit for the Lower Secondary Assessment (PMR). Those who pass will continue their schooling at upper secondary level. Previously, those who fail in the PMR, either need to seek for employment, continue schooling in the private schools or repeat their lower secondary 3 and re-sit the PMR examination. But recently, to avoid these children from being left out, they are also promoted to upper secondary level irrespective of their performance in the PMR examinations.

In the upper secondary level, children have the choice of continuing their formal schooling in the academic, technical or vocational schools. Upper secondary education covers a period of two years. At the end of the second year, academic and technical school students will sit for the Certificate of Education (SPM) examination and the vocational schools students will sit for the Vocational Certificate of Education (SPVM) examination.

In primary schools, as well to assess the level of student achievement, the examination also seeks to select or isolate students who excel to be placed into boarding schools or high-profile secondary schools while students with normal achievement will continue schooling in a regular secondary schools.

At lower secondary level, the general examination is used to determine the subjects to be taken by students at the upper secondary level later. Students who excel in the general examination at this level will normally take science subjects while other students will take arts subjects in their upper secondary level.

At the upper secondary school level, general examination aims to select deserving students to continue their studies at a higher level such as colleges or universities and to choose their preferred courses. Outstanding students will go to the universities for degrees in professional fields such as medical, engineering or law. Students with moderate achievement will enter college or polytechnic to earn certificates or diplomas in soft-skills such as culinary, hospitality, fashion and design or technical and vocational skills. Meanwhile, students with lower achievement may need to find jobs in factories or private agencies with lower salaries.

Overall, the Malaysian education system is examination oriented. Public examinations are conducted in all primary and secondary schools. Teachers need to ensure that all syllabus for a subject are completely taught before the general examination is held. Therefore teachers have less time to focus on each student individually. It is also a great challenge for children with disabilities to survive in the mainstream schools.

2.3 Special Education in Malaysia

2.3.1 History of Special Education in Malaysia

Special education in Malaysia began with the contributions made by charities, religious bodies and non-governmental organizations. Schools initiated by the organisations in the early stages are predominantly established for children with visual and hearing impairment. The first special education school was St. Nicholas primary school (1926) in Malacca which was established by the Anglican Church. It was founded for children with visual impairment and was transferred to Penang in 1931. The second special education school was the Princess Elizabeth Primary School, Johor Bahru was built in 1948 for the children with visually impaired.

Meanwhile, the first school for children with hearing impairment was opened in 1954 in Tanjung Bunga, Penang.

The Cabinet Committee Report on the Implementation of the Education Policy (1979) was a turning point that led to a greater emphasis and focus clearly on the development of special education in Malaysia (Wan Kalthom, 2001). The declaration indicated that government should be responsible for the education of disabled children and take over all the responsibilities from the organisations that operate at that time while the voluntary organisations should be encouraged to participate in the developing education for disabled children.

The Cabinet Committee Report (1979), in its review of the national education system, (Wan Kalthom, 2001:29) stated that

'...the government should be responsible for the education of handicapped children. It is recommended that the government should completely assume this responsibility of providing education from the organizations that are managing it at present. Besides, the participation of voluntary organizations to improving the education of the handicapped children should continue to be encouraged'.

Subsequently, the Ministry of Education began to get involved in the establishment of integrated classes (special classes in the mainstream schools) for children with visual impairment in 1962 and for children with hearing impairment in 1963. Similarly around the same years the special teachers training for visual and hearing impairment had begun at the Special Teachers' Training College, Kuala Lumpur.

Special education for children with learning disabilities was introduced rather late in Malaysia. Only in 1988, the pilot (special classes in mainstream schools) for children with learning disabilities was started and only in 1995 special classes in mainstream school for children with learning disabilities were initiated in secondary schools.

To facilitate the management of special education, a Special Education Unit was established in the School Department, the Ministry of Education in 1964. Following the restructuring of the Ministry of Education in October 1995, the Special Education Unit was raised to be a distinct department: the Department of Special Education.

The role played by this department is to ensure opportunities and special facilities, ensuring appropriate and relevant education, develop talents and potential, ensuring that teaching and learning materials and ensuring adequate teaching staff and trained for special needs students. The department is responsible for all special education programmes implemented including integration and inclusive programmes.

In parallel with the development of the Special Education in Malaysia, Special Education matters were first put into the Education Act in 1997. Among the key points related to Special Education stated in the Act are:

- i. 'Student with special needs' means students who have visual impairments or hearing impairments or have learning disabilities
- ii. 'Children with disabilities' are including Down syndrome, Mild Autistic Tendency (without severe learning difficulties), Attention Deficit Hyperactivity Disorder, minimal mental retardation and special learning disabilities (i.e. dyslexia).
- iii. A student with special needs can be educate if he is able to manage himself without relying on the help of others and confirmed by a panel of medical practitioners, officials from the Ministry of Education and officials from the Department of School welfare, as capable to follow the national education programme
- iv. In implementing the Special Education curriculum, teachers can modify the methods and techniques of teaching or learning, the timing or activities and the arrangement of activities, the subjects and teaching aids to achieve the aims and objectives of the Special Education

Malaysia Education Act
(1997)

The formal Special Education generally occurs quite late in Malaysia i.e. after it gained independence from Britain in 1957. Before that it was created and managed by private organizations and religious bodies. The establishment of the Special

Education Department at the Ministry of Education in 1964 and the Education Act 1997, which contains matters of Special Education have helped the development of Special Education in Malaysia. The Special Education Act (1997) clearly mentions about who is the special needs children, eligibility to participate in the implementation of Special Education programs and how the Special Education curriculum to be implemented by teachers.

2.3.2 Implementation of Special Education in Malaysia

In Malaysia, services for children with disabilities fall under the responsibilities of three ministries:

- i. the Ministry of Education (MOE),
- ii. the Ministry of Women, Family and Community Development (MWFCDD) and
- iii. the Ministry of Health (MOH)

The role played by the MOH is to do screening for medical purposes of children with disabilities and to verify whether they are eligible to pursue a formal education provided by the government. MOH plays an important role because as stated in the Education Act (1997), in order to qualify for special education provided by the government, these children need to get confirmation from a medical practitioner.

The MOE provides educational services for children with visual impairment, hearing impairment and learning disabilities, as well as special remedial children. In the Special Education Act (1997), children with learning disabilities can only be considered under the MOE educational services if they are 'educable' and have basic self-help skills. They also have to be approved by authorised medical practitioners or officers from the State Department of Education.

According to the Special Education Act (1997), children with learning disabilities are including children with Down syndrome, autism (without severe learning difficulties), Attention Deficit Hyperactivity Disorder, minimal mental retardation

and special learning disabilities (i.e. dyslexia). Children who do not fulfil the criteria should be placed under the MWFCED educational services.

Special education provided by the MOE consists of:

- i. Special Schools – is specifically set up for children with hearing and visual impairment only. Equipped with facilities and environment that suitable for children with hearing and visual impairment.
- ii. Integration Programme - provided for children with learning disabilities, hearing and visual impairment. This Programme is carried out in a mainstream primary and secondary schools. It consists of a few classes or units approved by the State Department of Education to provide education for these children. They use a modified curriculum and are taught by teachers who have been trained in special education.
- iii. Inclusive Programme –The inclusive programme consists of fully inclusive, semi-inclusive and place inclusive.

Fully inclusive – children with learning difficulties from the integration programme who are able and eligible to receive a normal education will be fully included in mainstream classes. He will learn with other normal children using regular curriculum and are taught by regular teachers.

Semi-inclusive - children from the integrated programme, who are capable and qualified to study a particular subject in a normal class, will be included in normal classes for certain subjects. For example, in Mathematics and Malay Language, the child was included in the normal class while in other subjects he was readmitted to the integration Programme.

Place inclusive - children in the integrated programs that cannot afford or do not qualify for learning in normal classes, will share some places with normal children for example in the cafeteria, assembly site and library.

MWFCED provides educational services to children with severe physical disabilities, severe retardation, multiple disabilities and severe disabilities that are not able to

study in schools provided by the MOE. These services are called ‘Community-based Rehabilitation’ (PDK), which have been commenced by the World Health Organisation (WHO). These services, which have been well developed, are organised by the MWFCO with the collaboration of parents and resources from neighbourhood societies.

The procedures on how children will be placed in the special education settings can be shown by Figure 2.1:

1. Diagnostic Assessment

Identify learning difficulties of children by parents, teachers and relevant authorities. Diagnosis confirmed by medical authorities in Government hospitals.



2. Registration

The child needs to be registered at both departments



Welfare Department



Education Department



'Community Remedial Program' (PDK) is a program that teach more on living skills



3. Integration

Children can be placed in special class in normal schools



5b. Referral to PDK

Children who fail the probation will go to PDK



4. Probation

Three months as probation time in special class of normal school



5a. Placement in Special Class

Children who passed the probation will remain in the special class

Figure 2.1 : Process of Registration for Special Children into the Special Education Programme

Figure 2.1 shows that children who have learning difficulties will be identified by parents, teachers or other relevant authorities. However, the child needs to be diagnosed by authorities from government hospitals (under the MOH) to get confirmation that he has learning difficulties. With the confirmation letter, the child will be registered in two government departments i.e. Welfare Department which is under Family and Community Development (MWFCD) and Education Department which is under the MOE. At this level, officer in both departments with suggestion from the authorities from the government hospital will consider whether that particular child will be placed in 'community remedial program' (PDK) or to be placed in special class in mainstream schools.

If the officers have suggested that the child can go to the integrated programme in mainstream schools, he will be given three months as a probation time. This is to confirm that the child fulfil the criteria as stated in the Special Education Act 1997 that children with learning disabilities can only be considered under the MOE educational services if they are 'educable' and have basic self-help skills.

If the child failed the probation, he or she will be placed in the 'community remedial program or PDK' (under the Welfare Department) where they will be teach living skills or some basic academic skills that suitable to the child's abilities. Children who passed the probation will remain in the special education classes.

2.4 Curriculum

Children with special needs in Malaysian schools could access either the National or alternative curriculum. Those included in mainstream classes usually follows the National Curriculum. These children usually sit for public examination just like their mainstream peers. Since the National Curriculum is too demanding for the majority of children with learning disabilities especially in the integrated special education classes, the Ministry of Education developed an alternative curriculum for these children. The main focus of the alternative curriculum is to teach of skills that would enable them to attain independent living and if possible seek employment after completing their education. The alternative curriculum is divided into four domains

and each domain consisted of several components. These domains and its components are:

Table 2.3 : Alternative Curriculum Domains and Component

Domains	Components
Livelihood Management	<ul style="list-style-type: none"> i. Self-management skills ii. Manipulative skills iii. Behaviour modification iv. Living skills
Functional Academics	<ul style="list-style-type: none"> i. Malay Language ii. Mathematics iii. English Language iv. Multimedia
Spirituality and values	<ul style="list-style-type: none"> i. Religious studies ii. Moral studies
Socialisation, physical activity and creativity	<ul style="list-style-type: none"> i. Physical education ii. Arts and craft iii. Music, movement and drama vi. Sciences, social and the environment

In 2002, the policy of ‘compulsory education’ for all children including children with special needs at the primary level was implemented in Malaysia. Parents who fail to register their children to primary schools will be prosecuted. Therefore the number of children with special needs especially for children with learning disabilities in primary schools has increased rapidly in Malaysian schools as shown in the table below. This may proves that there may be children with learning disabilities who do not attend school before but with the compulsory education law, parents are forced to send them to school.

Table 2.4 : Enrolement in The Special Education Integration programmes in Malaysia from 2003 to 2006

School	Category	No. of Pupil		No. of Programs		No. of Classes		No. of Teachers	
		2003	2006	2003	2006	2003	2006	2003	2006
Primary/Year		2003	2006	2003	2006	2003	2006	2003	2006
	Visual impairment	112	109	11	12	41	49	50	52
	Hearing Impairment	429	389	34	30	97	92	128	133
	Learning Disabilities	8496	13755	473	656	1221	2076	1729	2963
	Total	9037	14253	518	698	1359	2217	1907	3148

Table 2.4 shows that the number of children with hearing and visual impairment in the special education integration programmes is decreasing may be because some of them have been sent to special schools for hearing and visual impairment as there are more facilities and equipment provided.

However, the number of children with learning disabilities which include children with autism in the integrated programmes have nearly doubled over the three years period for primary school (8496 to 13755 pupils). Given the significant increase in the number of children with special needs in the educational system in Malaysia, more special education schools and more special education classes in the integration programmes are needed. More teachers also need to be trained to teach these children. Some of the children may need to be included in the mainstream classes. So that the mainstream school teachers also need to be exposed to the knowledge on how to deal with children with special needs and how to help them.

2.5 Teachers Education in Malaysia

According to the ninth Malaysian plan (EPU, 2006) 'educational opportunities for children with special needs will be expended by opening special classes in regular

schools to enable these children to adapt to the normal school environment. To improve the quality of teaching and learning, more teachers will be trained and the curriculum for special education will be further improved (P.225).

Teacher education and training in Malaysia are undertaken under the teacher training college (which was upgraded into institutes of teacher education in 2005) and also by the universities. Before 2004, teacher education and planning were under the Ministry of Education (MOE). However, when the Ministry of Higher Education (MOHE) was established in 2004, the secondary and primary school teachers are trained separately. The secondary school teachers are trained by the universities whereas primary school teacher are trained by the teacher training college (known as Institute of Teacher Education after 2005). Specifically for this study, discussion will be focussed more on teachers training for primary schools.

2.5.1 Pre Service Training

There are three main types of pre service or initial teacher training in Malaysia: There are Malaysia Teaching Diploma Course (KDPM), Post Degree Teacher Training Course (KPLI) and Diploma of Education and Bachelor of teaching (PISMP).

Malaysia Teaching Diploma Course (KDPM)

KDPM was introduced by the MOE in 1996 to replace the Basic Teacher Certificate Course for primary school. It was offered only in the teachers training college for duration of 3 years or 6 semesters. The course was designed to train teachers who will be specialised into particular subjects i.e.: Malay studies, English studies, Chinese studies, Tamil studies, Islamic studies, music, mathematics, science, physical education and special education.

Post Degree Teacher Training Course (KPLI) and Diploma of Education

These teachers training courses are offered to the graduates with bachelor degree in various fields who want to be involved in the teaching profession. It was beneficial to accommodate the shortage of teachers in schools across the country and at the same

time offer job opportunities for graduate with bachelor degree in various fields. The duration for both courses is one year. The Post Degree Teacher Training Course (KPLI) are offered in the teachers training college whereas Diploma of Education was offered in the universities.

Bachelor of teaching (PISMP)

This latest bachelor degree programme was offered by the Malaysian government when 27 teachers training colleges were upgraded into Institute of Teacher Education (in 2005). PISMP replaced the former Malaysia Teaching Diploma Course (KDPM). It was begun in 2007, when 3725 student enrolled for the first intake of the four years degree level programme.

2.5.2 In-Service Training

There are several in-service courses for primary and secondary school teacher to upgrade their professional skills and competencies in their respective skills. It helps to keep the teachers abreast with the current developments and new practices in the education. The main in-service courses that offered in the Institute of Teacher Education are:

- i. On-going short term in-service training and professional development programmes (course duration range from one to five days)
- ii. On-going short term in-service training and professional development programmes for teachers, teaching critical subjects (namely Science, Mathematics, ICT and English)
- iii. Special Degree programme for Non-Graduate Teachers (PKPG). This 3 year programme is a special programme for non-graduate teacher who is teaching in schools. The first year of the course is offered in teacher training college whereas the second and third year will be continued in the universities
- iv. 14 week course for professional development

- v. 6 week conversion course for mathematics, science and English teacher

2.5.3 Special Education Teacher

Initial teacher specialised in special education are trained in the KDPM programme which later has been replaced by the PISMP programme. In the KDPM programme, the teachers are trained in 3 years or six semesters for diploma level whereas in the PISMP programme, the teachers are trained in 4 years for bachelor degree.

The modules for the latest programmes (PISMP) for special education teachers are include:

i. Behaviour Management

This course discusses the human behaviour from the aspects of definitions, concepts, principles, problematic behaviours, strategies of behaviour modification and issues concerned. Students will implement a behaviour modification program amongst special needs children.

ii. Therapy in Special Education

This course discusses the importance of physiotherapy, occupational therapy, speech therapy, music and singing therapy, art therapy, hydro therapy, expression art therapy, play therapy and alternative therapies to the special needs students in theory and in practice

iii. Special Methods in Teaching and Learning Science

This course provides the knowledge of concepts, goals, objectives, and basic principles of teaching science to learning disabilities students. Problems related to teaching science process, procedures, strategies to overcome the problems, and the element of functional science in daily life usage will be emphasized.

iv. Introduction to Learning Disabilities

This course exposes the considerations to be taken in educating the learning disabilities students including judiciary, characteristics, causes, programs provided and issues arises in educating these children.

v. Special Methods in Teaching and Learning Mathematics

This course exposes to students the importance aspects in Mathematics. It covers basic concepts of Mathematics, problems of learning Mathematics, strategies and activities of teaching Mathematics, assessment, teaching aids, functional Mathematics, syllabus study, and teaching remedial Mathematics for learning disabilities students.

vi. Basic Skills for Self-Independent

This course focuses on the basic skills of independent living that need to be taught to learning disabilities students. It covers topics on basic skill concepts of independent living including self-manage skills, home living, cookery, sewing, gardening, rearing pet, self-protect, ethics and classroom management.

vii. English Learning and Teaching (ELT) Methodology

This course discusses the English language learning amongst the children with learning disabilities. The course includes understanding language, problems in acquiring listening, speaking, reading and writing skills, strategies to overcome the problems, teaching basic grammar, teaching aids production and devise a daily lesson plan for micro teaching.

viii. Special Methods in Teaching and Learning Bahasa Melayu

This course discusses the definitions of language, theory of language, language acquisition and language learning problems among learning disabilities students. Strategies to overcome the problems of acquiring the speaking, reading, writing skills and teaching of basic grammar are

emphasised. Study of the syllabus, preparing lesson plan and application of language activities are also implemented.

ix. Assessment in Special Education

This course covers the design and use of assessment instruments as well as how assessment sessions are carried out in the field of Special Education. Students are required to design various instruments in a variety of important areas. Students are trained to use the assessment information to plan lessons that are focused and effective.

x. Management and Administration of Special Education

This course covers the implementation of Special Education programs, placement procedures for children with special needs, organizational structure of the Special Education Department in the Ministry of Education, the State Education Department and the school. The implementation of Special Education programs in schools is given emphasis. The roles of teachers and administrators, budget allocation, support services as well as evaluation of Special Education programs are also discussed.

xi. Community-based Rehabilitation

This course focuses on the centralized rehabilitation of the individual with special needs (ISN), principles and ethics of social works; setting-up, administration, programme and placement of the ISN at the Community-based Rehabilitation (CBR), multidisciplinary services offered at the CBR; preparation and implementing a social work project at the CBR for a specific period (on-site training).

xii. Action Research in School

This course covers skills for conducting action research in schools, organising a seminar on action research, presenting research findings, as well as documentation and publication of research papers.

xiii. Issues and Trends in Special Education

This course discusses issues and problems in educating special needs students from the aspects of placement; physical aspects of the classroom; teachers' professionalism; effectiveness of teaching and learning; labelling, segregation and integration; assessment; special classroom management; students' multiple competencies, parents and community involvement.

Overall, some of the modules are designed to train the initial teachers on how to teach children with special needs. The subjects are include: Special Methods in Teaching and Learning Mathematics, Special Methods in Teaching and Learning Science, Special Methods in Teaching and Learning Bahasa Melayu, English Learning and Teaching (ELT) Methodology, Basic Skills for Self-Independent. The purpose of these subjects is to make sure that children with special needs have the equal opportunities to gain the knowledge as children in the mainstream classes. However, at the same time it shows that similar to the mainstream education, the special education system is also towards an exam oriented. Furthermore, even though the curriculum for special education are simplified from the mainstream curriculum, it is also noted in the education law that it should be teach as parallel as the mainstream curriculum, (with consideration of the children abilities).

There are also a few other modules that give the teachers general knowledge on special education e.g. Introduction to Learning Disabilities, Management and Administration of Special Education, Issues and Trends in Remedial Education, Community-Based Rehabilitation. Other modules such as Behaviour Management and Therapy in Special Education focused on how to support children with special needs whereas Action Research in School and Action Research Methodology focused to train the teacher the importance and method on how to do action research. Overall, it is clear from the modules described earlier that even for teachers who will be a special education teacher, the training is still generic and lack of specialisation.

Even though there are a few categories that have been listed as children with learning disabilities in Malaysian school system (whose educational services are being provided by the Ministry of Education) i.e. Down's Syndrome, Mild Autistic

Tendency (Autism), Attention Deficit and Hyperactive Disorder (ADHD), Minimal Mental Retardation and Specific Learning Difficulties, there are no special modules which teach teachers to be more specific on these categories in their teachers training. Specific modules that teach the teachers about children with specific developmental disabilities would provide them with more specific knowledge e.g. on the characteristics, assessment and strategies on how to support the children. Therefore it should also be taught in teacher training to become a Special Education teacher.

2.6 Summary

Overall, this chapter has provides some background information to the issues to be discussed in this thesis which include the context of the study (the country profile, cultural background and Malaysian general school structure and system). Topics on the special education in Malaysia and teacher education were also discussed. It was found in this chapter that Malaysian education system is very exam oriented. It is very challenging for children with special needs to survive in the mainstream classes. Therefore the government has provide the Special Education Units (SEUs) in the mainstream schools (the integrated programme) to cater the children with special needs. However there are still lack of specialisation in the implementation of the special education and in the teachers training.

CHAPTER 3

LITERATURE REVIEW

3.1 Autism

The term 'autistic' came from the Greek word 'authos', meaning 'self'. Bleuler (1908) was the first to use the term officially to describe one of the characteristics of individuals with schizophrenia, which is the attempt to totally distance oneself from the outside world and dwell in a personal or an individual fantasy.

In 1943, Leo Kanner, who was based at John Hopkins University in the USA, published his seminal paper explaining 'early infantile autism' features. In his case study, he observed 11 children who displayed features which he described as social aloofness, maintenance of sameness, repetitive and stereotypical routines, inability to produce speech, obsession and dexterity in manipulating objects, good visuo-spatial skills and rote memory, and attractive normal physical appearance (Kanner, 1946). Later, Kanner suggested that the first two characteristics were the key elements of autism and crucial indicators in the diagnosis of autism (Eisenberg and Kanner, 1956).

One year after Kanner published his paper, in 1944 Hans Asperger, a Viennese paediatrician, published his PhD dissertation titled 'Die autistischen psychopathen im kindesalter' (autistic psychopathy in children). Compared to Kanner's paper, which was highly established and became widely accepted after it was published, Asperger's paper was not widely known, especially in English-speaking countries. This might be caused by the fact that he wrote in German. Asperger's original paper was only made accessible to English-speaking researchers after his paper, translated and edited by Frith, was published in 1991.

Similar to Kanner's research, Asperger's paper also described patterns of behaviour in his case study, but only of four children. Specific features described by Asperger in his paper included inappropriate social approaches to others, intense interest in a

particular subject, good grammar and vocabulary but monotonous speech, poor motor co-ordination, lack of common sense and different levels of intellectual ability (Frith, 1991; Wing, 1996).

Although Asperger convinced that his syndrome was distinguished from Kanner's autism, he also acknowledged that there were many similarities between them (Happe, 1994a). For example, they believed the social impairment in autism to be innate and to have a life-long impact on an individual suffering from it. Specific autistic features e.g. poor eye contact, stereotyping, resistance to change and isolated special interests, were also described by both authors. They also drew a clear distinction between autism and schizophrenia.

Van Krevelen (1971) indicated that the disorders described by Kanner and Asperger were different in nature, despite some connections between them. For example Kanner and Asperger have identified three different aspects in their descriptions of autistic features i.e. in language, motor and learning abilities (Happe, 1994a).

There are differences and similarities between the findings of case studies that have been done by Kanner and Asperger. This proves that ASD children have some universal characteristics regardless of time, place and culture. These characteristics include difficulties in terms of interaction with other people, language and communication and the imagination. Besides these similarities, children with ASD also differ from one another due to individual characteristics, such as language, gross and fine motor and cognitive abilities.

3.1.1 The Autism Spectrum

Even though Kanner's view of autism features became the basic criteria of a diagnosis of autism, his points of view were not excluded from critiques and comments on their proven inaccuracy (Mesibov, Adam & Klinger, 1997). While Kanner described children with autism in his case study as those who exhibited average or above average intelligence, this was argued to be inaccurate as it was only based on their peak skills e.g. rote memory and musical ability (Happe, 1994a), and was found not to fit every child with autism.

In 1979, Lorna Wing and Judith Gould carried out an epidemiological study within a particular area in London. The participants were children with features of autism, and those with moderate and severe learning difficulties. This study found that a group could be identified with autism, and suggested that the group was characterised by a core deficiency in social abilities. They also found that children they identified as autistic had a range of difficulties in social relationships, social communication and social imagination, which they called 'the triad of impairments of social interaction'. This finding led them to conclude that autism existed on a continuum.

Wing also contributed to introducing AS to the English language readers when she published her paper in 1981. In that paper she wrote about individuals who had autism features but showed more ability in language and intelligence, which closely resembled Asperger's description. In fact, Wing was also the one who suggested that this group of individuals should be identified as having 'Asperger's syndrome'.

Wing came to the conclusion that individuals with autism possessed a host of cognitive abilities, which were sometimes associated with various physical, developmental or psychiatric conditions. The complex mixture of these different features displayed by children with autism paved the way for Wing to presume that autism was a spectrum disorder.

3.1.2 The Causes of ASD

In the past, many theorists were reported to have supported Kanner's theory that parents of autistic children often showed a lack of affection towards their children. Kanner came up with this theory after he failed to make the connection between autism and biological cause. Bruno Bettelheim, a Hungarian psychotherapist, gave the strongest support to this belief. He claimed that the source of autism was 'refrigerator mothers'. He hypothesised that cold, unfeeling parents pushed their children into mental isolation. He believed that any biological abnormalities present in children with autism were effects rather than causes, and he went further by suggesting that the only way to treat children with autism was to separate them from their parents (Bettelheim, 1967).

Before that, Mahler (1952) indicated that children with autism could not distinguish their mothers from inert objects, making it almost impossible for these children to establish any emotional bond with them. Consequently, this caused withdrawal and a total shut out from the outside world for these children. Furthermore, Rutter (1971) also hypothesised that autism was ‘a disorder of emotional development’ that affected the child’s formation of interpersonal relationships.

As an implication of the dominance of these psychogenic theories in the 1950s and 1960s, many parents felt annoyed and guilty, and lost confidence in bringing up their autistic children. It also led to a restriction of treatment options and opportunities for children with autism (Sicile-Kira, 2003).

In 1964, Bernard Rimland, in his writing ‘Infantile Autism: The syndrome and its implications for a neural theory of behaviour’, recognised that autism is a biological disorder, not an emotional illness. In 1967, Rutter also reported that he could not find enough proof to show that autism originates from psychogenic aetiology, and suggested that the differences in the responses of parents was probably a result rather than a cause. He also indicated that many studies supporting psychoanalytic theories were not reliable and weakened by being based on clinical observations rather than empirical studies.

A significant amount of evidence has been found that shows autism originates at brain level (Stefenberg, 1991; Trevarthen, Aitken & Pa poudi, 1996). Different combinations of factors may contribute to the abnormal brain development in autistic children via ‘final common pathway’ (Baron-Cohen & Bolton, 1993). Boucher (2009) suggests that the two main causes of autism are genetic risk factors and environmental risk factors. Genetic predisposition or vulnerability in the child means that the child is susceptible to autism and environmental factors may trigger its development (Caronna, Milumsky, Tager-Flusberg, 2008).

Genetic factors provide strong evidence of autism as a biological disorder. This is based on findings from twin studies that found that concordance of autism (both twins having autism) in monozygotic, or genetically identical, twins is significantly higher than in dizygotic, or fraternal, twins (Mesibov et al, 1997; Baron-Cohen &

Bolton, 1993; Bogdashina, 2006; Szpir, 2006). This means that some genetic factors may cause autism. However, in monozygotic twins, concordance is not 100 percent, suggesting that genetics are not the sole factor of autism (Mesibov et al., 1997).

The argument that genetic factors strongly predispose individuals towards developing autism is also supported by studies on relatives of people with autism (Boucher, 2009). The risk of having a second child with autism is 3-8 percent. This is higher than the percentage in the general population (Smalley, Asarnow & Spence, 1988; Bolton, Macdonald & Pickles, 1994; Folestein & Rosen-Sheidley 2001). It has also been found that the chance of an individual with autism having a brother or sister with autism is 2 percent and 6 percent (Rutter, Silberg & Simonoff, 1999). These findings show that there is a significant genetic influence for autism.

Even though evidence points towards strong genetic factors in autism, the exact nature of these genetic factors is not conclusive (Bailey, Le Couteur & Gottesman, 1995). There is evidence that a single dominant or recessive gene could not cause autism (Rapoport, 2009); in fact, the mechanism must be complex and involve several genes (Baron-Cohen et al., 1993; Bauman & Kemper, 2005). Rutter (2005) indicates that the interactions between 3 and 12 susceptibility genes could produce autism, but there is also a lack of consensus on this belief among researchers considering the identity of the vulnerability genes involved. However, it has been identified that the most frequent candidate genes are on chromosomes 2, 7 and 15 (Santangelo & Tsatsnis, 2005). Some studies suggest that the same genes that trigger autism might also cause vulnerability to viruses or toxins (Gupta, Aggarwal & Head, 1996). There is also evidence that genetic influence in autism may weaken the immune system (Bogdashina, 2006).

There are also many environmental factors that may cause autism. The most commonly reported 'risk factors' associated with autism are viral infection, metabolic abnormalities, immune system abnormalities, MMR vaccine and pre-, peri- and post-natal complications. However, research indicates that these environmental factors alone may not be enough to cause autism; instead, it is very likely that they act more as 'triggers' in genetically susceptible individuals (Boucher, 2009) and that autism results from gene-environment interaction.

Several factors have been identified as the cause of autism. The 'refrigerator mother' theory was not acceptable because it gives a negative impression to the parents. The biological theory is more acceptable since it did not blame anyone and it occurs more naturally. It says that autism is caused by genetic factors which interact with environmental factors that cause abnormalities in the brain. This leads to the occurrence of autism.

3.1.3 Classification System

Changes in understanding autistic disorder can be traced in the history of the two international systems of classification of psychiatric and behavioural disorders: The Diagnostic and Statistical Manual of Mental Disorders (DSM) by the American Psychological Association (APA), and The International Classification of Disease (ICD) by the World Health Organisation (WHO).

Statistical Manual of Mental Disorders (DSM)

As the basic idea of autism features was introduced by Leo Kanner and Hans Asperger, who were both medical practitioners, there was an attempt to formulate a definition of what autism is based on a set of diagnostic criteria (Boucher, 2009). However, the first official recognition of autism as a distinct condition only came 40 years after Kanner described it. In 1980, it was called 'infantile autism' for the first time, with a few diagnostic criteria in the DSM-III by APA. The latest diagnostic criteria for autism by APA is DSM-IV published in 1994 (see Appendix 1.1).

After Wing introduced the concept of AS in 1981, it was reflected in the DSM-III (R) (APA, 1987), when 'impaired language development' was no longer seen as a distinguished characteristic of the disorder. However, the diagnosis of AS was only given official recognition in 1994, when the DSM-IV was published (see Appendix 1.2). In 2013, the new DSM-5 diagnostic manual was published. In this latest manual, subtypes of autism were merged into one umbrella diagnosis called Autism Spectrum Disorder (ASD).

- **Description of DSM 5 (including the move to 2 domains of impairment and inclusion of sensory criteria as well as removal of some diagnostic terms)**

The American Psychiatric Association has published the latest edition of the diagnostic statistical manual The DSM 5 in 2013. In the DSM 5 several changes have been made to the diagnostic criteria for pervasive development disorder (PDD).

The major changes in the new criteria include:

1. Converging the four previous diagnoses of PDD (autistic disorder, Asperger syndrome, PDD-NOS and childhood disintegrated disorder) into a single diagnosis called Autism Spectrum Disorder.
2. Three major symptom domains will be reduced to two by combining social impairment and communication impairment into a single category.
3. Abnormalities in sensory processing has been included in the 'restricted, repetitive behaviours' symptom domain.
4. In DSM IV, to receive a diagnosis of PDD, an individual must display a total of 6 out of the 12 possible impairments, whereas in DSM 5 to receive a diagnosis of ADS, the individual must display a total of 5 out of the 7 possible impairments. Under DSM 5, all 3 criteria under the social interaction and social communication domain must be displayed and at least 2 out of the 4 criteria under the restricted interests and repetitive behaviour domain must be displayed.
5. In DSM-5 three levels of severity rating have been applied for each domain. The ratings are not for determining eligibility for services. Ratings include:
 - Level 3: Requiring very substantial support
 - Level 2: Requiring substantial support
 - Level 1: Requiring support

Each level provides descriptions of how social communication and repetitive behaviour deficits affect an individual's functioning. Although severity ratings are based on current behaviour, the DSM-5 suggests that a child's level of impairment may change over time or differ by context.

6. One new related diagnosis, Social (Pragmatic) Communication Disorder has been added to the manual. The diagnosis would be given for individuals who present impairments in the social communication domain without having restricted interests and repetitive behaviours. Some children who previously have a diagnosis of PDD-NOS may now receive a diagnosis of Social Communication Disorder however this should only apply to newly diagnosed individuals.

- **Rationale for the 2013 revisions of DSM**

1. Research found that distinction among autistic disorder subtypes in DSM IV to be inconsistent over time and the diagnostic reliability has been shown to be weak (Klin, Lang, & Cicchetti, 2000); (Witwer & Lecavalier, 2008). There is overlap in their features and diagnosis particularly when comparing between AS and HFA. It was found difficult to see any differences in terms of their potential causes, responses to intervention and outcome in adulthood (Mayes, Calhoun & Crites, 2001); (Macintosh, Dissanayake, 2004). The DSM 5 revision website indicated that the umbrella term for ASD need to be used because of 'different clinicians diagnose the same person with different disorders, and some change their diagnosis of the same symptoms differently from year to year'. Distinction among these subtypes are often associated with severity, language level or intelligence. Therefore in the DSM 5, the diagnosis labels; autistic disorder, Asperger syndrome, PDD-NOS, and childhood Disintegrative Disorder have been merged into the broader diagnostic category of ASD.
2. Another major shift in the DSM 5 criteria is social and communication impairment have been merged into a single symptom domain. It was

proposed because as stated by the APA “Deficits in communication and social behaviours are inseparable and more accurately considered as a single set of symptoms with contextual and environmental specificities.” (American Psychiatric Association, 2011). Delay in language are more accurately considered as a factor that influences the clinical symptoms of ASD rather than defining a diagnosis. Therefore it would be better to merge social impairment into a single symptom.

3. Atypical sensory responses have been found consistently among people with ASD. However, it was not included in the DSM IV diagnostic criteria for autistic disorder. In DSM 5 sensory symptoms were included under the category of restrictive, repetitive behaviours. This will make the new criteria to be more sensitive in identifying the complex ASD cases.
4. In DSM 5, the age onset criterion for diagnosis of ASD has to be present from early age whereas in the DSM IV criteria for autistic disorder, symptoms have to be present before the age of three years. The studies looking at the early autism phenotype (Barbaro & Dissnayake, 2013; Rogers, 2009; Zwaigenbaum, Bryson & Lord, 2009) have shown that ASD can be diagnosed as early as in the first year of life. Therefore this new criteria will help children with ASD to access early intervention.

- **Critical review of the impact of such changes for prevalence.**

Through DSM 5, APA has expressed the goal of the new criteria was to get the best possible combination of sensitivity and specificity of diagnosis. Sensitivity is the ability of the criteria to correctly identify all cases whereas specificity is the ability of the criteria to correctly screen out those who do not have the disorder. In the case of DSM 5, the specificity of the ASD diagnosis has been improved but research so far raised concerns that it was too restrictive and has lower sensitivity. Therefore one major concern that has been raised regarding changes in DSM 5 is that individuals who were diagnosed with PDD under DSM IV criteria may not meet the criteria for ASD under DSM 5. This may result in a loss of services for these individuals.

Several research have been done to see the impact of the changes in the DSM 5 for prevalence of individuals with ASD. Mattila, Kielinen & Linna (2011) in an epidemiological study found that DSM 5 criteria to be less sensitive in identifying children with ASD especially for children with diagnosis of Asperger Syndrome and High Functioning Autism. They have applied an early draft of DSM 5 criteria to children diagnosed with PDD under DSM IV criteria. They found that 54% of these children did not meet criteria for ASD under DSM 5. Therefore they suggested that the DSM 5 draft posted by APA in February 2010 need some modification.

This finding has been supported by subsequent studies. McPartland, Reichow & Volkmar (2012) has studied the records of 657 individuals, aged 12 months – 43 years participated in the clinical trials for the DSM IV. When DSM 5 criteria was applied to these individuals, 39.4% of them did not qualify for diagnosis of ASD. By diagnosis, 24.2% of those with Autistic Disorder, 75% of those with Asperger Syndrome and 71.7% of those with PDD-NOS were excluded from ASD by the DSM 5 criteria. The reason for these findings may be because the DSM IV criteria did not include a sensory criteria as suggested in the DSM 5.

Gibbs, Aldridge & Chandler (2012) have done a new diagnosis on 132 referral cases using ADOS and ADI-R. The subjects ranged from 2 to 16 years of age (mean = 6.06; SD = 3.38). When using DSM IVTR criteria, 111 children were diagnosed with AD, PDD-NOS or AS. However, when using the proposed DSM criteria, 26 (23.4%) did not meet the criteria for ASD. Children diagnosed with PDD-NOS comprised about 2/3 of the decrease.

A study for young children has been done by Matson, Kozlowski & Hattier (2012). They have screened a population of 2721 toddlers (aged 17 – 36 months) at risk for a developmental disability. When using DSM 5 criteria, 415 toddlers meet the criteria for ASD. However, when using DSM IV TR criteria, additional 380 toddlers met the criteria for either Autistic Disorder or PDD-NOS. They found that there could be a 47.79% decrease in diagnosis as a result of the proposed criteria. Again, children who were diagnosed with PDD-NOS were the most impacted. 79.94% of them did not meet the proposed DSM 5 criteria for ASD. However, the data for this study was only based on care-giver reports and it did not actually diagnose the children.

The new DSM 5 was feared to reduce the ASD prevalence rate as discussed earlier. However, findings in this has been conflicting. A study by Huerta, Bishop & Duncan (2012) found that 91% of subjects who met criteria for a PDD under DSM IV criteria also met the criteria for ASD in DSM 5. This study used items from a parent report measure of ASD symptoms (ADI-R) and clinical observation instrument (ADOS). The researchers speculate that the differences found when compared to the previous study might be due to the fact that earlier studies used previous draft of the DSM 5 criteria which were more stringent and fixed the age of onset criteria to 36 months.

This finding supported the finding of DSM 5 field trial (2012). Dr. Susan Swedo, chair of the Neurodevelopmental Disorder Workgroup for DSM 5, presented the results of the DSM 5 field trial for autism in July 2012. The field trial for ASD were done at two paediatric sites and screened a total of 293 children aged 6-17. Of this, 214 did not meet the criteria under the DSM IVTR criteria and 79 did. An additional 19 children met the DSM 5 criteria for ASD and 10 met the criteria for SCD. Of the 79 children who met criteria for an ASD under DSM-IVTR, 64 met an ASD diagnosis in DSM 5 which would be a 19% decrease. However, the 19 additional children identified under DSM 5 balanced out the 15 that dropped. Therefore the PPT presentation indicated that the decrease in the number of identified ASD cases using the proposed criteria would be counter balanced by the inclusion of some cases that had been missed by the DSM IV TR.

Sturmey & Dalferia (2014) has done a systematic review of 12 empirical papers comparing the application of DSM IV and DSM 5 diagnostic criteria for ASD. The percentage change in the proportion of individuals with ASD was calculated by subtracting the number of individuals with DSM IV ASD from the number of individuals with DSM 5 ASD and expressing it as a percentage of the number of individuals with DSM IV ASD. It was found in the study that the median overall change in diagnosis of ASD from all papers was -36.97%. There were large differences when changes were compared between less impaired subgroups (AS, HFA and PDDNOS) – the median reduction was -71.27% and the more impaired subgroups (AD, low IQ) – the median reduction was -19.35%. However, Smith, Reichow & Volkmar (2015) indicated that results of the review by Sturmey &

Dalfero (2014) have some limitations e.g. do not fulfil the Preferred Reporting Items for Systematic Reviews and Meta-Analyses, search strategies were not comprehensive, inclusion and exclusion criteria were not detailed and articles were not independently double coded for reliability.

Another systematic review with meta-analysis has been conducted by Kulage, Smaldone & Cohn (2014) which compared rates of diagnosis in DSM IV TR and DSM 5 in 14 studies. The review indicated that when DSM 5 were applied, there was a 36% decrease in the number of individuals diagnosed with ASD.

Smith et al. (2015) systematically reviewed 25 articles evaluating samples according to DSM IV TR and DSM 5 ASD criteria. Majority of studies indicated that between 50-75% of individuals with ASD maintain their diagnosis. This wide range of individuals who would maintain diagnosis of ASD under the DSM 5 likely due to differences in research methodology and or characteristics of study population. Visual analysis for subgroups using harvest plots have also been conducted in this study. It was found that the greatest decreases were among high functioning population with IQ more than 70 and or previously diagnoses of PDDNOS or Asperger syndrome.

Overall, most of these studies found that there are differences in diagnosis of some of individuals with ASD when using the DSM 5 criteria especially for population with IQ more than 70 or specifically diagnosed with Asperger syndrome, High Functioning Autism and PDD NOS. Therefore there are questions whether individuals who do not maintain their previous diagnosis will receive necessary support and services to fulfil their needs. It is also hard to know how many patients and families will be affected by the changes. Therefore more research need to be done to examine the new criteria and understand it fully in the coming years.

International Classification of Disease (ICD)

Autism was only recognised in the ICD in 1967, in the eighth edition of the publication. It was initially called 'infantile autism', which was categorised as a form of schizophrenia. In the ninth edition of the ICD (1977), influenced by the

psychodynamic theories, it was included under the heading of ‘childhood psychoses’. Finally, in the tenth edition of the ICD (1992, 1993), autism was no longer put under psychoses but recognised as a distinguished entity and accepted as a development disorder under the group ‘pervasive developmental disorder’ (see Appendix 1.3). In the same edition diagnostic criteria for Asperger was also published (see Appendix 1.4).

Differences in the diagnostic criteria

The diagnostic criteria for Asperger syndrome in both ICD-10 and DSM-IV include qualitative abnormalities in reciprocal social interaction (criteria as for autism), and restricted and repetitive stereotyped patterns of behaviour (as for autism). The disorder also includes specific onset criteria i.e. there is no history of significant delay in spoken language, and that self-help skills, adaptive behaviour and curiosity about the environment should be at level consistent with normal development (Smith, Klin & Volkmar, 2005).

The main difference between AS and autism in the diagnostic criteria is that children with AS have no clinically significant general delay in language or in cognitive development whereas children with autism may or may not. Another criterion that can differentiate children with AS and autism is both children have impairment in social interaction and restricted, repetitive and stereotyped patterns of behaviour, interests, and activities but children with autism also have impairment in communication (Mayes & Calhoun, 2001).

However, researchers and clinicians were not in total agreement regarding criteria for Asperger syndrome and the definitions differed in some ways from one researcher or clinician to another (Klin, 1994; Szatmari, 1992; Leekam, 2007).

The diagnostic criteria for AS in the DSM-IV also indicates that autism takes precedence in the hierarchy of diagnosis, i.e. if children with AS also meet the criteria for autism, e.g. show evidence of the presence of early developmental abnormalities or have impairments defined by the communication domain on the autism criteria, they will have a diagnosis of autism.

Diagnostic criteria for autism and AS have changed over time based on the results of studies and research that carried out from time to time. In the DSM IV and ICD 10, Asperger's Syndrome has a distinctive diagnostic criteria but in a recent development, autism and AS have been seen as 'disorders' that are under a same umbrella called 'Autism Spectrum Disorder' (ASD) (DSM 5 2013). AS no longer has a different diagnostic criteria but was placed under the ASD.

Different diagnostic criteria for autism and AS have caused a lot of confusion because the two have many similarities in their characteristics that overlap with each other while the differences between them are not substantiated or significant as diagnostic criteria that can distinguish between them. Considering all these confusion and disagreements, therefore when DSM 5 was published in 2013, AS was merged with other subtypes of autism into one umbrella diagnosis called Autism Spectrum Disorder (ASD).

3.1.4 Prevalence

There have been a series of prevalence studies of ASDs over the past decade (Fombonne 2003). However, results cannot be directly compared because of different methodologies e.g. sampling and the diagnostic definitions used. Kadesjo et al. (1999) estimated that the prevalence for overall ASDs in school age children was around 121 in 10,000 (1 in 83). However, Yeargin-Allsopp, Rice & Karapurkar, (2003) found lower rates of prevalence i.e. 30 in 10,000 (1 in 294) of children in 3 to 10 years old children in metropolitan Atlanta. Fombonne (2003) indicated that this finding was likely to be an underestimate since children with milder or high-functioning (i.e. normal IQ) ASD subtypes are likely to have been missed. When reviewing epidemiological studies of autism and related disorders, Fombonne (2005) estimated the prevalence of ASDs as indicated in the studies was 60 in 10,000 or 1 in 166. More recent studies in the prevalence of ASDs found comparable findings to Kadesjo, Gillberg & Hagberg (1999) e.g. Baird (2006) who estimated 116 in 10,000 (1 in 86) in 9-10 years old children and Baron-Cohen, Scott & Allison (2009) who estimated 113 to 157 in 10,000 (1 in 88 to 64) in 5 to 9 years old children.

Specific prevalence for children with autistic disorder or Kanner type as indicated by Kadesjo et al. (1999) was around 24 in 10,000 or 1 in 416. Baird (2006) estimated a higher rate of prevalence of children with childhood autism i.e. around 38.9 in 10,000 or 1 in 257. The key prevalence study of AS in children age 7 to 16 years old in Goteborg borough Sweden, suggests a rate of 36 in 10,000 (0.36%) or 1 in 270 (Ehler & Gilberg, 1993) whereas Kadesjo et al. (1999) indicated that the prevalence was 48 in 10,000 or 1 in 208. Chakrabarti & Fombonne (2001) who used the DSM-IV diagnostic criteria suggested the prevalence of AS was around 8.4 in 10,000 (0.084%) in children aged 2.5-6.5 years in Staffordshire, England whereas more latest prevalence of AS in children under 17 in Rhondda and Taff Ely, districts of south Wales suggested a rate of 35.4 in 10,000 (Latif & William, 2007). However, Fombonne (2005) who had done a review of prevalence studies suggested that the rate of AS was consistently lower than that for autism and suggested that the ratio was 5 to 1.

The prevalence of individuals with classic autism, AS and ASD are generally found to have increased. Although this can be attributed to some factors such as improvement in the diagnostic process, but it is a trend since the study was carried out in various places.

3.1.5 Life Outcomes

The life outcomes findings for individuals with ASDs were very variable. Kanner (1973) have reported the outcomes of 96 individuals at the age of 20s and 30s whom he had first seen as children. Even though majority of them remained highly dependent, with many in institutional care, 11 had jobs and one at college. Asperger (1944) also commented on the various outcomes amongst his patients. He quoted several more positive examples of individuals who had done remarkably well in later life, including a professor of astronomy, mathematicians, technologists and high-ranking civil servants and suggested that 'their narrowness and single mindedness can be immensely valuable and lead to outstanding achievements in their chosen areas' (translation by Frith, 1991).

Differences were also found in other outcome studies of children with ASDs. Kobayashi, Murata & Yashinaga, (1992) reported on a large Japanese sample of 201 using a mail-back survey. Over (25%) were described as having a good or very good outcome which meant working and living close to independently while Goode, Rutter & Howlin (1994) re-examined 75 young adults in London and found 20% had a good or very good outcome with independence, some friends and a job.

Venter, Lord, and Schopler (1992) described outcome for 22 individuals aged 18 years or over who had a pre-school IQ of above 60. Around a third were competitively employed, but again jobs were generally at a very low level and the majority was in sheltered employment or special training programmes; 3 had no occupation. Only 4 individuals (18%) lived more or less independently.

Follow up study by Howlin, Mawhood, & Rutter, (2000) and Mawhood, Howlin, & Rutter, (2000) of 19 men with autism (mean WAIS PIQ 83) who had initially been diagnosed between 4 and 9 years of age found that although the majority had improved over time, all showed continuing problems in communication, social relationships and independence.

Howlin et al. (2004) found that individuals with IQ scores above 70 were likely to demonstrate a more positive outcome. Furthermore, the authors suggested that, besides cognitive abilities, the fundamental deficits associated with ASDs (e.g. the degree of stereotyped and ritualistic behaviour) may significantly affect outcome.

Comparisons between studies need to be treated with caution because of differences in sample selection and in the measures used. Most investigations have involved relatively small groups of subjects, diagnostic criteria are sometimes imprecise and/or the quality of data on early intellectual functioning is poor. Overall judgements of whether outcome is 'good', 'fair' or 'poor' also tend to be based on variable criteria (Howlin et al., 2004).

Although it is evident that at least a minority is able to live independently, find jobs, make relationships and even get married, outcome is extremely variable. To some extent, prognosis is related to innate cognitive and linguistic abilities, but the

adequacy of local provision may also have a significant impact on outcome (Lord & Venter, 1992). For example, appropriately structured educational programmes may influence later academic and occupational attainments (Kunze and Mesibov, 1998). Therefore it is clear that diagnostic provision needs to be improved considerably if more able individuals are to be given the appropriate support (Howlin, 2000).

3.1.6 Summary

DSM 5 suggested that AS and other subtypes of autism to be put under the umbrella of ASD. However, many research which have supported the DSM 5 have been done in the western countries such as US, Europe and UK. Previous sections which discussed the Malaysian context showed that not many research in this area have been done in Malaysia. Therefore this study is trying to identify children with characteristics of AS and try to find out details about the characteristics of children with AS and autism in Malaysian context.

The literature review above also found that outcomes for individuals with ASD are various, but what is more important is to ensure that they can live independently. The factors that can determine the outcomes for individuals with ASD are include their abilities in terms of cognitive and social interaction with others. In addition, the provision of education provided by the authorities and support from the family and the community members can help them to live independently. The findings of this study may help to increase knowledge and awareness regarding ASDs in Malaysia therefore they will get better support from the authorities, family and community.

3.2 The Triad of Impairments

3.2.1 Social Interaction of Children with ASD

As discussed in the previous section, due to several factors such as genetic, environment and brain abnormalities, individuals with ASDs demonstrate difficulties in social interaction. Kanner (1943) revealed that 11 children in his case study exhibited a predisposed lack of interest in other people. He also noted that while they

had very limited interest in the social environment, they were highly interested in aspects of the inanimate environment. Based on this, he proposed social dysfunction and unusual responses to the environment as two essential features of autism (Carter, Davis, Klin & Volkmar, 2005).

According to Baron-Cohen & Bolton (1993), social impairment in individuals with autism cannot be defined in a single explanation because there is a range of difficulties that varies from one individual to another. The difficulties of social impairment in children with autism are not restricted to the development of skills alone, rather the difficulties are all-encompassing and include social skills and social understanding (Howley & Arnold, 2005; Kasari, Locke & Gulsrud, 2011).

Wing & Gould (1979) proposed that social interaction of individuals with autism spectrum disorder could be grouped into three types:

‘The aloof group’, who do not acknowledge other people’s existence in social contexts, distance themselves from any form of social interaction with others and typically reject social overtures; ‘the passive group’, who can accept social approaches, do not isolate themselves from others but do not display interest in initiating social interaction; and the ‘active but odd’ group, who have no problems approaching people but carry out social interaction in unusual, one-sided and inappropriate ways due to their nature of not really understanding how to interact with other people.

In 1996, Wing added a fourth group to the existing three; he referred to it as the ‘over-formal-stilted’ group, who could be seen in autistic adolescents and adults who are more able and have good language skills. This group is characterised by their excessive politeness and very formal behaviour due to special difficulty in adjusting their behaviour in different situations.

These different groups of autistic individuals show that they vary in their ability to communicate with other people. Howlin (1997), indicated that amongst the specific deficits noted in individuals with autism are the failure to understand or respond appropriately to others’ feelings or emotions, their inability to share emotions or

experiences, and poor integration of social, emotional and communicative behaviours when interacting with others.

Children with autism usually show significant limitations in areas of social interaction, particularly in situations requiring joint attention, social initiation and dynamic social reciprocity, as will be discussed below.

Joint attention is viewed as a cluster of socio-communicative behaviours that involves the coordination of attention between oneself, an object or event, and another person, with both parties aware of the focus of attention of the other (Kasari, Chamberlain & Bauminger, 2001; Siller & Sigman 2002). It allows for two or more individuals to exchange information regarding goals in non-verbal cooperative activities without much dependency on verbal communication (Brinck & Gärdenfors, 2003).

Typically developing children start to engage in joint attention when they are approximately 9 months old (Mundy & Crowson, 1997), with deficits in these behaviours being identified in children with autistic disorder at around 10.4 months of age or earlier (Young, Brewer & Pattison, 2003). Some researchers feel that joint attention may be a key to understanding the development of autism. It is also thought to be a critical prerequisite to social behaviour improvement in children with autism (Whitman, 2004) and to successful development of subsequent social skills (Delinicolas, 2007). There are also many other studies in this area that have consistently demonstrated significant relationships between joint attention and both language and social development (Charman, Baron-Cohen & Swettenham, 2003; Delgado, Mundy & Crowson, 2002; Sigman & Ruskin, 1999; Jones, Carr & Feeley, 2006; Whalen, Schreibman & Ingersoll, 2006).

These authors speculated that because joint attention is linked to later social and cognitive development, it may be an essential skill that should be taught during early intervention programs. It seems likely that joint attention influences later social and cognitive development, through its impact on the development of imitation and play, skills which are often not present in children with autism (Whitman, 2004).

A specific pattern of joint attention skills and deficits is usually apparent in individuals with autism, e.g. they usually use gestures or pointing instead of using eye contact or words, and they express less emotion during joint attention episodes than do control children (Stone, Ousley & Yoder, 1997; Willemsen-Swinkels, Buitelaar & Weijnen, 1998). However, Misailidi (2002) found that young children with autism displayed the same level of positive affect as age-matched control children when joint attention was tested.

Children with autism may also display more protoimperative gesturing than protodeclarative gesturing. This means that they usually communicate only to fulfil their needs, whether by using language or by gesture, rather than initiating an episode of joint attention, e.g. by pointing at an object of interest, while coordinating their attention and gaze between the object and another person (Dawson, Munson & Estes, 2002; Warreyn, Roeyers & Groote, 2005). More complicated, they may also show less positive affect directed toward others in social exchanges and may even avoid positive praise (Kasari, Sigman & Mundy, 1990).

Even when joint attention is present in children with autism, it involves some forms of deficiency, including minimal coordination of gaze, vocalisations and gestures (Carter et al., 2005), and not using it merely to share awareness or an experience of an object or event, as normal and developmentally matched children with mental retardation do (Tager-Flusberg, Paul & Lord, 2005).

Carter et al. (2005) indicated that young children with autism also display odd attachment behaviour, e.g. they may be attached to objects that are hard, e.g. boxes or metal toys, or they may be attached to a class of objects rather than a specific object. Furthermore, evidence of children with autism treating parents as objects, e.g. like pieces of furniture, has led some researchers to suggest that they have an attachment deficit (Rogers, Ozonoff & Maslin-Cole, 1993; Whitman, 2004).

It has been noted that children with autism can see the difference between their caregivers and people they have never seen, and they have the ability to establish strong and secure attachment to their caregivers. However, it was suggested that only those with various developmental competencies and those whose parents are highly

sensitive of their condition can develop this secure attachment whereas those with severe symptoms of autism have not shown this ability (Yirmiya & Sigman, 2001).

There is also strong evidence of the existence of imitative abilities impairment in autistic children (Williams, Whiten & Singh, 2004; Koegel & Koegel, 2006). It is one of the earliest social behaviours observed in typically developing infants and is among the earliest symptoms of deficient social functioning observed in children with autism (Watson, Baranek & Delavore, 2003; Williams et al., 2004). Considering that social imitation requires direct interaction with other individuals, lacking attention and social interpretations might lead to imitative deficiency in autistic children (Leekam & Moore, 2001).

Normally, spontaneous imitation is apparent almost from birth (Kugiumutzakis, 1999). As the infant develops, imitation begins to become an important feature in the interaction between an infant and its mother as it provides the child with mutual connectedness and shared social experiences (Meltzoff, 2005; Trevarthen, Kokkinaki & Fiamenghi, 1999). Imitation seems to be essential in establishing primary intersubjectivity (Hobson, 1993; Meltzoff & Gopnik, 1993). In later infancy and childhood it is crucial in the development of play, communication and social interactions and peer relationships (Nadel, Guérini & Pez , 1999).

Children have been observed to acquire new skills, including language, motor behaviours, emotional expression and social protocols, through imitation (Whitman, 2004). Therefore, some researchers theorised that imitation enhances a child's understanding of the minds of other people and social conventions, and at the same time helps the child to self regulate during social interaction (Smith & Bryson, 1994; Ingersoll, & Schreibman, 2006).

Although the exact nature of the relation between imitation and social deficits has yet to be identified, many researchers agree that when spontaneity is absent in social imitation, the development of children with autism will be adversely affected (Ingersoll, Schreibman & Tran, 2003; Colombi, Liebal & Tomasello, 2009). Along with joint attention and play, imitation is an early reliable discriminator of autism (Mundy & Crowson, 1997). Therefore, deficits in imitation are included as specific

markers in early screening instruments and identification measures to diagnose autism (American Psychiatric Association, 1994; Lord, Risi & Lambrecht, 2000).

Heimann, Ullstadius & Dahlgren (1992) found that while the group with autism displayed the highest level of imitation on object manipulation and vocalisations, they showed an inability to successfully imitate actions related to object substitution, facial and motor tasks. However, the authors observed individual variations, and children with autism were found to display fewer imitations compared to the normal 1-year-old. There is also evidence that children with autism may benefit from being imitated, as imitation of the child can increase their mutual eye gaze, social interaction and appropriate behaviours (Nadel et al., 1999; Stephen, 2008).

In fact, in a study done on a group of 6-year-old children with autism by Roux, Adrien & Bruneau (1998), it was found that none of the subgroups of children with developmental ages of less than 2 years had imitative skills, whereas in four subgroups with developmental ages higher than 2 years, two subgroups displayed imitative skills. These results suggest that as children with autism grow older, their deficits in imitation may decrease.

For people with autism who already have great difficulty in superficial social functioning, establishing friendships and relationships proved difficult. Also, they are not prone to engage in intensive social contact. As many of them avoid social interactions, only few people with autism are known to have managed to forge successful, close friendships (Delfos, 2005).

Bauminger & Kasari (2001) indicated that even though children with autism can explain what a friend is, they appear to view friendship as an object rather than a concept. Their descriptions of pictures of friends and friendships tend to emphasise physical details rather than the social, cognitive or affective aspects of the individual or relationship. Furthermore, children with autism were reported to have less stable friendships, met their friends less often and engaged in activities involving less social exchange than individuals in the control group (Bauminger & Shulman, 2003; Kasari et al., 2011).

The main reason why children with autism find it difficult to develop deep friendships is because they do not have the ability to understand the minds and emotions of others (Whitman, 2004). Since friendship is reciprocal, taking account of each other and doing things together, we have to be able to empathise and take the other's wishes into account to be successful in establishing meaningful friendship (Delfos, 2005).

Williams, Reddy & Costall (2001) found that in contrast to matched controls (children with Down syndrome and typically developing children), the play of children with autism was not seen as interesting to others. They are frequently passive in nature, and they prefer a learnt routine rather than a genuinely playful and engaging experience. Boucher (1999) noted that the failure of children with autism to engage in pretend play with others caused them to experience social isolation, and this led to a consequent failure to develop and practise social skills. Moreover, in a study of the play of preschool children, Restal & Magill-Evans (1994) found children with autism to be lacking in the ability to use play as a tool to develop skills, experiment with roles and interact with others.

Higher functioning children with autism or Asperger syndrome who are linguistically more able and possess social skills competencies have a better chance of developing and sustaining relationships with others than autistic children who are functioning at a lower level (Eagle et al., 2010). However, they are known to have problems in developing age-appropriate peer relationships and do not have clear understanding of social cues, reciprocal conversation and appropriate use of humour (Attwood, 2000). Thus, their relationships are typically superficial in nature and friendships are often focused on common interests, and social interaction is very minimal (Orsmond, Wyngaarden Krauss & Seltzer, 2004).

Autistic children with fewer social deficits always display a strong desire to communicate and form friendships with others; they are also aware that they may face difficulties in doing so (Barry, Klinger & Lee, 2003). Because of the desire and challenges they have, many find it difficult to have many friends, and they often become the subject of ridicule and peer rejection (Ozonoff & Miller, 1995). They are also frequently socially isolated and always encounter vocational failure (Tantam,

2000). Moreover, a recent study found that although many children with HFA were reported by their mothers to have at least one friend, intervention from parents is needed in initiating and maintaining these friendships (Hillier, Fish & Cloppert, 2007).

For children with AS, the functions and meaning of friendship continually change throughout their childhood (Gifford-Smith & Brownell, 2003). While friendships in adolescence rely on intimate, two-way exchanges, in middle childhood they are based more on shared norms, conversation and games (Knott, Dunlop & Mac Kay, 2006). Because of this, children with autism might find it easier to develop relationships with friends in middle childhood but may have difficulties in sustaining friendships when they are in adolescence, due to their deficits in socio-emotional skills.

3.2.2 Language and Communication in Children with ASD

A further aspect of the triad of impairments that will be discussed in this section is the language and communication of children with ASDs. A qualitative impairment in communication that affects both verbal and non-verbal skills has been identified as the main feature of autism (American Psychiatric Association, 1994; Wing, 1996). This is not surprising as it has been shown that autistic individuals have problems in pre-verbal communication (e.g. limited use of social gestures) and deficiencies in maintaining eye contact, joint attention, social referencing and imitation as discussed before.

The deficit in communication that defines autism is closely related to the impairment of social interaction, which includes impairment in language use. It has been noted that, if language is present in the social interaction of children with autism, it is usually used for instrumental rather than social purposes (Boucher, 2003). In other words, children with autism are not specifically impaired in their ability to pronounce words or learn language structures. However, they do display difficulties in the semantic aspects of language, i.e. vocabulary development and understanding the

meaning of words, and in the pragmatic aspects of language, i.e. the social use of language (Mesibov et al., 1997).

In contrast to this perspective, Prizant (1996) suggests that individuals with autism have difficulty in producing speech because of factors other than or in addition to their social-cognitive impairments. He suggests that their speech and communication delays are caused by general motor difficulties, including motor speech impairments and motor planning problems. Similarly, Murray-Slutsky (2000) points out that a child needs to follow a sequence of actions, starting from registering sensory information, formulating an idea, planning and sequencing thoughts, and then speaking, for him to have effective speech and language.

Tager-Flusberg et al. (2005) agreed with both perspectives and concluded that the difference between the speech features of young children with autism and those of other young, non-verbal children was not just in social purpose, but also in a more basic aspect of the form of vocalisation beginning very early in development.

It is estimated that around 50 percent of those diagnosed with autism lack the ability to use language meaningfully, and the rest, at the very least, display significant delays in social communication (Parisse, 1999). Although autistic children's language delay is well established, the exact nature of the language disorder remains, at present, poorly understood. Areas of language that have received an increasing amount of research attention include semantic, pragmatic, comprehension, echolalia, phonology, intonation, pronounce reversal and grammar.

Children with autism have a tendency to use a limited range of words during their conversations and are often observed not to make full use of the vocabulary they have developed. Parents frequently report that their child tends to use only a few words during his or her conversations despite having the ability to say hundreds of words (Mesibov et al., 1997). Similarly, Tager-Flusberg (1991) reported that children with autism often fail to manipulate their knowledge of words in a normal way to help them retrieve and organise tasks.

Studies have shown that children with autism do not have good semantic knowledge (Minschew & Goldstein, 1993, 2001; Kjelgaard & Tager-Flusberg 2001). However, when they are given a range of memory and categorisation tasks, it is found that these individuals can make proper association between semantically related items (Toichi & Kamio, 2001). In response to these mixed findings, it has been proposed that the differences in the performance of individuals with autism in verbal recall tasks may be influenced by poor semantic encoding (Toichi & Kamio, 2002). They also indicated that unlike typically developing children, who encode the meaning of words, children with autism ignore the meaning of words and any meaningful relations between them, and they tend to ‘rote-learn’ verbal information instead.

Individuals with HFA and AS show an unusually rich knowledge of words when they scored well in standardised vocabulary tests (Jarrod, Boucher & Russell, 1997; Kjelgaard & Tager-Flusberg, 2001). However, despite their normal vocabulary and grammar, they always find understanding and using non-literal or allusive language, e.g. metaphor, irony and jokes involving word play, a great challenge (Happé, 1994b). In other words, while individuals with HFA and AS may or may not show deficits in phonology and syntax, there is evidence that they are invariably impaired with respect to the semantic and pragmatic aspects of language (Twachtman-Cullen, 1998).

Language impairments in autism are mostly centred on deficits in the social or pragmatic use of language (Boucher 2003). Several aspects of the conversation skills of verbal people with autism are characterised by abnormalities including use of irrelevant details, perseveration on specific topics, inappropriate shifts to new topics, ignoring the initiation introduced by others, and a lack of strategies for repair when there are problems in their conversations (Mesibov et al., 1997).

In trying to explain these impairments, Tager-Flusberg (1993) hypothesised that individuals with autism do not understand the implicit rules of social conversation. Part of their problem is their inability to understand that others have perspectives different from their own. Difficulties in picking up the rules of social discourse and understanding others’ perspectives contribute to their pragmatic deficits (Young, Diehl, & Morris, 2005).

Autistic children with speech are more likely to use language whenever they see a need for them to offer information to others. They communicate to a greater number of different people and are more likely to engage in communication with peers and adults than children without speech (Tager-Flusberg et al., 2005). General studies of younger children with autism show that they rarely use language for comments, showing off, acknowledging the listener, initiating social interaction or requesting information (Tager-Flusberg et al., 2005). Even older higher functioning children rarely use language to explain or describe events in conversational contexts (Ziatas, Durkin & Pratt, 2003).

In contrast to expressive language, language comprehension in children with autism is still a grey area to researchers. Nevertheless, research suggests that children with autism do not approach speech in the same way as other children and are better at processing visual rather than auditory/verbal stimuli (Whitman, 2004). Because these children have difficulties in maintaining their attention span, and the fact that the meaning of speech is acquired within a social context, it is not surprising that they find it challenging to understand the meanings of speech, particularly symbolic speech (Watson, 2001).

Another difficulty that children with autism have in comprehending language in everyday situations is their inability to integrate non-verbal cues to help interpret linguistic input, e.g. noticing a smile on another person's face, or the tone of other people's voices, as well as the words, in order to distinguish whether people are displaying affection or aggression (St. James & Tager-Flusberg, 1994).

Echolalia, the exact repetition of previously heard words or phrases, occurs in approximately 85 percent of children with autism who eventually develop speech (Mesibov et al., 1997). Echolalia is now viewed as a means in which children with autism can communicate with others and is considered an important stage to the development of more advanced language (Mesibov et al., 1997).

Immediate echolalia means the child repeats a word or phrase immediately after it is spoken, while in delayed echolalia the child only repeats the phrase hours or even days after they are spoken to. Delayed echolalia may also occur when a child repeats

a phrase from television or a movie. Even though this ability is impressive, this type of conversation is inflexible and often inappropriate (Eigsti, Bennetto & Dadlan, 2007).

It is common for children with autism who have great difficulty with expressive language to simply repeat words spoken to them; this is especially true for children who are in very early stages of language acquisition. Moreover, based on parental reports, it appears that some children with autism lose their language abilities after a period of normal development (Whitman, 2004). Although echolalia is a classic symptom of autism (Kanner, 1946), it is not a common characteristic in all children with autism, nor is it seen only in autism (Tager-Flusberg et al., 2005).

One other area of language in which children with autism would least likely face a problem is phonology (Boucher, 2003; Rapin and Dunn 2003). Sigman & Capps (1997) suggested that phonological development in children with autism is relatively slower but not different than that of other children, except for the fact that the meanings children with autism attach to words are idiosyncratic as well as highly associated to specific concrete objects.

Among children with autism who speak, articulation is often normal or even unusually advanced (Kjelgaard & Tager-Flusberg, 2001). However, Shriberg, Paul & McSweeney (2001) report that 30 percent of speakers with HFA and AS face problems in pronouncing sounds such as /r/, /l/ and /s/ into childhood, whereas the rate of these errors in the general population is 1 percent. Studies have shown that difficulties in articulation are relatively common in non-autistic children with intellectual handicaps (Tager-Flusberg et al., 2005).

Research on AS suggests that deviances in intonation and prosody are even more prevalent for children and adults with AS than for individuals with autism who have acquired language (Eisenmajer, Prior & Leekam, 1996). Shriberg et al. (2001) found that about one-third of the participants with AS had distorted speech and articulation problems, and two-thirds had prosodic abnormalities at grammatical, pragmatic or affective levels. Like Asperger's case studies (Frith, 1991), quite a large number of

the study participants had loud, high voices with a nasal tone (Tager-Flusberg et al., 2005).

In addition to their limited use of vocabulary, individuals with autism have some deviant characteristics of their language, such as pronoun error, which is characterised by referring to themselves as ‘you’ instead of ‘I’ and calling others ‘I’ (Mesibov et al., 1997). Pronoun errors in children with autism have been associated with their problems in understanding the concept of self and other as they are embedded in shifting discourse role between speaker and listener (Lee, Hobson & Chiat, 1994; Tager-Flusberg, 1993). Their difficulty understanding discourse roles is related to impaired social communicative functioning, or may be related to their broader social deficits, specifically conceptual perspective-taking (Tager-Flusberg et al., 2005).

3.2.2.1 Early Language Delay As A Differential Criterion for AS and HFA

The significance of speech delay as one of the DSM-IV criteria distinguishing children with Asperger syndrome from autism, especially in individuals with higher levels of cognitive ability (high-functioning autism), has been widely debated (Leekam, 2007; Mayes & Calhoun, 2001).

The DSM-IV (1994) states that children with Asperger’s disorder have ‘no clinically significant general delay in language’, which is defined as ‘single words used by age 2 years, communicative phrases used by age 3 years’ (p. 77). However, Ghaziuddin et al. (1992a), who carried out a study on comparison of diagnostic criteria for Asperger syndrome, noted only very few individuals qualified for the diagnosis for those sets of criteria that take into account normal cognitive and language development. Similarly, Ehlers, Nyden & Gillberg (1997), in their clinic based study using Gillberg’s criteria, found that 34 out of 40 individuals with Asperger syndrome had a diagnosis of Asperger syndrome on ICD-10 criteria (in draft form at the time of the study) when the criteria for diagnosis which includes normal language and cognitive development in the first three years was ignored.

A study by Eisenmajer, Prior & Leekam (1998) shows that language delay and current language level predict autistic symptoms differently depending on the age of the individual. Their findings suggest that language variables are not sufficient to put individuals into one group or another. It is also necessary to be aware of how behavioural symptoms, language and cognitive ability relate to each other across development and how individuals may change.

Mayes & Calhoun (2001) also suggest that early speech delay may not affect later childhood functioning and outcome in children with ASDs. Therefore, using absence of significant speech delay as one of the DSM-IV criteria distinguishing children with Asperger syndrome from autism may not be justified. The major difficulty in this endeavour is the complexity of the clinical picture and the significant differences between individuals with ASDs (Leekam, Libby & Wing, 2000).

Mayes & Coulhoun (2001) found that children with clinical diagnoses of autism or Asperger syndrome who had normal versus below normal intelligence could be distinguished from each other by looking at their IQ and age. Similarly, Eisenmajer et al. (1998) found that early language delay predicts the extent of autistic psychopathology, motor delay and receptive language skills only when the children were young, but not at an older age. When the children approached puberty, the difference in the language level between the groups lessened.

Moreover, if a researcher partitions participants into HFA and AS groups based on DSM-IV criteria, the HFA group will necessarily have language delay relative to the AS group. Finding group differences in verbal ability between the groups should not be surprising, nor does it necessarily present evidence of a distinction between HFA and AS, because they were partitioned based on language ability (Lewis, Murdoch & Woodyatt, 2007).

On the whole, the use of absence of language delay as AS diagnostic criteria in DSM-IV can be problematic for a number of reasons, e.g. language delay is neither specific nor well-defined, the presence of language delay in the first three years of life does not necessarily mean lifelong language impairments, parents have to determine whether the child demonstrates language delay, and clinicians have to rely

on retrospective reports of language development, which may not accurately reflect true language functioning (Sanders, 2009).

3.2.3 Imagination of Children with ASD

A final aspect of the triad of impairments that will be discussed in this chapter is the imagination difficulties of children with ASDs. Difficulties and delay in understanding symbolism, especially in relation to pretend play, have long been documented as characteristic of people with ASDs (Jordan, 1999, 2003). In line with this, studies investigating possible early signs of autism have shown that an absence of pretend play, as compared to more general types of play behaviour, might be an indicator of autism (Baron-Cohen, Cox & Baird, 1996; Scambler, Rogers & Wehner, 2001).

Boucher (1999) notes that since play is a major part of early childhood, the failure of a child to engage in pretend play with his peers would result in him being socially isolated, and consequently the child would experience failure in developing and practising social skills. Furthermore, social contact with peers requires a child to interact and draw some kind of response from others, and the inability to do this would cause deficits in pretend play (Jordan, 2003). Without proper play skills, a child with ASDs will find it difficult to gain the social, emotional and cultural experiences needed for normal development (Jordan & Libby, 1997; Kasari, Paparella & Freeman, 2008).

Leslie (1987) defines pretend play as a type of play that involves both functional play (using objects, including miniatures or toys, as if they were the object they represent) and symbolic play (using objects as if they were something else, had imaginary properties or were different from the way they are).

In the case of autism, a distinction between functional and symbolic play capacities has received special attention, since there are views that some experimental and clinical evidence for pretend play capacities in children with autism is confused and contradictory. This is due to the failure of many researchers to draw a clear

distinction between the symbolic and the functional aspects of pretend play (Jarrold, Boucher & Smith, 1993).

In children with autism, functional play does not develop normally (Jarrold et al., 1993; Trilingsgaard, Sorensen & Nemeč, 2005), is limited (Libby, Powell & Messer, 1998), lacks diversity and is characterised by repetitive manipulations (Atlas, 1990). However, it seems relatively preserved when compared with the marked impairment in spontaneous symbolic play (Jarrold, 2003; Libby et al., 1998). The significance of the symbolic play impairment in autism remains controversial but some researchers consider pretend play deficiency as evidence of a lack of a capacity to represent mental states (e.g. Leslie, 1987); a deficit that might be the cause of impairments in social understanding and at least some characteristic problems with language (Baron-Cohen & Ring, 1994).

Initial research exploring the early play behaviours of children with autistic disorder (e.g. De Myer, Mann & Tilton, 1967; Tilton & Ottinger, 1964) found that sensorimotor play (use of a toy without taking account of its functional characteristics) was dominant in these children. However, other studies have failed to record a significantly higher incidence of this behaviour compared to controls (Lewis & Boucher, 1988; Stone, Lemanek & Fishel, 1990; Trevarthen et al., 1996).

Wing & Gould (1979) indicated that they believed that individuals with autism might not essentially have general problems in play behaviours, but rather specific difficulties in imaginative or pretend play. This view has been supported by Jarrold, Boucher & Smith (1996) and Libby et al. (1998), who suggested that such play can be replicated or even cued, but it does not contain the three qualities of imaginative play, namely spontaneity, intention and creativity.

These studies show that the possibility of autistic individuals engaging in pretend play is low compared to their normal peers (Charman et al., 1997), and when pretend play is displayed by samples of individuals with autism, it occurs less frequently and lasts for less time than when it is shown by other individuals (Jarrold et al., 1996). Moreover, studies which have included control groups matched for level of receptive

language also found that autistic individuals show reduced spontaneous pretend play (Baron-Cohen, 1987; Jarrold et al., 1996).

In a study of spontaneous play behaviour in autistic children, including comparison groups of individuals with Down syndrome and typically developing children who were matched to individuals with autism for both receptive and expressive language, Libby et al. (1998) found that although all groups showed relatively little pretend play across these free play sessions, individuals with autism showed considerably, and significantly, less evidence of pretending. This evidence suggested that children with autism may have the capacity to pretend, but, for some reason, they fail to display this as a spontaneous reaction (Riguet, Taylor & Benaroya, 1981; Ungerer & Sigman, 1981). This possibility has led researchers to examine the quality of play shown by children where pretending is more directly encouraged.

It is interesting to note that Lewis & Boucher (1988) found that when pretend play was cued, both children with autism and controls matched for level of receptive language produced the same amount of pretend acts. Indeed, Jarrold et al. (1996) discovered that while elicitation increased overall levels of pretend play, it did not affect the extent to which individuals with autism were impaired in producing pretence relative to controls. This might indicate that children with autism are equipped with an underlying capacity to produce pretence but this ability does not prevail in spontaneous play situations.

However, theorists have suggested that to prove that true pretending does take place, there needs to be clear evidence that these children are aware of their behaviours in pretend play (Lillard, 2001); otherwise, instructed pretend play may only represent a form of intelligent guessing (Baron-Cohen, 1990; Charman & Baron-Cohen, 1997) rather than the ability to use an arbitrary object to represent a non-existent target object.

Studies of spontaneous or elicited play have also shown that children with autism tend to produce fewer meaningful pretend acts than appropriately matched controls, e.g. Jarrold et al. (1996) found that when asked to produce novel play acts with a range of objects, individuals with autism were able to produce pretend actions, but

they were comparatively slower than controls. When considering these findings, Jarrold (2003) suggests that individuals with autism can produce something that looks like pretend play under certain circumstances, but have difficulty with the fluent, flexible and creative production aspects of it. Moreover, it has been suggested that symbolic play itself may not be disturbed in ASDs, but rather it is the social aspects of pretend play (both functional and symbolic) that are affected (Jordan, 1999).

A number of theories have been put forward to explain the difficulties in the production of pretend play. The most concise explanation offered for this apparent deficit in pretend play in autism was result of a deficit in the functioning of the metarepresentational aspect of the theory of mind (ToM) (Leslie, 1987). According to this perspective, pretend play provides early evidence of a developing ToM.

Children with autism have long been reported to demonstrate ToM deficits. They have a specific impairment in attributing true and false beliefs to themselves and others (Baron-Cohen, Leslie & Frith, 1985; Russell, Mathner, & Sharpe, 1991), and in their understanding of knowledge (Baron-Cohen & Goodhart, 1994; Reed & Peterson, 1990). The fact that the ToM deficit is concurrent with the pretend play deficit makes it a logical explanation for the deficit. However, it should be noted that there has yet to be any direct experimental support proving the relationship between ToM and pretend play in autism (Rutherford & Rogers, 2003).

There are, however, a number of problems with the metarepresentational account. Some individuals with autism have been known to have the ability to produce limited symbolic play, especially children with higher verbal mental ages (Jarrold, Carruthers & Smith, 1994; Kavanaugh & Harris, 1994) and can produce symbolic play when they receive appropriate prompts (Lewis & Boucher, 1988; Jarrold et al., 1996).

It also has been proposed that executive dysfunction (Ozonoff, Pennington & Rogers, 1991) and generativity deficits (Jarrold et al., 1993, 1996; Lewis & Boucher, 1995) are the reasons for many social deficits displayed by individuals with autism, including the difficulties of producing pretend play. Moreover, Roeyers & van

Berkelaer-Onnes (1994) explained the difficulties in pretend play as a product of children with autism lacking a sense of curiosity and exploratory behaviour.

Some hypotheses have concentrated on the relation between early emerging social skills (e.g. Hobson, 1993) and the potential role of early play and exploratory behaviour (e.g. Libby et al., 1998). Libby et al. (1998) suggest that the difficulties of individuals with autism to produce pretend play originates from failure of positive input in the earliest forms of social interaction between caregivers and children with ASDs e.g. problems of joint attention and imitation. These difficulties in the earliest forms of social contact would not likely lead to social play for the child with ASDs. They also note that many researchers have neglected careful examination of these important early forms of play in their studies.

3.2.4 Summary

This section has discussed the characteristics of individuals with autism or ASDs which called 'The triad of Impairments'. The discussion suggests that children with autism or ASDs have the three symptoms (impairment in social interaction, language and communication, imagination) but different in their level of severity. In the current study, these characteristics will be observe through several instruments to find children with characteristics of AS and to examine the characteristics of children with autism in Malaysian context. The details of features and characteristics of children with ASDs that will be found in this study may increase the interest of Malaysian researchers to study this field in more depth so that individual with ASDs in Malaysia will be provided with more support to fulfil their needs.

3.3 Asperger Syndrome

After the discussion of the characteristics of the triad of impairments in children with ASDs across the spectrum, this section examines the characteristics of individuals with AS (specifically to see differences between AS and autism, i.e. differences in the DSM-IV diagnostic criteria, cognitive profiles, language and communication, social interaction, Theory of Mind (ToM) and outcomes). Even though the aim is to

differentiate between AS and autism, most of the studies discussed in this chapter focus on the differences between AS and HFA, since both have more comparable characteristics, i.e. they have higher cognitive abilities.

3.3.1 Cognitive Profiles

A few studies have found some cognitive prototypes that could differentiate between individuals with AS and autism or HFA. Ehlers et al. (1997) found that participants with autism had high scores in visuo-spatial and perceptual reasoning skills but low scores in verbal mediated knowledge, whereas participants with AS scored higher in mediated knowledge but low in visuo-spatial and perceptual reasoning skills. The characteristic identified to differentiate between the two groups is the higher verbal ability in the individuals with AS.

Klin, Volkmar & Sparrow (1995) also recorded comparable findings in a case-control study of 46 subjects with AS and HFA. They found that individuals with AS displayed weaknesses in visual-motor integration, visual-spatial perception, visual memory, fine and gross motor skills and non-verbal concept formation, whereas individuals with autism or HFA did not show the same deficits. They also found that subjects with AS had significantly higher VIQ than PIQ scores, compared to HFA controls, who showed similar VIQ and PIQ scores. These discrepancies were suggested as potentially important features that could be used to distinguish between AS and HFA (Macintosh & Dissanayake, 2004). However, the lower scores in visuo-spatial tasks for subjects with AS may be caused by a modified diagnostic criteria for AS, in which motor clumsiness has been added as one of the characteristics, whereas higher VIQ and language scores in subjects with AS may have been caused by the criterion 'absence of language delay in developmental history', which has been used to differentiate them from autism.

Other researchers who have found some differences between AS and autism in cognitive profiles were Gilchrist, Green & Cox. (2001), Saulnier & Klin (2007), Spek, Scholte & Berckelaer-Onnes (2008) and Ghaziuddin & Mountain-Kimchi (2004). Using formal ICD-10 criteria to define groups, Gilchrist et al. (2001) found

that those youth with HFA had lower mean VIQ and FSIQ than those with AS, but both groups were comparable on mean PIQ. This finding was similar to the findings of Ghaziuddin & Mountain-Kimchi (2004), who indicated that, although not seen in all cases, subjects with AS generally recorded higher VIQ than PIQ. When Spek et al. (2008) compared 16 individuals with HFA and 27 individuals with AS, aged 18-60 years, they found that the HFA group recorded significantly low scores in processing speed (symbol coding and symbol search) but scored high in information and matrix reasoning. The AS group, on the other hand, performed significantly well on comprehension and block design but relatively low in digit span. Using modified DSM-IV as diagnostic criteria, Saulnier & Klin (2007) similarly found that AS group scored higher in VIQ compared to HFA.

Some other researchers found no differences between the two disorders. Szatmari, Tuff & Allen (1990), who carried out a test of visual-motor integration on children with autism and AS, reported that there were no differences between these two groups. These findings, however, were potentially influenced by the broad criteria used to define AS, unclear diagnostic differentiation and not matching participants' CA and MA (Manjiviona & Prior, 1999). Szatmari, Archer & Fisman, (1995) also found no differences on a test of visual-motor integration or on standardised measures of spatial reasoning. Ozonoff et al. (1991), who carried out three tests of spatial cognition, reported that they also found no evidence of differences between the two disorders. Even though participants in Szatmari et al. (1995) were matched on CA, the procedures used to select the participants could be questioned because many participants with AS also met the criteria for autism. Another possible factor that led the researchers to find no differences between the children with AS and HFA in their studies was the overlap between diagnostic conditions, e.g. some participants in the AS group had previously been diagnosed with autism, as reported in Ozonoff et al.'s (1991) study.

In a study examining motor clumsiness in children with AS and HFA, Manjiviona & Prior (1995) reported that the intellectual profiles of the two groups were not different. However, this study did not take into consideration the criteria of no language delays in children with AS. Ghaziuddin, Butler, Tsai and Ghaziuddin

(1994), who used the ICD-10 (WHO, 1993) criteria for AS, discovered that children with AS had higher scores of VIQ and FSIQ than children with autism. However, they also found no evidential differences between VIQ and PIQ and, where differences were recorded, the direction of the discrepancy was mixed and lacked any particular pattern. These findings corresponded with a study done by Manjiviona and Prior (1999), who reported that as far as verbal or performance sub-tests of standardised intelligence scales were concerned, there were no differences between the two groups of children. They also indicated that there was much variability in the cognitive profiles at the individual level, with no consistent areas of strength or weakness evident for either group. Moreover, it was noted that poor group differentiation, i.e. both groups met the criteria for autism, might contribute to the findings of no differences between children with AS and autism in the study (Volkmar & Klin, 2000).

Iwanaga, Kawasaki and Tsuchida (2000), who used the DSM-IV (APA, 1994), concluded that children with autism and AS could be differentiated using visuo-motor and verbal skills but that the differences were not significant. They also reported that no differences were found on many other tasks related to their verbal and non-verbal skills. However, it was suggested that the small sample used in this study affected the findings, as the small number of participants limited the possibility to differentiate between the two groups. Miller & Ozonoff (2000), who used strict DSM-IV (APA, 1994) criteria, found that the group with AS had higher FSIQ and VIQ than the group with HFA. However, a test on visual-perceptual skills showed no group differences. This finding concurred with other studies using formal diagnostic criteria, which suggested that children with AS and autism could not clearly be differentiated on the basis of cognitive profiles, with children in both groups showing mixed patterns of ability

3.3.2 Language and Communication

Before formal criteria for AS was established, a few studies that attempted to differentiate language and communication abilities between individuals with AS and autism found some differences between the two PDDs. Fine, Bartolucci & Ginsberg

(1991) found that individuals with HFA demonstrated poor use of appropriate intonation in conversation, which was non-evident in AS children. Meanwhile, Fine, Bartolucci & Szatmari (1994) and Szatmari, Bartolucci & Brenner (1989) found that children with HFA used echolalia and pronoun reversal more than children with AS. However, the classification of the participants into AS and HFA groups was not conclusive due to a lack of formal criteria, and the findings are difficult to generalise to individuals diagnosed using the current classification criteria (Volkmar & Klin, 2000). The retrospective parental reports also limit the reliability of these findings (Macintosh & Dissanayake, 2004).

The findings for studies which implemented the current diagnostic criteria were mixed. Some of them found no differences between AS and autism, e.g. Manjiviona & Prior (1999) and Prior, Eisenmajer & Leekam (1998), who found that even children with AS experience significant difficulties in language development. Miller & Ozonoff (2000) found that severe language delay is not a universal feature of autism, although the majority of children with autism experience it. Moreover, Miller & Ozonoff (2000), who used the DSM-IV (APA, 1994) criteria, found that the majority of individuals from both groups of autism and AS had a history of echolalia, pronoun reversal and/or neologisms. Ramberg et al. (1996) found that there were no differences between the two groups in their performance on tasks assessing pragmatics, language comprehension and prosody, although participants with AS were found to possess a more sophisticated vocabulary.

Some differences have been found between AS and autism, e.g. Eisenmajer et al. (1996) found that children with AS during the preschool period used less echolalia compared to the children with autism. However, the accuracy of these findings could be questioned because of their reliance on retrospective parent reports. Ramberg et al. (1996) recorded few differences between school-aged children with AS and HFA on two aspects, namely measures of receptive and expressive language. However, the differences between the two groups were recorded based on altered AS diagnostic criteria. Gilchrist et al. (2001), who used the ICD-10 (WHO, 1993) criteria, found that there was a higher usage of echolalia and pronoun reversal amongst children with autism, but both groups recorded no differences in the use of verbal rituals,

stereotyped utterances or inappropriate questions. Moreover, Ghaziuddin & Gerstein (1996) found that the occurrence of pedantic speech was more significant in adolescents with AS than autism. McPartland & Klin (2006) and Paul, Orlovski & Marcinko (2009), came to the same findings, and they reported that speakers with AS are more likely to perseverate on obsessive topics in conversation and utilise a 'pedantic' speech style than those with HFA. However, these findings have not been consistently replicated by Cuccaro, Nations & Brinkley (2007) and Shriberg et al. (2001).

Even though a few studies have found some differences between HFA and AS, it has also been suggested that with advances in age, there were fewer differences in communication impairments between the groups, as individuals with HFA were reported to increasingly resemble those with AS (Eisenmajer et al., 1996). Ozonoff, South & Miller (2000) noted that the differences between these two groups, which were significant during the preschool years, in which children with autism showed greater communication dysfunction than those with AS, were no longer present when they reached primary school age. Howlin (2003) also found that even though concerns about speech delays and language deficits had been more common amongst parents of children with HFA than AS, both groups showed the same level of impairments in communication as they aged; therefore, the existence of differences between these two groups was not evident.

3.3.3 Social Interaction

Although impairments in social interaction are a core feature of both HFA and AS, there were very few comparative studies carried out on social behaviour between these two groups (Macintosh & Dissanayake, 2004). The research to date, which has relied almost solely on parents' and teachers' reports, indicates that people with HFA have invariably demonstrated greater social deficits than those with AS (Macintosh & Dissanayake, 2006).

Szatmari et al. (1990) reported that, during their early years, children with AS were more likely to be socially responsive to caregivers and other adults, to share interests

with parents, to be more affectionate and to display interest in peers. However, since this study used retrospective parent reports and the AS group was defined according to an adapted version of Wing's (1981) criteria, the findings could not be generalised to children diagnosed using current criteria. Meanwhile, even though Szatmari et al. (1995) found that children with AS displayed higher social awareness and interest than those with autism, they also found that there were no differences in these children's involvement in social play or friendships. This finding was supported by Eisenmajer et al. (1996), who indicated that while it was evident that children with AS possessed a stronger desire for friendship and a greater ability to engage in pro social behaviours than HFA, they did not display a superior capacity for creating and maintaining friendships.

Some researchers also found that, when age increases, there were fewer differences displayed by people with autism and AS in social competence; some researchers suggested that these two conditions may become more similar over time. Ozonoff et al. (2000) reported that even though children with AS showed greater social competence compared to children with HFA during the first few years of life, these differences no longer remained when they were between 6 and 21 years old. This finding is replicated in a study done by Gilchrist et al. (2001), in which it was found that in early development, children with AS showed fewer deficits than children with HFA in imitative social play, physically preparing themselves to be lifted, attention and help-seeking, and greeting behaviour. However, in adolescence, these differences were non-existent, except that children with AS were more likely to engage in more conversation.

More recent studies also found some evidence of the existence of differences in social interaction between children with AS and autism. Macintosh & Dissanayake (2004), who compared 20 HFA, 19 AS and 17 typical developing children, found that children with HFA displayed a lower level of involvement in conversation and speech, and made fewer social bids than those with AS. However, both groups spent the same amount of time in ongoing interaction. It was also noted by the authors that, qualitatively, distinct patterns of social behaviour were not readily apparent even though children with AS showed fewer or milder social impairments relative to HFA.

However, the findings might have been compromised as the participants in this study were only matched on chronological age and overall mental age, not on verbal mental age.

Several other studies also show the differences between the AS and the HFA. AS group showed higher scores on measure of anxiety and depression (Thede & Coolidge, (2006); Weisbrot, Gadow, DeVincent, et al., (2005), general social skills (Cederlaund, Hagberg, Billstedt, et al., 2008; Ritvo et al., 2008) and oppositional and anti-social behaviours (Gadow, Devincent, Pomeroy, & Azizian, 2004; Gadow, Devincent, Pomeroy, & Azizian, 2005). These findings suggest that AS group functioning better than HFA in general social skills but may show more sign of anxiety, depression and antisocial behaviour than the HFA group. However, most of these studies were cross-sectional and used DSM IV criteria. Therefore it is likely that the classification of participants in these studies are unreliable or overlap between the groups.

Ghaziuddin (2008), whose study compared 58 individuals with AS and 39 individuals with autism aged 7-51 years using social classification as suggested by Wing & Gould (1979), found that while most individuals with AS (79%) tended to be active, they were also categorised as odd. On the other hand, those individuals with HFA (82%) were found to have the tendency to be aloof and passive. The author also suggested that the differences might not be constrained to just the degree of severity but also in the quality of social impairment. However, the hierarchical approach implemented in the study may have some impact on the findings, since only participants who did not meet the full criteria for autism were considered for a diagnosis of AS, whereas participants who met the full criteria for autism were diagnosed with autism.

3.3.4 Theory of Mind (ToM)

A few studies have identified ToM as an instrument that could be used to enhance the differences between AS and HFA, e.g. Ozonoff et al. (1991) reported that the participants in their study who had AS recorded better performance than the HFA

group on first order ToM, second order ToM and verbal memory composite. However, these findings were made using a relatively small sample, i.e. 13 subjects with HFA and 10 subjects with AS, and slightly modified the ICD-10 criteria for AS, and therefore should be interpreted with caution. Ziatas, Durkin & Pratt (1998) also found some available evidence that indicates ToM deficits are less characteristic of AS. However, poor subject matching on VIQ in this study might have some impact on the results (Macintosh & Dissanayake, 2004).

According to Baron-Cohen, Wheelwright & Jolliffe (1997), there are some other studies that show that deficiencies in first and second order theory of mind abilities are common to both individuals with autism and AS. This finding was also supported by Jolliffe & Baron-Cohen (1999). In their study, they reported that both groups displayed equally poor ability to utilise contextual information to understand the character's mental states. Meanwhile, Ozonoff & McMahon Griffith, (2000), Prior et al. (1998), Volkmar & Klin (2000) and Wing (1998) agreed that there is strong evidence for a positive correlation between verbal skills and ToM abilities, thus suggesting that the apparently better theory of mind capacity in people with AS may reflect their higher verbal abilities.

3.3.5 Outcomes

Szatmari et al. (1995) found that individuals with AS have better achievement in self-help skills and social interaction, and the number of those children who were placed in special education classes during their school years was low. However, these findings were not replicated in a study done by Tonge, Brereton & Gray (1999), who found that adolescents and young adults with AS have more social difficulties than those with HFA. The fact that Szatmari et al. (1995) used the informal diagnostic criteria, whereas Tonge et al. (1999) used strict DSM-IV (APA, 1994) criteria to diagnose participants, might contribute to the differences in the findings.

The findings of Szatmari et al. (1995) were supported in a two-year follow-up study with children who were four to six years of age at initial assessment by Szatmari,

Bryson & Streiner (2000). They found that children with AS scored higher on all language measures at follow-up and on the Socialization Domain of the Vineland Adaptive Behaviour Scales. However, these findings were made using modified diagnostic criteria and therefore should be interpreted with caution. Moreover, the results might have been impacted by the fact that the group with AS had significantly higher non-verbal IQ than the autism groups at study enrolment. In addition, the findings indicated that the trajectory over two years appears to be mostly predicted by initial IQ and language skills.

Howlin (2003), who examined the difference between 34 adults with autism and 42 individuals with AS with non-verbal IQs greater than 70, found that no group differences emerged regarding employment levels, degree of independence from family and friendship status. In this study, individuals were given a diagnosis of AS if they met criteria on the ADI-R but were not reported as having any delays in using spoken words or phrases. The study also found no differences in scores on the Social Domain of the ADI-R for both retrospective parent reports on child behaviour and current reports on adult functioning. There was only one significant group difference found in the study, i.e. their academic attainments. However, Howlin (2003) indicated that this advantage did not seem to have resulted in higher levels of achievement in later life. Moreover, the ways in which participants were grouped might also have some implication on the findings.

3.3.6 The Categorical and Dimensional Model of Autism

The literature review above showed that most published research does not provide clear distinctions between the symptoms of AS and HFA. Campbell (2005) concluded that factors such as differing diagnostic systems and changing sets of criteria over time make differentiating AS from HFA a complicated venture. Klin & Volkmar, (2003) suggested that diagnosis criteria of AS and HFA which are used at present do not appear to be sufficient. Therefore there is considerable debate as to whether autism should be conceptualised as a distinct clinical entity or as a continuum of severity. It has been noted that even though children are categorised into the same group of diagnostic classification, they do not necessarily have the

same characteristics, and many childhood disorders, including ASDs, fall along a continuum in the general population (Constantino & Gruber, 2005).

The categories are much suitable to deal with in a theoretical system. The search for subgroups has potential importance for medical treatments, and eventually for prevention of autism, but the loose and inclusive nature of the spectrum concept is not useful for guiding this kind of research (Boucher, 2009).

However, when categorical classification is used, it does not succeed in accounting for quantitative differences between children with the same core symptoms. According to Wing (2005), the syndrome/disorders comprising ASDs are not unique and separate categories, and the triad of autistic impairment is best understood by using a dimensional approach. According to the dimensional approach, the different autism subtypes can be differentiated with regard to quantity but not quality, and the only key that distinguishes autism from non-autism and diverse autistic subtypes from one another is the severity of symptoms (Wing, 2005).

Today, autism is understood in dimensional terms and the term ‘autistic spectrum disorders’ has received global recognition and is widely used (Boucher, 2009, DSM 5, 2013). For practitioners making a diagnosis, this spectrum concept has the advantage of being more flexible and less committing than the DSM-IV classification scheme. For those people who care for and work with people with ASDs, the profiling approach is attractive because it focuses on a child’s specific needs and provides detailed information about the child’s strong and problematic areas.

Szatmari et al. (2000) noted priority should be given to the purpose of the diagnosis or assessment because once a child with ASDs receives intervention services, there are possibilities that his quality of life will improve. Therefore, assisting professionals and families in planning more effective intervention should be the main goal of diagnosis or assessment for children with ASDs (O’Brien & Daggett, 2006).

In sum, the categorical model and dimensional model both have strengths and weaknesses. Both approaches are useful, and it is not right to say one model is better

than the other. As long as both models can benefit individuals with ASDs, their families and those who work with or for people with ASDs, then they should be valued for what they can do, and they should be seen as mutually complementary concepts.

3.3.7 Summary

This section had discussed the characteristics and differences between individuals with AS and HFA. It was found that these differences are not strong enough to definitely distinguish AS from HFA for several reasons such as using DSM IV which had received a lot of criticism as a diagnostic criteria, using small size sample and cross-sectional design. Therefore attention should be devote more to the diversity in the characteristics of children with ASDs and not just to categorise them into any specific group. Therefore DSM IV which is more categorical has been proposed to be changed to DSM 5 which is more dimentional in it's characteristics.

However, There are no study found in this area that has been conducted in Malaysia. Therefore the current study aims to identify children with characteristics of AS and to examine the features and characteristics of children with ASDs in Malaysian context. Therefore both aspects (the categorical and the dimensional aspect of the diagnostic criteria) would be examined in Malaysian context.

3.4 Autism in Malaysia

3.4.1 Educational Provision

Three different ministries in Malaysia that provide services for autistic children in specific and children with special needs in general. They are the Ministry of Education, Ministry of Health and Ministry of Women, Family and Community Development particularly Social Welfare Department. In addition to these, Non Government Agencies (NGOs) also play an important role in providing services for these children. However, many people in Malaysia still unaware of the facilities and educational provision provided for children with special needs (Azizan, 2008).

The Ministry of Health plays a role in the early identification and screening of children with special needs. Early intervention programs and educational services for children/persons with autism are mainly provided by the Ministry of Education, Social Welfare Department (Ministry of Women, Family and Community Development), as well as NGOs. Specifically for children with autism, the main NGO which give advocacy, resources and collaboration to Ministry of Education is NASOM. NASOM is a non-profit, non-governmental welfare organisation which was formed in 1986 by a group of parents and professionals as a national voluntary charitable organisation and aims at providing education, help, care and protection for people with autism and their family members.

3.4.2 Research on Autism in Malaysia

As discussed earlier in chapter 1, there is lack of research, knowledge and awareness of autism in Malaysia despite a lot of research done on autism in the western countries such as United Kingdom, European countries and United State of America. However, since last few years several studies have been done on autism. Most of the studies have been conducted around the year 2010 until recently. This proves that research in the field of autism is relatively new among researchers in Malaysia as compared to the western countries where research in this area has long begun. These local research topics can be divided into several themes, namely the perspective of parents, intervention, characteristics of autism or diagnostics and special education teachers' perspective.

Only one study found directly done on children with Asperger syndrome in Malaysia (i.e. Kasmini & Zasmani, 1995). It was a report of two cases of children with Asperger syndrome by psychiatrists from Faculty of Medicine, International University of Malaysia. However there was no indication on where the children have got their diagnosis whether from the government or private hospital. The authors discuss about the similarity and differences between each child. The children both are unable to interact with peers and hence were socially impaired, had language problems with regard to semantics, pragmatics and comprehension and displayed odd all absorbing interests. However, one child showed late speech development while

the other child spoke even before he could walk. The authors suggest that there are advantages and disadvantages for the children to attend normal schools. They may be target of bullying and teasing by peers. Therefore the authors suggest that the family needs support to cope with the unique problems and teachers should be educated and made aware of the handicaps.

Kok & Gan (2012) examine narratives drawn from the care givers and parents regarding their children with autism. The data was collected by two researchers and a group of students who are doing industrial attachment at an autistic organization in an urban area in Malaysia. Interviews were carried out with four parents and two teachers from the centre at the end of the industrial attachment. A few important themes emerged from this study i.e. parents and caregivers consider their children as weird but harmless, capable of feeling and unique though less capable. The parents and care givers also indicate that more than patience is needed to deal with their children. They also want to expose their child to the real world.

Liaw (2008) has done a study to examine the live experiences of 12 parents of autistic children in Kuching using phenomenological approach. Information was collected through in-depth focused interviews which continued until data saturation. The sessions were audio-taped and transcribed. The data generated were analysed using Colaizzi's (1978) method of data analysis. The five major themes which emerged are multiple negative feelings and behaviour, stress in continuum, anger-love paradox, fear and phobia and self-blaming.

A comparative study conducted by Jiar & Xi (2012) investigated the level of parenting stress and psychological distress among mothers of children with autism in preschool and primary school in Johor Bahru and Hangzhou. This study aims to identify the factors that influence parenting stress and psychological distress. A total of 128 mothers of children with autism, 64 from Johor Bahru, Malaysia and 64 from Hangzhou, China are involved as a respondent in this study. Three instruments were used in this study, namely the Childhood Autism Rating Scale Modified for Parents (CARS-P), Parental Stress Scale (PSS), and the Depression Anxiety Stress Scale-21 (DASS-21). The t-tests showed that mothers of preschool children in Hangzhou experienced a significant higher level of parenting stress and psychological distress

compared to the mothers in Johor Bahru but no significant difference found between mothers of elementary children. The findings indicated that for parenting stress, mothers' perceived autism symptoms and spousal relationship are the cross cultural factors and for psychological distress, spousal relationship is the cross cultural factor.

Overall, the study on parents' perspective found that they express negative feelings and guilt for having children with autism. However, they still have hope and always try to get more information, knowledge and support to ensure that their children with autism will get proper support and education that suit their needs.

In addition to studies related to the parent's perspective, there are also some other studies that look into interventions or therapies that can be done to help children with autism. See (2012) examined the use of music and movement therapy in modifying behaviour of children with autism. 41 children who participated in the study were divided into 2 groups. Group 1 comprised of 18 children (5 girls and 13 boys) with age range from 2 to 10 years old. Meanwhile, Group 2 comprised of 23 children (2 girls and 21 boys) with age range from 11 to 22 years old. Music therapy has been carried out every week and two sets of music therapy were used alternately for 10 months. One-way ANOVA and T-tests were used to see whether there is a significant change or improvement in the target behaviour among the two groups of children. Children in group 1 showed more improvement in the non-compliance behaviours compared to the children in group 2. These findings emphasise the importance of using music and movement therapy as an early intervention strategy to help young people with autism to reduce their non-compliance behaviour.

Cheng, Salleh & Jusoff, (2011) have conducted a study on the ability of a group of children with Autistic Spectrum Disorders (ASD) in recognising face using portrait drawing techniques. The sample consists of four children with ASD and four non-ASD children. Eight individual painting sessions were conducted with the sample children. Data was gathered through observations, interviews and Portrait Drawing Assessment (PDA) Instrument. The PDA consists of two evaluation forms that assess the drawing characteristics and the child's behavioural patterns. The study found that both groups of children have different profiles. The analysis also identifies the developmental stages of each participant. Results indicated that drawing technique

has the potential to attract the attention of children with ASD and can help teach them to recognise faces.

The studies above show that much more research on interventions should be done to help children with autism in Malaysia. Although much is done in the western countries, factors such as environment and different cultures may lead to different effects of the intervention.

Studies on the diagnosis and characteristic of children with autism are still not very common in Malaysia. A study by Shams & Abdul Wahab (2012) investigate a new approach to a diagnosis of autism. The method applies time frequency domain and principal component analysis (PCA) to extract features from Electroencephalogram (EEG) signal for autism and typical subjects. A Multilayer Perception Neural network (MLP) method was used to detect the autism subject in two different tasks - motor and open eyes. The data was collected from six autistic children from NASOM and six normal children from preschool. The two groups of children aged between 7 to 9 years. The EEG signal in this study was measured and recorded from 8 channels based on the EEG International (10-20) Standard System. This process uses a BIMEC EEG machine with sampling frequency 250 of hertz. The subjects were required to do two tasks for this study. The first task was the motor movement in which the subject sat as far as 75 cm from the monitor screen and asked to follow the movie showing the movement of the right and left hands. The second task requires subjects to sit in rest condition with open eyes while looking at a black screen. The results show that the proposed method provides accuracy in the range of 90-100% for autism and normal children in motor tasks and accuracy of about 90% for eye open task. This shows that the PCA features can improve the accuracy in the autism diagnostic process even though it is quite difficult to detect autism using the second task.

Hennayake & Jegathesan (2011) conducted a study to examine the relationship between joint attention and language and to understand individual differences in joint attention behaviours in children with autism. This study used structured video observations in a naturalistic environment of a centre on five children under the age of six. The study shows that the fewer displays of joint attention prerequisite

behaviours, related to the fewer instances of responding to joint attention (RJA) and initiation of joint attention (IJA) in structured observations. The study also found that the strength in IJA in predicting language is observable in one of the participant. However, the materials used in this study are not validated through a pilot study. Furthermore, the lack of formal diagnosis details for participant, and high dependence on the skills and perspective of the researcher caution the findings of the research.

These studies show that children with autism are different from normal children, their features also vary throughout the spectrum, from mild, moderate and severe. The problems they face and their abilities may also differ among themselves. Thus local studies need to be done more deeply to see these differences in the Malaysian context.

A study on the special education teachers' perspective has been done by Toran, Yasin, & Tahar (2010). They conducted a study to determine the level of training, knowledge and confidence of teachers in educating children with autism. This study used a questionnaire that was adapted based on article by Schwartz & Drager (2008). This questionnaire is composed of four main parts, namely demographic, teacher training, teachers' knowledge and confidence level of teaching competence. A total of 112 special education teachers from Selangor, Johor, Selangor and Wilayah Persekutuan involved in this study. In terms of teacher training, the respondents indicated that the quality of in-service training about autism is better than the basic training received while at the university / institution. From the aspect of knowledge, the respondents found to be quite confused about some of the features of autism and do not have a sound knowledge of the diagnostic criteria for individuals with autism. Respondents also indicated that their confidence levels to teach a child with autism is moderate.

Respondents also expressed a high need to attend training courses in the field of autism and they support the efforts to create more opportunities for them to further studies in the field of autism at the higher level of education. Overall, these findings demonstrate that the special education teachers in Malaysia have relatively little knowledge about autism and moderate confidence to deal with autistic children. But

they showed keen interest to enhance their knowledge in this field may be due to the urgent need to deal with growing number of autistic students.

Overall, the studies on autism in Malaysia are still in its early stage. At this stage much more research needs to be done so that the knowledge and awareness of autism can be improved among Malaysian society. Studies on the range of the characteristics of children in the ASDs which include classic autism and those with high functioning autism or Asperger syndrome are very important as it will help the relevant authorities to provide appropriate education for children with autism or ASDs that have different features and capabilities.

3.4.3 Inclusion in Malaysian Context

Based on two historic declarations i.e. the 'World Declaration on Education for All' which was signed in Jomtien, Thailand in 1990 and the 'Salamanca Statement (1994)' which was signed in Salamanca, Spain in 1994, inclusive education has begun to be addressed in the education system in many countries, including Malaysia. These declarations have suggested that inclusive education as the best educational model for all students including students with special needs. In Malaysia, the implementation of inclusive for children with visual impairment has begun in 1998. A total of 53 primary schools and 10 secondary schools have started an inclusive programme for children with visual impairment and it is still going on until now. Currently, children with hearing impairment and learning disabilities are also eligible for inclusive education.

In Malaysian regular schools (primary and secondary), there are three types of special education settings for children with special needs including hearing impairment, visual impairment and learning disabilities. The first type is fully inclusion, where children with special needs are placed in a general education classroom with their normal peers. Second type of programs is semi inclusion or part time inclusion. In this program, children with special needs are taught by special education teachers for most of the day in the special education classes but join their normal peers for certain general subjects. In the third type programme or place

inclusion, children with special needs are learning in special classes or units that are located separately in the school, where they are taught by special education teachers and have very little contact with the general education program (Zarin Ismail, Safani Bari & Soo Boon Seng, 2004).

A few studies were done by the local researcher to see the implementation of inclusive education in Malaysian schools. Manisah, Ramlee & Zalizan (2006) examined teachers' attitudes and their perceived knowledge towards inclusive education. The study has involved 300 randomly selected regular and special education teachers in public primary and secondary schools in five zones – northern, western, central, eastern, and southern zones of Malaysia. The study found that overall teachers have a positive perception towards the implementation of the inclusive education programme. However, some aspects still need to be improved such as the collaboration between the mainstream and special education teachers. Over half of the respondents (56.6%) stated that the mainstream classroom teachers lack the exposure and the skills to deal with students with special needs therefore they need more training in handling and teaching students with special needs. The study also indicates the need to increase effort in promoting inclusive education programme to the public as well as to the stakeholders.

Ghafar & Jahaya (2006) conducted a study to explore the opinions of 80 special education teachers and regular classroom teachers in Johor Bharu related to the differences in the challenges they faced during the learning and teaching process. The study was conducted using a questionnaire of 28 items. The findings of the study revealed that there are differences in perceptions about the duty of regular teachers and special education teachers in the implementation of inclusive education. Among the issues that often encountered are the instructional coordination, responsibilities, workload, tools or equipment, relationships with head teachers and contact with parents. The researchers suggested that the perception problem can be overcome through meetings and discussions between the teachers involved.

Lee (2010) found that among 30 students who were placed in the integrated Special Education classes, only one was successfully integrated into the inclusive

programme. This case study also found that regular classroom teachers and special education teachers see their roles as different. Most of them questioned the implementation of inclusive programme because of problems such as lack of clear policy statements, resources, collaboration and expertise supports that are necessary to improve their motivation.

Lee & Low, (2012) conducted a study to investigate the unconscious inclusion of students with learning disabilities in a Malaysian mainstream primary school through the teachers' perspectives. This study used semi-structured interviews to interview 4 teachers. The findings show that there are several factors that determine the success of the inclusive i.e. school ethos, teacher attitudes, good instructional strategies, good accommodation process, peer tutoring, collaboration between teachers and class size. Inclusive education was also found to benefit children with learning disabilities, regular student and the teachers themselves. Two teachers indicated the need for trained teachers to teach students with learning problems. The study also found that's there is still lack of formal support from the higher level educational authorities in inclusive educational system.

Given the importance of inclusion of children with special needs, the government has established cooperation with non-governmental organizations such as the National Autism Society of Malaysia (NASOM) to provide inclusive education to autistic children in 2005. This smart-partnership pilot project is a collaboration project between NASOM and the Ministry of Education (MOE). The cost of training and providing teacher aides is borne by NASOM whereas the selection of schools and the number of students to be admitted are determined by the MOE.

Table 3.1 : The number of children with autism in inclusive smart-partnership pilot project between MOE and NASOM

Year / Level	2005	2006	2007	2008	2009
Primary	8 (1 school)	12 (1 school)	25 (4 schools)	35 (6 schools)	52 (8 schools)
Secondary	-	-	-	-	2 (1 school)
Total	8	12	25	35	54

In an exploratory study to evaluate the implementation of this pilot project through interview with a focus group comprising eight members, of which seven were special education teachers and a NASOM volunteer, found that even though there are a lot of advantages of this project especially for children with autism, the implementation also faced challenges (Hussin, Ai Hwa & Sau Cheong, 2012). These problems include high costing to improve the infrastructures such as room modification, purchase of teaching aids/resources and raw materials to facilitate teaching and learning, the difficulties of getting competent staff and minimal parental and community support which are sporadic in most cases. Therefore they suggest that to make the project work better, the elements of managerial support, continuous professional development, provision of teacher aids and related facilities need to be increased.

The Director of Special Education Division, Bong Muk Shin (2009) also indicated that challenging behaviour, mainstream system, parental support and expectations, availability of qualified and dedicated personnel, insufficient early detection and public awareness and the lack of professionals who are specialised and trained in the field as the greatest challenges to the project.

- **Clarify and critique concept of inclusion and integration with regard to support of pupils in Malaysia, particularly focus on accessibility of teaching support**

UNICEF (2010) indicated that "Inclusion is really about how well child-friendly schools are doing at making practical changes so that all children, regardless of their background or ability, can succeed" whereas UNESCO (2012) indicated that Education is not simply about making schools available for those who are already able to access them. It is about being proactive in identifying the barriers and obstacles learners encounter in attempting to access opportunities for quality education, as well as in removing those barriers and obstacles that lead to exclusion.

The implementation of inclusive education for children with special need are considered new in Malaysian education system. Therefore the objectives that have been outlined by the UNICEF and UNESCO above are still not been achieved. The definition or the way that inclusive have been implemented in Malaysia may also different from other countries.

In the government schools, children with special needs usually are placed in the special education classes called integration programme. Different categories of children with special needs in these classes will be taught by a few special education teachers. Curriculum used to teach children in the integration programmes is an alternative curriculum which based on the mainstream curriculum but have been modified to be easier to suit the ability of children with special needs.

If there are any children in the integration classes that e.g. have higher abilities in cognitive, they could be included in the mainstream classes to follow the mainstream curriculum. The children will be fully included if they have high abilities to follow all academic subjects but the children will be half included if they have abilities to follow only a few academic subjects. In half-inclusive, children will be in the mainstream classes to study particular academic subjects only and after that they have to go back to the integration classes.

There are effort from the Malaysian government to increase the amount of children to be included in the mainstream classes. However, several research found that there are several obstacles in the implementation process of inclusive education in Malaysia e.g. lack of collaboration between special education teachers and mainstream teachers (Mohd Ali, Mustapha & Jelas, 2006; Ghafar & Jahaya, 2006; Lee, 2010; Lee & Low, 2013), mainstream teachers need more knowledge on how to teach children with special needs (Mohd Ali, Mustapha & Jelas, 2006; Hussin, Ai Hwa & Sau Cheong, 2012; Bong Muk Shin, 2009; Hanafi, 2016) and lack of clear policy statement and support from the higher authorities (Lee, 2010; Lee & Low, 2013; Hussin, Ai Hwa & Sau Cheong, 2012). These problems are the reason why only 6% of children with special needs that have been involved in the inclusive education in 2012. Therefore the MOE through MEDP (2013-2025) has targeted that 30% of children will be pursuing inclusive education in the first wave plan (2013-2015) while for the third wave plan (2021-2025), (75%) are targeted to be included in the inclusive program.

Implementation of inclusive is difficult because there are too many children in the mainstream classes (about 40 children in one class). Therefore it was quite difficult for the mainstream class teachers to give attention to the special needs children. Mainstream class teacher usually need to finish the curriculum as what they have planned so they have lack of time to focus and wait for children with special need who usually need more time to learn a new lessons.

One of the special education teacher (resource teacher) need to follow the children to the mainstream class to help with their teaching and learning process. However, the mainstream class teachers usually found this is disturbing since there are another teacher observing their teaching process. Therefore a few studies indicated the importance of collaboration between the teachers.

Research also found that many mainstream teacher need more knowledge on how to teach children with special needs. This happen because no specific knowledge on special needs children have been included in the curriculum of teachers training for mainstream class teachers. Therefore they have lack of knowledge on how to teach, train and handle children with special needs.

Research also indicated that obstacle in the implementation of inclusive education are include lack of clear policy statement and support from the higher authorities in the previous years. Education in Malaysia focused more on children abilities and achievements in examination. Parents send their children to paid additional classes or tuitions just to confirm that their children will get good results in their examinations. These good results is important for the students to get places in the universities so that they can get a good job in the future.

As suggested in the definition by UNICEF and UNESCO above, in the implementation of inclusion, schools need to make practical changes to ensure that all children can access opportunities for quality education. Obstacles that lead to exclusion should be identified and removed. In Malaysia, education system is centralised which has been controlled by the government. Schools administrator have to follow policies and regulations that have been ordered by the government. Therefore to implement inclusive the government (MOE) have to take appropriate action to ensure that schools administrator to make practical changes towards inclusion.

In more recent years the government has shown more concern and recognised the importance of inclusive education. Therefore it is clearly stated in the Malaysian Education Development Plan (2012-2025) that one of the objectives is to increase the number of children with special needs who will be involved in the inclusive education model. Furthermore, in order to implement the policy a few new regulations have been published by the government e.g. The Inclusive Guidelines (2013), Education (Special Education) Regulations (2013) and arahan pelaksanaan inklusif (2016).

Findings from a recent study, i.e. Mohd. Amin & Mohd. Yasin (2016) has found that these new government policies have many positive impact on the implementation of inclusive education in Malaysia e.g. the study found that more than 50% of respondents agreed that school administrators have been given formal information and knowledge on inclusive education, they understand about inclusive education and can explain it to the teachers.

The new curriculum for teachers training also has some improvement that the knowledge on children with special need have been included. There are some topic on the characteristics of children with special needs and practical suggestions on how to help these children have been included in the modules. For mainstream class teachers who already have been placed in schools, in service training or professional development courses regarding special need children have been given to them. Mohd. Amin & Mohd. Yasin (2016) found that more than 50% of the respondents also agreed that they have been given some professional development courses regarding inclusive education and about 60% mainstream teachers agreed that they are willing to teach children with special needs in their classroom. Furthermore, more training have been given to the resource teachers (the teacher who will follow children to the mainstream classes to help them in the process of teaching and learning in the mainstream classes). In this training they have been trained how to collaborate with the mainstream class teacher and how to help them in the process of teaching and learning for children with special needs.

On the whole, as what happened in other places, there are many obstacles happened that have challenged the implementation process of inclusion in Malaysia. Therefore more support has been given by the government through latest government policies in the recent years. The latest study showed that with more clear policy and strong support from the higher authorities and government, there are some improvements in the implementation of inclusive education in Malaysia.

3.4.4 Malaysia Educational Philosophy and Educational Development Plan Related to Special Education and Autism

'Education in Malaysia is an on-going efforts towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonic, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards and who are responsible and capable of achieving

high level of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society and the nation at large.'

Malaysian National Education Philosophy as shown above, aims to develop citizens who can offer contribution to the society. At the same time, Malaysian Special Education Philosophy has the same goals that support optimal development of children with special needs to ensure they can function as a skilled individual, independent, have life direction, can plan and manage his own life, can realise their own potentials and can adapt in society.

In order to achieve these goals, Special Education in Malaysia has been implemented in a few ways:

- a. education programme for special needs children in special schools (for visually impaired and hearing impaired)
- b. integrated programme when the special needs children (visually impaired, hearing impaired and learning disabilities) study in a separate classroom or building in a mainstream school compound
- c. inclusive programme where the special needs children study together with their normal peers in a mainstream classroom

One of the mechanism that have been used to pursue the National and Special Education Philosophy, is the Education Development Master Plan (EDMP) (2006-2010) that was launched by The Ministry of Education (MOE). One of the ultimate goals of the EDMP is to:

'provide access, equity and quality education for all which includes diverse learners, which are the prerequisites for education for sustainable development. The plan promotes two main approaches namely to provide equal opportunities for all and to accelerate excellence in educational institutions. In the first approach, the MOE is committed to ensure that all citizens receive fair and equal educational opportunities regardless of location, race, ability or ethnic background'.

This statement shows that MOE is committed to ensure that all citizens receive fair and equal educational opportunities regardless of location, race, ability or ethnic background. Through this education master plan, Malaysia now gives more clear emphasis on the diversity of children in schools including children with learning disabilities. It means that the government is responsible in providing sufficient education based on the needs of all children including the disabled ones. In other words, the MOE aware that to achieve the National and Special Education Philosophy, the diversity of students should be given attention and appropriate action should be taken to reduce disparities amongst children.

However, given that diversity amongst children is so important and need to be address, this issue is still not been solve appropriately. Even though the plan sounds very good and perfect, there are too many obstacles in the implementation processes. It can be observe from the speech of Director General of Education, Ministry of Education in the International Conference on the Education of Learner Diversity (2008):

'However, despite acknowledgment of the important differences among learners, uniformity continues to dominate our school practices. Over the last 50 years, too little has changed in our approach to schooling. Most schools still function as if all students were the same. Students use the same textbooks and the same materials for learning. They work at the same pace on the same quantity of learning material. They study the same content and work through the same curriculum on the same schedule. Teachers talk with whole groups of students, delivering the same information at the same time to everyone. And, of course, schools conduct the same examinations for all to measure the success of the learning' (pg. 4).

The speech clearly indicates that the MOE itself found that the goals to minimise the diversity amongst children is still not very successful. Since EDMP finished on 2010, more strategies have been planned to achieve the National and Special Education philosophy. This plan called Malaysian Educational Development Plan (MEDP) (2013-2025).

A preliminary report of the Malaysia Education Development Plan (MEDP) (2013-2025) was issued in September 2012 based on an assessment of achievement of the previous development plan and evaluation of problems that were encountered during the implementation.

According to the initial reports, the UN estimates that 10% of the population of developing countries have individuals who are classified as disabled, but in Malaysia only 1% of the population in this country is known as with special needs and registered in the Special Education programmes. This means the number of pupils enrolled in special education programs are below the level as recommended by the UN. So in this (MEDP) (2013-2025), identification aspects of children with special needs were emphasised.

According to the (MEDP) (2013-2025) preliminary reports, it was found that only 6% of the children with special needs are in an inclusive program, 89% are in the integration program and only 5 % enrolled in Special Education Schools. The report also stated there are still some shortcomings in the previous educational development for example:

- a. lack of qualified teachers
- b. lack of professional support such as therapists
- c. although the specific curriculum for special needs groups were formed e.g. 'Basic Skills for the Visually Impaired Individuals' and 'Sign Language Communication for hearing impaired students', but there are lack of support and assistance to students with learning disabilities such as autism

Based on the Salamanca Statement and Framework for Action on Special Needs Education (1994), this (MEDP) (2013-2025) preliminary report has reserved that children with special needs should have access to the mainstream school. This report stated that inclusive education is the best way to overcome discrimination, creating a community that is more open to special education and to build an inclusive society. This move was supported by Article 28 of the Malaysia Act of Persons with Disabilities (2008) which stressed the need for students with special needs are given support to help them achieve equality in education.

Based on all this information, the (MEDP) (2013-2025) preliminary report also has outlined two main objectives to be achieved in its implementation:

1. to increase the number of students with special needs who involved in inclusive education model
2. to improve the overall quality of special education

To achieve these objectives, the MOE will implement several initiatives based on three waves:

Wave 1 (2013-2015) - Strengthening the existing foundation

- a. strengthen existing programs
- b. implement school choice policies on student competency levels:
 - i. students with special needs who have potential in the mainstream curriculum and assessment will be encouraged to enrol in an inclusive program
 - ii. students with moderate special needs are encouraged to participate in Special Education Integration Program (SEIP)
 - iii. students with low function are encouraged to participate in the Special Education Schools curriculum that focused on basic skills and social skills
- c. to determine accurately the level of student competence for placing them in the appropriate school options, the ministry is to develop a set of assessment instruments and screening process.
- d. to improve the quality of special education through including more vocational skills
- e. to improve infrastructure and equipment in mainstream schools and special education schools
- f. to provide basic training modules in teacher training institutes and universities
- g. providing in-service training modules with different level of expertise (from basic to expert)

- h. provide specific curricula and assessment in accordance with the level of ability of the student
- i. targeting increased enrolment by 15% (approximately 50,000 students in 2011 to 88.000 students in 2015)
- j. targeting 30% of the students with special needs will be included an inclusive programs

Wave 2 (2016-2020) - expand the initiative

- a. Increasing further initiatives in wave 1
- b. improve inclusive education
- c. strengthen training colleges
- d. goals - all teachers will be trained in special education to enable them to identify students with special needs
- e. collaboration with other organisations such as NGOs, international organisations, private sector to improve support and opportunities for student with special needs

Wave 3 (2021-2025) - evaluate and consolidate initiatives

- a. evaluate the implementation of the initiative in the previous wave
 - b. goal - all students with special needs have access to high quality education appropriate to their needs
 - c. teachers are equipped with the knowledge about special education
 - d. 75% of students with special needs will be included in inclusive programs
-
- i. Overall, it can be concluded from this section that:
 - ii. In MEDP (2013-2025), identification of children with special aspects will be given priority. This is because the number of pupils enrolled in special education programs are below the level as recommended by the UN. 'School choice based on the student competency levels' concept will be applied where a child with special needs will be accommodated according to their level of ability.

This in turn will increase the need to develop a set of instruments and screening process so that these children will receive an education appropriate to their ability level. The need for a curriculum and assessments that are specific to the ability of these children is also rising as the government aiming to increase the enrolment of children with special needs by 15% in 2015.

- iii. Inclusive education is also a key matter of concern by the MOE. This is because according to the (MEDP) (2013-2025) preliminary reports, only 6% of the children with special needs are in the inclusive programmes. The MOE targets that inclusive education to be increased to 30% in Wave 1 and 75% in Wave 3. To ensure the success of inclusive education, a few things need to be given attention by the government particularly in terms of physical facilities, community awareness and teachers education.
- iv. Teacher education was also emphasised in (MEDP) (2013-2025) e.g. to include Special Education modules in teacher basic training and to provide different levels (from basic to expert) of in-service teacher training for Special Education teachers. Overall, the government is targeting to strengthen training colleges or institute with the aim that all teachers will be trained in special education to enable them to identify students with special needs in their classes to ensure that all children will get appropriate support and education.
- v. It is also indicated in the report that although specific curriculum were formed for children with hearing and visual impairment, there are lack of support and assistance for children with learning disabilities such as autism. Therefore appropriate curriculum and support for children with learning disabilities (e.g. therapies) need more attention to be provided by the government so that the overall quality of special education can be improved.

3.4.5 Conclusion

Given the inclusive education will be one of the priorities in the special education in Malaysia as stated in the MEDP (2013-2025) preliminary report, the diversity of the

children with special needs including autism need to be addressed. This is because by knowing the diversity of the children will help to improve the effectiveness of the implementation of inclusive education. Previous research also suggests that the implementation of inclusive Malaysia has yet to achieve a satisfactory level. Therefore, to ensure inclusive education successfully implemented for these children, research on the diversity of their nature should be conducted. Through the research, the needs, strengths and weaknesses of these children can be identified. This can help to guide the various parties who involved in the implementation of inclusive education in Malaysia.

As the number of pupils enrolled in the special education programs are below the level recommended by the UN, the MEDP (2013-2025) preliminary report also indicate that the aspect of identification of children with special needs will be given priority. Therefore special needs children will be educated according to their level of ability. Before this policy can be implemented successfully, more studies should be conducted on the diversity of the children, (including autism) so that more accurate tools or instruments for identification and screening can be developed. The use of these tools or instruments is critical to ensure that children with special needs can be accommodated in the education system.

The report also said that a special curriculum for children with visual impairment and hearing impairment were completely formed but for children with learning disabilities (including autism), appropriate curriculum and other support or expertise is still needed. Therefore the research related to the characteristics of children with learning disabilities (including autism) should be increased so that the curriculum and expertise appropriate to the requirements and needs of the children can be provided.

The findings of a study on the education of special education teachers showed that teachers are quite confused about the characteristics of children with autism and have a lack of knowledge about the diagnostic criteria for autism. This causes them to feel less confident to teach children with autism. Therefore the teachers expressed a need for them to attend courses and training in the field of autism. This once again shows that more research on the characteristics of children with autism should be conducted

so that it can be used as a reference for teachers to deal with children with autism in their classrooms.

A number of studies related to autism have been conducted in Malaysia but not much about the identification of the characteristics of children with autism that can be used to help them in their education. These studies showed that there is lack of awareness and knowledge about autism among the community members. There is also a lack of facilities and expertise in the areas related to autism. The prevalence of autism in Malaysia is not known accurately. In terms of diagnosis, there is no standard system of identification of autism that has been implemented. The normal procedure is just to obtain verification from ordinary doctors without going through any comprehensive procedure. The doctor will conduct interviews with parents and teachers related to the child and then complete the confirmation forms. Given all these shortcomings, studies related to the identification of children with autism need to be intensified so that awareness and knowledge about autism can be improved.

Subgroups of autism or ASDs such as Asperger syndromes, classic autism and PDD-NOS are not included in the category of children with learning disabilities in the Special Education Act (1997). The words used to describe autism in this act is 'Mild Autistic Tendency (Autism)' which is not clear in terms of its meaning and was not included in the diagnostic criteria used at the international level e.g. the DSM-4 and ICD-10. This suggests that children with AS are not recognised in the Malaysian education system. By the time this act was enacted (in 1997) may be the knowledge of the AS is still not available. Yet the term used (Mild Autistic Tendency) may refer to the ASDs subgroups that is at the other end with high functioning, including the AS. Accordingly, studies on the characteristics of the ASDs subgroup such as AS need to be intensified so that they can accurately identified and given proper education furthermore children with AS may have a better potential in terms of their cognitive and language abilities.

3.4.6 Summary

Overall, this section has demonstrated the urgent need for studies to examine the relevant characteristics of children with ASDs in Malaysia so that they can be given full support and assistance. Therefore, this study aims to examine their features and profiles, especially those with higher functioning and IQ abilities because they are expected to get more benefit from the education that will be provided for them.

CHAPTER 4

RATIONALE AND RESEARCH QUESTIONS

4.1 Introduction

This chapter discusses the rationale of the objectives of the study and the design of the study.

Through the Malaysian context and lit rev chapters, several issues related to autism have been identified. In this chapter these issues will be discussed briefly to lead to the formulation of the objectives and research questions. Besides that, issues related to the assessment of children with autism will also be discussed for a justification of the design of the study.

4.2 The Rationale of the Objectives of the Study

4.2.1 Rationale for Objective 1

The literature review section has shown that there is a group of children with ASDs who have relatively high cognitive abilities and fairly good language abilities than other children. But these children are also experiencing difficulties commonly experienced by children with autism, particularly in “the triad of Impairment” i.e. difficulties in social interaction, language and communication and imagination.

In the DSM IV diagnostic criteria, these children are in the category of AS. However, many previous studies found that although AS is given a specific diagnostic criteria, but its characteristics are difficult to be distinguished from children with high functioning autism (HFA). However, for the purposes of this study, children with AS will still need to be identified because the literature review section shows that if these children (with relatively high abilities especially in cognitive) are identified and given an appropriate early intervention or support, they can show good outcomes. Children with relatively high ability referred to in this study may include both AS

and HFA. However, since AS has a specific diagnostic criteria and many instruments were constructed to identify individuals with AS in the literature, the **main objective** of this study is to identify children with the characteristics of AS in a few schools in the state of Malacca, Malaysia. It uses the categorical perspectives to find common characteristics among children with ASDs to categorise them into the same group (AS). It is very important for this group of children to be identified and given appropriate interventions to meet their needs because of their greater capabilities in some aspects as mentioned before may allow them to show good outcomes.

Furthermore, in the Malaysian Education Act (1997), one of the categories of children with learning difficulties that should be educated under the MOE is 'mild Autistic Tendency' (see section). Although the meaning of this category is not explicitly stated, but most likely it means the high-functioning children with autism (AS and HFA). However, in the implementation of special education in Malaysia, these children are not properly identified. Most of the children with a diagnosis of autism are included in the special education classes with children of other learning disabilities.

High functioning children with autism should be identified because they may actually eligible for inclusive education. Inclusive education has been proven gives many positive benefits to children with special needs. As stated in the literature review sections, inclusive education is also a key matter of concern by the MOE. This is because according to the (MEDP) (2013-2025) preliminary reports, only 6% of the children with special needs are in the inclusive programmes. The MOE targets that inclusive education to be increased to 30% in Wave 1 and 75% in Wave 3. Besides that it is also beneficial to normal children who are in the same classroom. Furthermore, inclusive education can provide exposure to these children to face the world after they left the school later. In fact the real purpose of the special education programme is to help the children to be included. Therefore, for the successful implementation of inclusive, features of these children should be more recognised.

4.2.2 Rationale for Objective 2

The literature review sections found that the diagnostic criteria for distinguishing between the AS and autism (HFA) could not be demonstrated clearly. It means that the categorical perspectives which emphasises more on the similarities between individuals to be gathered in a same diagnostic group are debatable. Whereas the dimensional nature of perspective which gives more emphasis to the differences found between individuals seem more acceptable by many researchers. In other words, by looking at the differences between individuals, the strengths and weaknesses of children with autism will be given better attention. This will help in the process of designing the best interventions and individualised support for children with autism.

The Malaysian context chapter has provide an overview of the background of general education and special education in Malaysia. In the 'Vision 2020', Malaysia aims to become a developed nation by year 2020 not only in economic terms but also in other areas such as social and cultural aspects. To achieve this, a number of development plans were created. In relation to special education, the main focus of the latest educational development plan (MEDP 2013-2025) is to improve the identification aspects of children with special needs, to enhance the implementation of inclusive education and to improve the quality of special education in general.

Some autism-related issues were also identified i.e. there was a lack of knowledge, facilities, expertise and awareness about autism among the community members. Local studies in the area of autism are also limited. Parents have shown negative feelings and guilt for having a child with autism, but they still hope to provide the best education for their children.

Meanwhile, the special education teachers were found to have lack of confidence to teach children with autism may be because received less valuable input during their teacher training. However, they showed keen interest to increase their knowledge in this field. This is due to the increasing need to cope with the number of children with autism which are growing at the present time (see the summary for the Malaysian

context chapter). These findings demonstrate the need for more research to be conducted on the characteristics of children with autism in the Malaysian context.

The literature review section showed that children with autism have some similar features named as 'the triad of Impairment', i.e. difficulties in social interaction, language and communication and imagination. However, the level of difficulties faced by them in these aspects is different from each other. At the same time, they may also show different characteristics in terms of cognitive, physical and psychiatric conditions. Since most of the research done in this field are came from the western countries and less were found in Malaysian context, therefore more research on the characteristics of children with autism in the Malaysian context should be carried out to see the similarities and differences in their features. It will be very useful as a guideline for parents, teachers and the responsible parties to ensure that children with autism get the appropriate education and support. Furthermore one of the main focus of the MEDP (2013-2015) is the identification aspects of children with special needs i.e. 'these children should be educated according to their ability level'.

Based on all these statements, the **second objective** of this study is to look at the range of the characteristics of children with a diagnosis of autism in the special education classes at several schools in the state of Malacca, Malaysia.

4.2.3 Rationale for Additional Objective (A Light-Touch Audit)

Local studies show that the special education teachers expressed that they were less exposed to how to deal with children with autism during their training. However, they showed keen interest to enhance their knowledge in this field. Parents of children with autism were found to show negative feelings and guilt for having a child with autism, but they still hope to provide the best education for their children. This proves that the special education teachers and parents need more specific knowledge about the characteristics of children with autism and how to deal with them.

Therefore, to get some additional information on the level of knowledge of autism that is needed by parents and teachers, an information pack was constructed in this study to be given to the teachers and parents and a brief review or a **light-touch audit** of the teachers' and parents' reaction to the information pack will be done.

The objectives of this study are summarised as below:

- To identify children with the characteristics of AS in a few schools in the state of Malacca, Malaysia.
- To examine the range of the profile of children with a diagnosis of autism in the special education classes at several schools in the state of Malacca, Malaysia.

Additional objective:

- To do a brief review or a light-touch audit of the teachers' and parents' reaction to the information pack

4.3 Research Questions

In relation to the objectives of the study discussed above, the following research questions will be answered through this study:

Research Questions

1. Would the characteristics reported by the parents and teachers, standardised tests and checklists for any child diagnosed with autism in the special education units and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?
2. What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.

Additional Question

1. How do parents draw upon the information obtained from the information pack?
2. How do teachers draw upon the identification process of children with characteristics of AS and the information and strategies obtained from the information pack?

4.4 Rationale of the Design

To address these questions, a study would be carried out in the special education units of a number of schools which represent the range of schools in Malacca, Malaysia. It should be noted that the researcher and family are staying in the UK while doing this study. Therefore an appropriate time schedule should be planned in order to return to Malaysia for the data collection. After considering many other commitments the researcher had decided to go back for one month for doing the pilot the study. It aims to test the instruments that going to be used in the main study. The process and findings of the pilot study are discussed in the chapter of 'pilot study'. After doing some ammendments to the instruments and procedures of the study, the researcher went back to Malaysia for another 2 months for main study data collection. Since the time is considered limited, the researcher need to confirm that the instrument and procedures that will be used in this study are managable within the time frame.

Since the objectives of this study are trying to identify children with characteristics of AS amongst children with diagnosis of autism in the SEUs and to see the profiles and the characteristics of each child, data should be gathered from the people who are really close to the children or know every details of their characteristics. Therefore in this study, these information will be gathered through the parents and teachers.

Parents and teachers of these children may give some valuable information through questionnaires and interview. However, Woodbury-Smith, Klin & Volkmar (2005)

indicated that data obtained retrospectively from parents may present a number of issues, e.g. dates of developmental milestones may not be remembered, minor developmental delays may be inflated and present diagnostic realities may distort parents' memories of their children's development. Therefore some psychological tests, the researcher's own observation and discussion with the teachers will also be used in this study to gain further information about the children's profiles and characteristics.

To identify children with characteristics of AS as indicated in the first research question, several standardised questionnaires or rating scales were found that could be used by parents or professionals to identify children with characteristics of AS. They are in the form of self-completion questionnaires or structured interview. The detail of these questionnaires will be discussed later in the instrument section in the next chapter. The self-completion questionnaires or rating scales to identify children with characteristics of AS would be very efficient to be used in this study in term of the time that will be used and the validity and reliability of the instruments. Moreover, it is comparable amongst respondents and quicker to be administered. It also can be distributed by post. The self-completion questionnaires are also more convenient for respondents since they can fill it anytime and anywhere they want (Bryman, 2008).

The differences in the profiles and characteristics of children with autism (ASDs) as indicated in the second research question, will be examined by using several standardised psychological tests. These standardised tests could be used in this study because they usually have details on the reliability and validity of the test and the test norm that can be used as a comparative base-line to assist in interpreting the scores (Robson, 1999). In addition to the self-completion questionnaires or rating scales, the findings of these standardised test could also be used to identify children with characteristic of AS. It provides scales which can assess quantitatively the children's performance in different skills e.g. in IQ, play, Theory of mind, language and social communication which have been shown in the literature review to be key areas where AS characteristics could be different from autism.

Informal observation by the researcher on the children's characteristics would further support the findings. It allows the children's characteristics to be observed directly. However, only spoken language abilities and observable behavioural features which can be associated with autism e.g. stereotypes, emotional regulation, sensory sensitivities (Howlin et al., 2004) will be observed by the researcher. In fact the children will be observed indirectly while they are doing the tests. The researcher will also discuss with the teachers about the characteristics of each child to get more information and to confirm that the child has that particular characteristics.

Once a child is identified as having characteristics of AS or ASDs, parents and teachers need to have some information regarding the characteristics and ways to support the child. Furthermore as indicated in the literature review that there are lack of knowledge, information and awareness regarding ASDs in Malaysia. Therefore an information pack will be devised in this study to be given to the parents and the teachers. A light-touch audit of the teachers' and parents' reaction to the information pack will be done. Feedback forms will be given to the parents and teachers to see whether they found the information pack is a useful information source. They also will be asked to give some suggestions to improve the information pack.

A light-touch audit will also be done in this study to see the impact of the identification process and the usefulness of the information pack for the special education teachers who are involved in this study. It will be assessed by a teachers' report. The teachers are requested to send email reports gradually after the data collection to the researcher. In the report teachers need to indicate any strategy suggested in the information pack that they have tried or implemented to help the children with ASDs. They also need to report any improvement that they found in the children's skills that may happened after the implementation of the strategies suggested in the information pack. Therefore the impact of the identification process and usefulness of the information pack could be observed.

On the whole, in order to address the research questions, a study was designed to gather data from a representative set of Malaysian schools using standardised questionnaires or rating scales for parents and teachers, standardised tests for IQ, play, Theory of Mind. Some discussion with the teachers regarding the

characteristics of the children and informal observation will be done by the researcher to gain more information especially about the children's language and social communication profiles. An information pack would also be devised since it is very important to be given to parents and teachers once a child is identified as having AS or ASDs. The usefulness of the information pack would also be assessed through a light-touch audit so that it could be improved in the future.

CHAPTER 5

DESIGN AND INSTRUMENTS

5.1 Introduction

This chapter describes the design of the study and instruments used in the study. The design illustrates how the study was undertaken in relation to its aims, whereas the instruments section explains the aims, features and reasons why each measure in the study was chosen.

5.2 Design

The **first aim** of this study was to identify children with characteristics of AS within children with a diagnosis of autism in the special education units and other children in the mainstream classes. Relevant information about the characteristics of a child are usually obtained from the parents especially the mother. This is because the mother who gave birth to them usually is the closest to a child. Therefore one of the main source of information that will be gathered in this study would be the parents. However, Woodbury-Smith, Klin & Volkmar (2005) indicated that data obtained retrospectively from parents may present a number of issues, e.g. dates of developmental milestones may not be remembered, minor developmental delays may be inflated and present diagnostic realities may distort parents' memories of their children's development. In relation to this, information related characteristics of children with AS would also be obtained from teachers. It was decided that the standardised questionnaires completed by parents and teachers would be used to differentiate children with characteristics of AS within a group of children diagnosed with autism in the SEUs. Whereas for children in the mainstream classes, the standardised questionnaires would only be completed by the teachers.

This study used standardised questionnaires or rating scales that was specifically designed to identify individuals with AS. The standardised questionnaires or rating scales were chosen because they were more efficient to administrate, inexpensive

and relatively short and enabled a larger sample (Norris & Lecavalier, 2010). They are also flexible; the administrator could take into account a wide spectrum of behaviours over a broad time period and across a number of settings (Norris & Lecavalier, 2010). Moreover, the rating scales, which are based on a review of relevant literature and research, including DSM-IV and ICD-10, were specifically designed to identify children with AS characteristics (Freeman, Cronin & Candela, 2002).

Agreement between parents and teachers' (that will be observed through the score of the rating scales) would be used in this study to identify children with characteristics of AS because results from multiple sources and settings will enrich the quality of information about a child, with parents offering a unique perspective on the needs of their child (Bagnato & Neisworth, 1991). Moreover, there is strong support, empirically and theoretically, on the value of collaboration between parents and professionals for effective and early diagnosis and intervention (Glascoe, 1994; Stone & Hogan, 1993). Professionals and parents may disagree on the presence or level of behavioural delay in children, as shown in some studies (Suen, Logan, Neisworth & Bagnato, 1995). However, Szatmari, Archer, Fisman and Streiner (1994) noted that both parents and teachers provides distinctive information that is not accessible to the other. In light of all this, it is clear that agreement between parents' and teachers' perceptions (through the score of the standardised questionnaires) would be appropriate to be used in this study to see whether the child has the characteristics of AS.

Attwood (1998) indicates that besides parents and teachers completing questionnaires, the identification or diagnosis of children with AS consists of an examination of specific aspects of social, language, cognitive and movement skills, as well as qualitative aspects of the child's interests. Therefore, in this study standardised play tests, IQ tests and the false belief, or Theory of Mind, test (TOM) would be used. Attwood (1998) also indicates that another invaluable source of information is reports from teachers and speech and occupational therapists. In relation to this, several checklists, i.e. for language and social communication, which are shown in the literature review to be areas of difference between individuals with

AS and other individuals on the autism spectrum, would also be used in this study. However, since there are no speech and occupational therapists in schools in Malaysia, only teachers would be involved in answering the language and social communication checklists.

The findings from parents' and teachers' perceptions in the standardised questionnaires would be compared to the individual assessment scores to identify children with characteristics of AS. Children with high agreement between their parents and teachers regarding their possible characteristics of AS (through the scores of the standardised questionnaires), and who scored higher in the assessments (tests and checklists), especially in language and cognitive skills, would be considered as having characteristics of AS.

In the mainstream classes, the procedures to identify children with characteristics of AS also used the standardised questionnaires specifically for AS. Even though similar rating scales would be used, the procedures applied in the mainstream classes are quite different from those in the SEUs. No standardised tests and checklists would be applied to children in the mainstream classes. The large number of children in the mainstream classes may need a lot of time for the tests to be administered. Therefore only the standardised questionnaires specifically to identify individual children with AS would be administered by the teachers for children in the mainstream classes. Moreover the aim of the procedures in the mainstream classes was only as a screening process to find whether there are any children who possibly have the characteristics of AS. No further tests or assessments will be done to the child.

The **second objective** of this study is to examine the features and characteristics of children with a diagnosis of autism in the SEUs. To gain this objective, the differences in children's scores on the standardised tests on IQ, play and Theory of Mind (ToM), and the adapted communication and language development checklists, would be examined. This allowed for an illustration of the differences in their abilities and their strengths and difficulties in relation to the autism spectrum. The children's scores in different measures would also enable them to be subtyped into one or several groups. An informal observation by the researcher on the children's characteristics would also be used in this study to support the findings from the tests

or assessments since it can allow children's characteristics to be observed directly. However, only children's spoken language abilities and observable behavioural features which can be associated with autism e.g. stereotypes, emotional regulation, sensory sensitivities will be observed by the researcher. In fact it will be observed informally while the children doing the tests and will be discussed with the teachers for more confirmation that the child has that particular characteristics. Since it is not the main procedure of the data collection, it should be noted that it will not be the main findings but rather as supplementary or support for the other main findings.

Additional objective of the study is to do a brief review or a light-touch audit of the teachers' and parents' reaction to the identification process of children with characteristics of AS and the information pack which have been provided in this study. The effectiveness of the information pack would be assessed by a feedback sheet from parents and teachers indicating how useful they have found it. The aims and rationale, development process and evaluation of the information pack would be discussed in the next chapter.

Another additional objective of the study is to see whether the identification process of children with characteristics of AS, and the information pack, will help SEUs teachers better understand children with ASDs to support them. Therefore the results of the children's scores in the assessments, i.e. IQ test, play test, language checklist and communication checklist, would be discussed with the SEUs teachers. They would also be given an information pack which contains some information on the characteristics of children with ASDs and some recommendations for how to support the children. About three months after the assessment, the teachers would be contacted by email to get some response on their understanding of children with ADSs in relation to the teaching and learning strategies that had been suggested, and asked whether there had been any differences in the children's progress. In total, teachers would be asked for three reports, i.e. within three months, six months and nine months after the assessment.

5.3 Instruments

Several instruments e.g. standardised questionnaires or rating scales, standardised tests, adapted checklist, information pack and teachers report will be used in this study to gather information in relation to the research questions.

5.3.1 Rating Scales

When choosing rating scales to be used in this study to identify children with characteristics of AS, the researcher looked for normed and standardised scales specifically developed to identify individuals with AS. The scales had to be practical, e.g. have very clear instructions, take only a brief amount of time to be administered and easy to be scored by hand. Instruments with diagnostic validity were preferred. It was also important to make sure the authors referred to the formal diagnostic criteria for AS, i.e. DSM-IV and ICD-10, in devising the scales.

There are several rating scales or questionnaires specifically developed to identify children with AS. However, as they are quite new, only few studies have been done on them (Freeman et al., 2002) and none have been well developed empirically at this point (Matson & Boisjoli, 2008). Moreover, Goldstein (2002) suggests that questionnaires do not diagnose but simply provide a convenient way of analysing, summarising and comparing a given child's behaviour. Due to these limitations, therefore in this study, in addition to the standardised questionnaires, several standardised tests for IQ, play, Theory of Mind (ToM), language and social communication checklist would also be used to support the findings before it could be confirmed that the child has the characteristics of AS.

As discussed in the literature review, no rating scales or questionnaires specifically to identify children with AS that found has been developed or used in Malaysian context. Therefore, the current study will use instruments that have been used in the western countries. Before it could be used in the pilot study, a back translation process (Brislin, 1970) would be done to the instruments especially the questionnaires that would be used by the parents and teachers. This means that the English version was translated into the Malay language by an expert in both

languages. Subsequently, the one that has been translated into Malay language need to be translated again into English language which has been done by another expert in both languages to verify that the content of the final version was resembled to the initial version. Some amendments should also be done to the instruments before it could be administered to suit the culture and environment in Malaysia. Finally, to confirm the validity and reliability of the instruments, a comprehensive pilot study would be done before the main data collection. The process and the procedures of the pilot study will be discussed in more detail in the pilot study chapter.

Finally, four standardised rating scales for AS were chosen for piloting, including:

- **Asperger Syndrome Diagnostic Scale (ASDS) (Myles, Bock & Simpson, 2001) (See appendix 2.1)**

ASDS was chosen because the manual indicates that it has been designed to fulfil five purposes, i.e. measure behaviours associated with AS, provide the examiner with an index of likelihood of AS, be sufficiently reliable that the examiner can have confidence in the results, be sufficiently valid to differentiate AS from other conditions, and have norms based on a large sample that includes a broad spectrum of individuals with AS.

The manual also points out that internal consistency of the items on the ASDS has been investigated using Cronbach's (1985) coefficient alpha. The alpha for Asperger Syndrome Quotient (ASQ) (all 50 items) is .83, which suggests that the items within ASDS are quite consistent. Standard Error of Measurement, which is a statistical indicator of the error variance, was calculated for the ASQ and the subscale scores. The ASQ evidence acceptable internal consistency reliability while the low coefficient alphas were reported for the subtests. Therefore, examiners can place confidence in the ASQ when making decisions or interpreting results from the ASDS.

A study to examine the interrater reliability of the ASQ as indicated in the manual shows that the resulting coefficient was .93. The correlation coefficient for the ASQ is especially strong and statistically significant ($p < .01$). These results confirm that

different examiners can use the ASDS and be confident that their ratings will be similar.

ASDS can be completed by parents and professionals, at home or school, for individuals aged 5 to 18. It takes about 10 to 15 minutes to be administered and the manual provides standard scores, percentile ranks and a table for determining the likelihood of having AS. It is grouped into five subscales (Language, Social, Maladaptive, Cognitive, and Sensorimotor). Items are summed across all categories to provide an overall Asperger Syndrome Quotient (ASQ) that indicates the probability that an individual has AS.

ASDS was also chosen because it has been standardised and normed using 115 individuals diagnosed with AS (83% male), who ranged in age from 5 to 18 ($M=10.42$, $SD=3.44$), from 21 states across the United States. Moreover, the authors reported having looked at four primary sources for item selection, i.e. the DSM-IV, ICD-10, a review of AS literature and Asperger's research. Therefore, ASDS would be used in this study to identify children with characteristics of Asperger syndrome in the special education units and mainstream classes.

- **Krug Asperger's Disorder Index (KADI) (Krug & Arick, 2003) (See appendix 2.2)**

KADI was also chosen because it is a norm-referenced rating scale that assists in the identification of individuals with AS from ages 6-11 and 12-21. It was designed to be used by parents or educators and can be completed at home or school within 15 to 20 minutes. KADI consists of 32 items in two groups. 11 items in column A will be used in this study as a screening test to identify children with characteristics of AS in the mainstream classes.

The manual indicates that KADI evidences a high degree of reliability in content sampling, time sampling and interscorer differences. The Cronbach alpha correlation for standard score was .93, $p < .001$ and the split-half reliability coefficient of .89 showed that KADI has high internal consistency. KADI also scored well in a test-retest correlation method, which was used to study its time sampling error.

Moreover, in interscorer reliability, interrater agreement for KADI is shown to be very high. Overall, the magnitude of the reported coefficients strongly suggests that KADI possesses little test error and that users can have confidence in the results.

The manual also provides evidence that KADI is a valid measure to identify individuals with AS because it has content-description validity, criterion-prediction validity and construct-identification validity; therefore, it can be used with confidence. However, the authors also agreed that their work is only preliminary and that study of KADI's validity has only begun.

In the mainstream classes, every class teacher would be asked to answer 11 items in column A of KADI for every child in their class. Only children who passed the cut-off point would be included in further investigation using the remaining part of the KADI and a few other rating scales to identify children with characteristics of AS. In the SEUs, parents and teachers of children with a diagnosis of autism would be asked to answer the KADI.

- **Australian Scale for Asperger syndrome (ASAS) (Attwood, 1998) (See appendix 2.3)**

This 24-item scale was chosen because it is divided into five categories that describe the characteristics of Asperger syndrome, i.e. social and emotional abilities, communication skills, specific interests and movement skills. Moreover, it was designed to identify behaviours and abilities related to AS in children during their primary school years, when the unusual pattern of behaviours and abilities is most conspicuous (Attwood, 1998). Each question has been rated from 0, (indicating 'rarely'), to 6, (indicating 'frequently'). Parents and teachers in this study need to choose which rating (from 0 to 6) that most suited the children in relation to their behaviours and abilities. However, this rating scale does not have any normative data or cut-off scores (Freeman et al., 2002).

- **Gilliam Asperger's Disorder Scale (GADS) Parent Interview Form (Gilliam, 2000) (See appendix 2.4)**

The GADS comprises four subscales and a Parent Interview Form that should be completed by parents. For this study only the Parent Interview Form would be used. It provides the examiner with a series of questions that can be used to interview the child's parents, caregivers, guardians or significant others about the child's early development. These questions can be answered within 5 to 10 minutes.

According to the DSM-IV-TR (2000), children with AS do not show clinically significant delays in language development, cognitive development, age-appropriate self-help skills, adaptive behaviour or curiosity about the environment. Therefore, the GADS Parent Interview Form was chosen for use in this study because it was designed to determine whether or not a child has these characteristics. These specific questions were designed to confirm a clinical examiner's diagnostic impression and to help the examiner distinguish individuals with AS from other pervasive developmental disorders.

5.3.2 Standardised Tests (WASI, TOPP, SPT, ToM)

- **Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 1999) (See appendix 2.5)**

Mayes & Calhoun (2004) indicate that children with AS are considered to have milder autistic symptoms and higher (though not necessarily normal) IQs. Therefore, in this study an IQ test is essential to determine children's level of cognitive functioning. WASI was chosen because it is a perfect instrument for measuring three aspect of an individual's IQ i.e. performance (PIQ), verbal (VIQ) and general IQ or full scale IQ (FSIQ).

WASI's performance scale, which can be used with non-verbal participants, is very suitable for assessing the IQ of children diagnosed with autism in the SEUs since some of them are non-verbal. It is adaptable enough to be implemented within the current study's limited administration time. It was also found to be suitable to the

depth of assessment that need to be done in this study. Furthermore, it was linked to the Wechsler intelligence scale for children, third edition (WISC-III; Wechsler, 1991) and the Wechsler adult intelligence scale, third edition (WAIS-III; Wechsler, 1997). The manual provides tables for estimating IQ range on the Wechsler scales which has been widely used internationally.

WASI has also been chosen because it is a reliable measure of intelligence that can be used in clinical, psychoeducational and research settings. Furthermore, it consists of four comprehensive subtests, i.e. vocabulary, block design, similarities and matrix reasoning, that would be very useful to indicate the cognitive abilities of the children.

The manual indicated that it could be used to examine individual's cognitive functioning for those who are age from 6 to 89. Therefore it is suitable to be used by children that involved in this study.

- **Symbolic Play Test (SPT) (Lowe & Castello, 1976) (See appendix 2.6)**

Difficulties and delay in understanding symbolism, especially in relation to pretend play, have long been documented as characteristic of people with ASDs (Jordan, 1999; 2003). In line with this, studies investigating possible early signs of autism have shown that an absence of pretend play might be a predictor of a subsequent diagnosis of autism (Baron-Cohen et al., 1996; Scambler, Rogers & Wehner, 2001). However, some individuals with autism are able to produce limited symbolic play, especially children with higher verbal mental ages (Lewis & Boucher, 1988; Jarrold et al., 1996). Therefore, in this study it is essential to test the children's abilities in pretend play to verify their autistic features and see whether children with characteristics of AS can be distinguished through their pretend play attributes.

Even though SPT was devised for children ages 1 to 3, it would be used in this study for children aged 7 to 11 because it is suitable for children with lower abilities in symbolic play, or who have more severe autistic features. Therefore, the child's pretend play abilities can still be examined. SPT can evaluate children's spontaneous non-verbal play activities in a structured situation. It also enables the researcher to observe children as they play with miniature toys in a variety of situations. The

manual indicates that this observation can provide an objective indication of a child's early concept formation and symbolisation abilities that precede and develop alongside receptive and expressive language. Furthermore, it could allow for an objective scoring system based on direct observation rather than categorisation or interpretation.

- **The Test of Pretend Play (TOPP) (Lewis & Boucher, 1997) (See appendix 2.7)**

TOPP has also been chosen to be used in this study because it is suitable for children with higher abilities in pretend play. Therefore, it can be used in addition to other measures in identifying children with characteristics of AS. TOPP would be used in this study since the manual indicates that it can assess a child's level of conceptual development, ability to use symbols, readiness to develop language, imaginative ability and creativity, emotional status and development difficulties. It was also designed to measure a child's ability to play symbolically in structured play conditions and in unstructured, free play conditions. Furthermore, it is a perfect instrument to assess the three different types of symbolic play: substituting one object or person for another, attributing an imagined property to an object or person, and reference to an absent object, person or substance. The administration of the TOPP would take about 45 minutes.

Small changes have been done to the TOPP before the pilot study to make sure they are suitable to be used in Malaysian context e.g. the word 'snow' has been changed to 'sand' because there is no snow in Malaysia.

The reason for using both SPT and TOPP in this study is to cover the different range of pretend play abilities amongst children with a diagnosis of autism in the SEUs, which could assist other measures in identifying children with characteristics of AS, and help to examine the features of pretend play abilities amongst the children with ASDs.

- **Theory of Mind (ToM) Test**

The Theory of Mind (ToM) Test would be used in this study to observe children's abilities in the theory of mind. Baron-Cohen et al. (1985) propose that individuals with autism have less abilities in 'theory of mind', i.e. the ability to think about other people's thinking. However, some individuals with autism are capable in Theory of Mind tests, especially children with higher mental ages, including children with AS.

Kremer-Sadlik, (2004) indicates that only 20% of autistic individuals at age 6 to 7 years pass the false belief test, whereas 4-year-olds normal individuals could pass it easily. Therefore, in this study ToM tests would be applied to children with diagnosis of autism in the SEUs as part of the process to identify children with characteristics of AS and to examine the features and characteristics of children with ASDs in the SEUs.

Theory of Mind is often examined through the use of 'false belief' tests, which test to see if the child can demonstrate understanding that another's mental representation of the situation is different from that of themselves, and will be based upon a 'false belief' on the part of the other. Such tests can take the form of 'Unexpected Contents' (e.g., Gopnik and Astington, 1988), 'Change in Location' (e.g., Wimmer and Perner, 1983) 'Occluded Pictures' (e.g., Chandler & Helm, 1984), and Appearance-Reality (Flavell, Flavell, & Green, 1983) tasks.

An example of 'Unexpected Contents' is the "Smarties" task. In this task the researcher asks the child what they think is in a box that looks as though it holds a familiar kind of sweet (such as 'smarties') After the child has given a reply, which is (usually) "Smarties", the box is opened to show that, in fact, it contains pencils. The researcher then re-closes the box and asks the child what she/he thinks another familiar child in the group, who has not been shown the true contents of the box, will think is inside. If the child responds that the other child will think that there are "Smarties" in the box, then this is considered to be evidence that the child understands 'false-belief' in another person, but if the child says that the other child will think that the box contains pencils, then it is considered that the child has not shown evidence of understanding that another person can hold a belief which is false,

and different from their own. Research reports that children show evidence of understanding a state of false belief in another person at around four or five years.

To control for the child overall understands of the task it is usual to ask a series of questions (which include the ones mentioned above). These are:

1. When they first see the box, the child is asked what they think is inside the box. This question has been asked in this study to confirm that the child think that the smarties box is contained with smarties.
2. After they have seen what is actually inside the box they are asked ‘before we opened the box what did you think was inside?’. This question has not been asked in this study because it is considered as a repetition to the first question and it may cause the child to get more confused. So after the child has been shown that the box contained pencil, not smarties (as they expected), the child has been asked directly question number 3.
3. After this they are asked ‘what would ‘friend’s name’ think was inside the box?’. This question has been asked in this study to see what the child think the ‘friend’ would think what was inside the box. If the child think that the ‘friend’ would think it is smarteis in the box it is considered that that the child understands ‘false –belief’ in another person, but if the child says that the other child will think that the box contains pencils, then it is considered that the child has not shown evidence of understanding that another person can hold a belief which is false, and different from their own.
4. And then after their reply to question 3, they are asked ‘what is really in the box?’. This question has been asked in the study because it is more suitable to be asked after question number 3 to make sure that the child knows what exactly was in the box. So that it could be confirmed the answer that the child gave in question 3 is because the child understands ‘false –belief’ in another person or not and not because of guessing or any other reasons.

An example of the ‘change in location’ task is the ‘Sally-Anne’ task. In this task the child is shown two dolls, Sally and Anne. Sally has a marble (or it could be a piece

of chocolate) which she puts in her basket. Sally leaves. Anne takes the marble out of the basket and puts it in her own box. Sally returns and the child is then asked where Sally will look for the marble. If the child responds that Sally will look in her basket, then this is considered to be evidence that the child understands ‘false –belief’ in another person, if the child answers that Sally will look in the box (where the child knows the marble is now hidden) then the child is considered to have not demonstrated understanding that the other’s mental representation of the situation is based on a false belief and is different from their own.

To control for the child’s overall understanding of the task it is usual to ask a series of questions (which include the one mentioned above). These are;

1. Sometimes at the start of the task after the child has been told the names of the dolls, the child is asked to recall the names of the dolls.
 - In this study, the child has been asked to recall the name of the dolls to make sure that the child can differentiate which is Ann and which is Sally.
2. When Sally returns, the child is asked ‘where will sally look for the marble?’
 - In this study, the child has been asked this question to see whether he or she understands ‘false –belief’ in another person. If the child responds that Sally will look in her basket, it is considered that the child understands ‘false –belief’ in another person, if the child answers that Sally will look in the box (where the child knows the marble is now hidden) then the child is considered to have not demonstrated understanding that the other’s mental representation of the situation is based on a false belief and is different from their own.
3. The child is then asked ‘where is the marble really?’.
 - In this study, this question has been asked only at the beginning, (before the child being asked where Sally will look at her marble, not after the question) because once the child gave the answer to question no 2, the

child will be considered as understand or not understand ‘false-belief in another person’.

4. Sometimes the child is also asked ‘where was the marble at the beginning?’
 - In this study, same as question no 3, this question has been asked only at the beginning, (before the child being asked where Sally will look at her marble, not after the question).

5.3.3 Adapted Checklists (Social Interaction and Language and Communication)

- **Assessment of English Language Acquisition: Stage 1 to 4 or Assessing English as an Additional Language (EAL) (QCA, 2000) (See appendix 2.10)**

The literature review shows that difficulty in language and communication could be especially problematic for more capable people with ASDs, including AS. Because of their high levels in some skills most people assume that they understand everything that is being said to them, which is not true. Pedantic speech and being overly precise in a rather concrete way are also descriptors frequently used for individuals with HFA or AS (Ghaziuddin et al., 1992a). Wing (1981) also indicated that the language of people with AS as having a ‘bookish’ quality exemplified by the use of obscure words. Therefore, the Assessment of English Language Acquisition: Stage 1 to 4 would be used in this study to examine children’s language abilities.

The Assessment of English Language Acquisition: Stage 1 to 4 was chosen to examine the language of children with a diagnosis of autism in the SEUs because it is useful to categorise children’s abilities in language skills. It can also provide sensitive details of children’s pre-linguistic communication abilities. Therefore, it is suitable for use within children diagnosed with autism, who usually have complex features of language abilities. This assessment contains four stages; each stage is divided into another few categories, as shown in the table below:

Table 5.1 : Assessment of English Language Acquisition: Stage 1 to 4

Stage	Level	Categories
S1	new to English	Pre step 1, step 1, step 2, level 1 threshold, level secure
S2	becoming familiar with English	Stage 2, advanced stage 2
S3	becoming a confident user of English	Early stage 3, intermediate stage 3, advanced stage 3
S4	a fluent user of English in most social and learning contexts	Stage 4

S – Stage

The assessment also gives different levels and categories for different skills, e.g. listening skills, speaking (non-verbal communication) skills, reading skills and writing skills. Even though it was created for English, the structure and description can be applied to other languages. Moreover, a back translation process was also done to the checklist before it could be used in this study.

Social communication checklist (See appendix 2.9)

The social communication checklist would be used in this study to obtain more information about the children’s social communication abilities and as part of ways to identify children with characteristics of AS. It has been adapted from the autism observation profile (Cumine, Leach & Stevenson, 1998) and the Asperger syndrome observation profile (Cumine et al., 2000). The communication section on the autism observation profile and the social communication section on the Asperger syndrome observation profile have been combined.

The researcher would observed the children’s social and communication features by what is stated in the checklist. For example if the child could ‘respond when his name is called’, the researcher will tick whether it is:

1 very agree (always)

2 agree (sometimes)

3 not agree (not at all)

After that the researcher will discuss with the teacher to confirm that the child has that specific characteristics. The researcher could also write down in the comments section if there are any specific differences in the child's social and communication profiles.

The initial checklist (Cumine, Leach & Stevenson, 1998) had used rating scales in the checklist as below:

N for 'not present'

I for 'frequently'

D for 'developing'

F for 'fluent'

However for the purpose of this study, to avoid any potential confusion between these terms, they were changed into:

1 for 'very agree' (always)

2 for 'agree' (sometime)

3 for 'not agree' (not at all)

The checklist would be used to examine the social and communication profiles of children with ASD in the SEUs. Wing & Gould (1979) have proposed three different social communication groups of children with ASDs, i.e. the 'aloof group', who behave as though other people do not exist, are cut off from social contact and typically reject social overtures; the 'passive group', who can accept social approaches and do not move away from others but do not initiate social interaction; and the 'active but odd' group, who spontaneously approach people but in unusual, one-sided and inappropriate ways, due to not really understanding how to interact with other people.

In 1996, Wing added a fourth group, described as 'the over-formal-stilted' group. This group includes adolescents and adults with autism who are more able and have good language skills. They are excessively polite and formal due to special difficulties in adapting their behaviour in different, changing situations. It is possible

that children with characteristics of AS can be in the ‘active but odd’ or ‘the over-formal-stilted’ group.

The adapted checklist would be used in this study to see whether children in this study show the features as described by Wing & Gould (1979). This process would also help to differentiate children with characteristics of AS from children with classic autism.

5.3.4 Parents and Teachers Feedback Forms

As indicated before, after a child is identified as having characteristics of AS or ASDs, parents and teachers usually looking for some information regarding ASDs in order to support the child. However, the literature review indicated that there are lack of knowledge, information and awareness regarding ASDs in Malaysia. Therefore an information pack will be devised in this study to be given to the parents and the teachers. A light-touch audit of the teachers’ and parents’ reaction to the information pack will be done. Parents and teachers need to fill in feedback forms to see whether they found that the information pack is a useful information source. They also will be asked to give some suggestions on how to improve the information pack. Suggestions given by the parents and teachers in the pilot study will be used to improve the information pack for the main study whereas suggestions given in the main study will be used to improve the information pack further. It may be very useful to be used to disseminate information regarding ASDs in Malaysia in the future.

5.3.5 Teachers’ Reports (See Appendix 2.13)

Teachers’ reports on the effectiveness of the identification process and the information pack to their practice would be gathered using the teacher’s report sheet. The teachers’ report aims to show the impact of the information pack and the teacher’s knowledge of each child’s abilities perceived through the assessments upon their understanding of children with ASDs. It also aims to see whether the teachers found that approaches that were suggested in the information pack were effective.

Helps, Newsom-Davis & Callias (1999); Toran, et.al (2010) found that most of the teaching staff in their study did not have basic theoretical understanding of autism. Many of them were still attached to outdated beliefs on the disorder, whilst others were still confused and unsure about the disorder. The information gap may cause teachers to have an unclear and outdated understanding about autism (Armstrong & Galloway, 1994). It may also affect their instructional goals and methods (Padeliadu, Chatzopoulos & Kavvada, 1998; in Mavropoulou & Padeliadu, 2000). Therefore, in this study teachers would be given an information pack to get more clear picture about ASDs.

Teachers in this study would also be informed the results of the assessments that had been done to the children to give them information on each child's abilities in several areas. Understanding each child's specific profile of strengths and difficulties may helps teachers to foster realistic expectations of them, and enables individualised education planning (Howlin, 1994). Moreover, teachers could use or try several suggestions on teaching and learning strategies for children with ASDs given in the information pack to support and meet the needs of each child.

There are three report sheets for teachers to answer. The first report sheet contains two open-ended questions which aim to encourage and provide a good opportunity for teachers to comment on whether they obtained different understanding and expectations of the child's potential learning and development after receiving the information pack and being told about the child's abilities in the assessments. They would also be asked in what ways they had changed their practices in relation to any changes in their understanding and expectations. The first report sheet contains a table for teachers to write children's areas of difficulties in communication and language skills, social skills, flexible thinking and sensory perception skills; the effects of these difficulties on classroom activities; strategies that have been tried or used; comments on children's progress; and the teacher's reflection and future plans.

The second and third report sheets were devised in a different format from the first report sheet to ensure that there would be no repetition in the information given by the teachers. In fact, the second and third reports were simplified from open-ended questions to more specific 'yes/no' questions to avoid any difficulties for the teachers

to give the reports and to encourage teachers to give their responses. The questions asked whether teachers have read the information pack overall, whether they had changed their practice because of reading the booklet, whether they found the suggested techniques effective, and a few other questions. Finally, at the end of the report, teachers could give some comments in the comments box.

5.4 Ethical Issues

Before this study could be carried out, a few procedures regarding ethical approval have been done. Firstly, it was applied from the University of Strathclyde Ethical Committees. After being approved, approval and consent was applied from the Malaysian Ministry of Education to do the research in Malaysia. It was done through an online application. After being approved, the researcher was given the letter of consent from the Malaysian Ministry of Education office. Using this letter of consent, the researcher has contacted the head teachers of schools that will be involved in this study to get permission to do the research in their schools. After the head teachers gave permission, the researcher has asked for help from the school to distribute the letter of consent to teachers and parents who will be involved in this study. The consent letter will be collected back when the researcher came to the school for the data collection. For any parents and teachers that still didn't get the consent letter, it will be provided when the researcher came to the school and it will be collected back before the researcher started doing the data collection.

Questionnaires for parents of children with autism in the SEUs were chosen and adapted carefully to make sure they would not harm parents' emotions or sensibilities. In the back translation process which has been done by two Malaysian expert who are proficient in both languages, the researcher has also asked them to confirm that the language use in the questionnaires are suitable with the Malaysian language, culture and environment.

The questions in the questionnaires are also more descriptive without asking too many sensitive questions about the child's history, e.g. in the ASDS questionnaires, parents only have to circle 'observed' or 'not observed', and in the GADS Parent

Interview, parents only had to circle 'yes' or 'no' to answer the questions. However, they are encouraged to provide additional comments in the comment section without any coercion.

Consent to participate in research can only be meaningful if provided on an informed basis. It is the researcher's responsibility to provide relevant information about the research to the participants. Therefore in this study, consent letter for parents and teachers would contained with some important information .e.g.:

- what the research is trying to find out
- the purpose of the research
- who is carrying it out
- exactly what will be asked of participants
- how the information they provide will be recorded
- what will then happen to the data (including data protection issues)
- what degree of confidentiality and anonymity

Parents and teachers also have been informed that they have their rights to:

- refuse to participate without adverse consequences
- not answer specific questions without having to give a reason
- withdraw from the research at any point without adverse consequences.

Since the participant of this study involved children with special needs, a few issues need to be considered by the researcher. It should be emphasised that children with ASDs that involved in this study are free to stop participating at any stage. They may not taking part in the tests or withdrawing completely from the tests, particularly if the child show signs of distress or lost of either interest or engagement. Since the researcher has some experience working with children with special needs, she may easily notice if the child has started to lose interest in the activity.

It is also important to consider the effect that the environment may have on the responses of the children who taking part in a research. Therefore the researcher need to make sure that the environment are suitable for the children to be involved in the

tests. Before starting doing the test, the researcher will come to the class a few times, be friendly and try to talk to the children several times to create a comfortable atmosphere. The tests would be done at a corner of their existing classroom so that they do not feel isolated because there are teacher and some other friends in the class.

5.5 Summary

Finally, after considering a number of ethical issues, suitability with the culture and environment of Malaysia and the approval or consent from various parties, several standardised rating scales, standardised tests and adapted checklists were ready to be used in this study to identify children with characteristics of AS and to examine the characteristics of children with ASDs in Malaysian context. The instruments consist of KADI, ASDS, ASAS, GADS parent interview form, WASI, SPT, TOPP, ToM, and a language and social communication checklist. These instruments would be tested in the pilot study to see whether they are appropriate for use in the main data collection. According to the findings of the pilot study, amendments to the procedures or the instruments could be made to be used in the main study.

CHAPTER 6

INFORMATION PACK

6.1 Introduction

This chapter describes the information pack that was devised to be used in this study. The information pack had to give some information about ASDs to all parents and teachers, after the process of identifying children with characteristics of AS. To evaluate the usefulness of the information pack, parents and teachers would be provided with a feedback sheet. Teachers also need to send reports to see the effectiveness of the teaching and learning strategies suggested in the information pack.

6.2 Aim and Rationale

The aim of the information pack was to give parents and teachers some information about Autism Spectrum Disorders (ASDs). This would help them better comprehend their children's characteristics in order to support or meet their child's needs with more appropriate techniques and strategies.

As discussed in the literature review, children with characteristics of AS are not fully recognised in Malaysian schools, therefore parents and teachers do not have much information regarding these children. They are still not very familiar with 'Asperger syndrome' terms. They are not exposed to AS characteristics, potentials and needs. Teachers and parents in Malaysia are more familiar with the term 'autism' because most of children with characteristics of ASDs in the schools are grouped into this category. This is not surprising since AS and autism are both under ASDs, and they share many similar characteristics. That is why, as indicated in the research question, this study will identify children with characteristics of AS amongst children with a diagnosis of autism in SEUs and mainstream classes in representative schools in Malacca.

The diagnostic process can help parents understand why their children behave in a certain manner and make them understand that they are not to be blame for the condition (Mansel & Morris, 2004). It can also provide access and information to other parents as to where they can find support and treatment for the disorder, and raise awareness in others about ASDs (Mansel & Morris, 2004). Once a child is identified as having ASDs, the parents need to immediately looking for information, support and treatment for the disorder. Osborne & Reed (2008) also indicate that participants in their study reflected and perceived that they had not been given any help, support or advice about the nature of ASDs. Parents need to be given relevant information through information sheets or pamphlets at the time of the diagnosis so that they are not swayed by negative information from other sources, e.g. the Internet (Huws, Jones & Ingledeu, 2001). Even though such information proves important for parents, such information appears to be very limited (Smith, Chung & Vostanis, 1994). The literature review section has proven that this is what actually happen in Malaysia. Therefore, in this study an information pack will be devised and given to the parents and teachers to help them better understand children with ASDs and help them in supporting the children.

6.3 Process of Development

Preparing the information pack (**see appendix 2.11**) to be used in the study required processes such as reading, choosing and summarising information, gathering the information into a few pages, translating the information pack into the Malay language, using the information pack in the pilot study and responding to feedback given by parents and teachers after the pilot study to prepare the information pack to be used in the main study.

6.3.1 Reading

In preparing the information pack, the researcher needed to do much reading to find out what should be included. During the reading process the researcher referred to various resources which were thought to have very useful information for parents and teachers that was suitable to be put in the pack, e.g. Learning Resource on

Autism Spectrum Disorders (ASDs) from The NHS Education for Scotland (2006) website, The National Autistic Society website, the booklet 'Information for Parents and Carers with Child or Young Person Recently Diagnosed with an Autism Spectrum Disorder' by Leask (2007) and The Scottish Intercollegiate Guidelines Network (SIGN, 2007). However, only important and main areas would be covered in the information pack due to limited pages and space.

The Learning Resource on Autism Spectrum Disorders (ASDs) by The NHS Education for Scotland (2006) website consists of four topics, i.e. The Patient with ASDs, Health Issues, Practical Strategies, and Identification and Diagnosis. There are also four related leaflets on the website which could be used as a model for the information pack in relation to the content and format, i.e. Supporting Your Patient with ASDs – What GPs And Primary Care Practitioners Need To Know, Supporting The Family - What GPs And Primary Care Practitioners Need To Know, Has My Next Patient Got An Autism Disorder, ASDs And Additional Conditions - What GPs And Primary Care Practitioners Need To Know. However, since the information from the NHS is designed for professionals working in the health care system at the primary care level, e.g. general practitioners and allied health professionals, resources had to be chosen and arranged carefully. Only information that could fulfil the needs of the parents and teachers would be put in the information pack.

The National Autistic Society website was also referred to in gathering information for the information pack. It consists of information for parents, relatives and carers, adults with autism, and professionals. The information for parents, relatives and carers is linked to several other sections, including the 'living with autism' section, which is aimed at parents and is full of practical advice, ideas and further contacts. A wide range of support services is also linked, i.e. 100 local branches currently operating. Since the NAS website provides very broad information on ASDs and is based in the UK, careful decisions were also needed in choosing the details to be included in the information pack. It should not contain too much information but must be relevant for parents and teachers in Malaysian contexts.

The booklet 'Information for Parents and Carers with Child or Young Person Recently Diagnosed with an Autism Spectrum Disorder' was produced by Leask

(2007). It consists of several sections, including Introduction, What does ASD mean?, Diagnosis, Looking at the core characteristics in more detail, What can you as a family do to help?, Approach and intervention, Education issues, Financial help, Family issues, Final comments, and Information and resources. The booklet contains a great deal of information, including many website links and recommended readings for parents and teachers of children of different ages. Since the booklet was intended to be given to parents and carers at the time of their child's diagnosis with ASDs, it would be very useful as a model in creating the information pack for parents and teachers in this study. However, caution was still required as this booklet was originally based in Scotland, whereas this study would be implemented in a Malaysian context. Therefore, only relevant information would be included in the information pack.

The Scottish Intercollegiate Guidelines Network (SIGN, 2007) provides some guidelines on non-pharmacological interventions for individuals with ASDs. In behavioural or psychological interventions, it suggests interventions to reduce symptom frequency and severity, and increase the development of adaptive skills. SIGN (2007) also suggests that 'adapting the communicative, social and physical environments e.g. providing visual prompts, reducing requirements for complex social interactions, using routine, timetabling and prompting and minimising sensory irritations' may be of benefit for individuals with ADSs (pg. 17). Therefore, these ideas would be used in the teaching and learning strategies in the information pack.

Through the reading process of several information websites and the booklet on ASDs as described above, some key messages in relation to the format and content of the information pack were drawn out, and guidelines on how to devise the information pack were outlined as below.

The criteria of the information pack format:

- i. It should be simple and straightforward but provide clear information.
- ii. It should be small, handy and not too heavy.
- iii. It should not contain too much information, which will make it too packed.

- iv. It should contain only a few pages of half the size of A4 paper.
- v. It should be practical and easy to use.
- vi. It should be useful and effective.
- vii. The information and suggestions should be suitable for use within a Malaysian context.

The criteria of the information pack content:

- i. It should contain information about the general features of ASDs.
- ii. It should describe several differences between Kanner's, or classic, autism and Asperger syndrome.
- iii. It should contain a few strategies on how parents and teachers can support or meet the needs of children with ASDs.
- iv. It should contain contact numbers and addresses of government and non-governmental agencies who can give support for children with ASDs in Malaysia
- v. It should contain useful website links and suggested reading that parents and teachers can use in searching for more information and support for children with ASDs.

6.3.2 Choosing Information/Content

The next process was to choose the most useful and appropriate amount of information to put in the information pack. This was not an easy process, considering the amount of available information. In choosing the information, several issues had to be considered, e.g. the information should be suitable for parents and teachers of children with autism in Malaysia; the words and phrases used should not be too complicated for parents and teachers to understand. The feelings and sensitivities of parents and teachers of children with autism should also be protected; the most

important thing to consider was that the information and suggestions must be useful and practical within a Malaysian context. As a result, the final content of the information pack are include: What are ASDs, The core characteristics in more detail, Special characteristics of AS, What parents and teachers can do to support them, Support agencies in Malaysia, Recommended readings and Useful website links. The details of each section will be described below:

- **What are autism spectrum disorders (ASDs)?**

This section aims to provide sufficient information to inform parents and teachers of the conditions which come under ASDs. It lists the effects of ASDs on individual abilities and a number of sub-groups under the umbrella term. This introductory section also tries to explain that ASDs can be diagnosed within various levels of cognitive abilities; the hypersensitivity and hyposensitivity in sensory; that more boys have been diagnosed than girls; and the causes of ASDs, which are still not very clear. This section also mentions that parents or carers do not cause ASDs, and ASDs can occur alone or with other conditions.

- **Looking at the core characteristics in more detail**

This section aims to give parents and teachers a clearer picture of characteristics of children with ASDs. It was derived from the literature review chapter and some adaptation from The National Autistic Society website. It describes in more detail the core characteristics of ASDs (also known as the ‘triad of impairments’), i.e. difficulties in social interaction, communication, and thinking and behaving flexibly.

- **Difficulties with social interaction**

This section describes the difficulties that individuals with ASDs can have in their social interaction. It also describes three groups of children with impairments in social interaction, introduced by Wing & Gould (1979), i.e. ‘aloof’, ‘passive’ and ‘active but odd’ children.

- **Difficulties with communication**

Impairment of communication in individuals with ASDs is described in more detail in this section, including impairment in spoken language, stereotyped and repetitive use of language, poor comprehension of non-verbal communication, literal understanding of words, pedantic speech and pronoun reversal as discussed in the literature review.

- **Difficulties with thinking and behaving flexibly**

In this section, the impairment of social imagination in individuals with ASDs is described. It consist of inability to play imaginatively with objects, toys or other people, a tendency to select for attention minor aspects of things in the environment instead of an understanding of the whole picture, difficulty empathising with other people or seeing things from another point of view, repetitive and stereotyped activities, extremely rigid thinking, and the potential for great difficulty in coping with any changes.

- **Other associated difficulties often seen in children with ASDs**

This section aims to let parents and teachers know that children with ASDs could also have other associated difficulties, i.e. difficulties in motor coordination, sensory sensitivity and learning disabilities.

- **Motor coordination**

This section describes that children with ASDs could also have difficulties in motor imitation and control, e.g. they may have odd posture or a springy tiptoe walk, may appear clumsy or have difficulty differentiating between left and right, and up and down.

- **Sensory sensitivity**

In this section, sensory sensitivity in five senses – sight, sound, smell, touch and taste is described. Individuals with ASDs may experience either hypersensitivity or hyposensitivity. Difficulties in sensory sensitivity may also reduce body awareness;

therefore, it could be harder to navigate rooms, stand at an appropriate distance from other people or carry out 'fine motor' tasks such as tying shoelaces.

- **Learning disabilities**

This section informs parents and teachers that individuals with ASDs may also have different levels of learning disabilities. Therefore, some of them will be able to live fairly independently, although they may need a degree of support, while others may require lifelong, specialist support.

- **Special characteristics of Asperger syndrome**

This section aims to inform parents and teachers of the special characteristics of individuals with Asperger syndrome compared to individuals with autism. Since this study aims to identify children with characteristics of AS, information about differences between AS and autism must be given to parents and teachers. Even though there are arguments in the literature as to whether AS is a separate disorder from autism (Frith, 2004), several special characteristics for AS also have been perceived, as below:

- usually good language abilities (Ghaziuddin & Garstein, 1996; Ozonoff et al., 2000; Szatmari et al., 1995).
- specialised knowledge in a certain area (Ozonoff et al., 2000).
- high intelligence (average or above average IQ) (Gilchrist et al., 2001; Manjiviona & Prior, 1995; Ozonoff et al., 1991).
- difficulties in gross motor coordination/clumsiness (Gilberg, 1989; Klin et al., 1995).
- in early development, exhibiting greater social competence compared to children with HFA (Ozonoff et al., 2000).
- a stronger desire for friendship than children with HFA (Eisenmajer et al., 1996)

However, for the purpose of this information pack, only several characteristics have been chosen due to their being more easily observed in children with AS. Therefore, special characteristics of AS are stated in the information pack as:

- usually good language abilities
- specialised knowledge in a certain area
- high intelligence (average or above average IQ)
- difficulties in gross motor coordination/clumsiness

- **What parents can do to support/meet the needs of children with autism/Asperger syndrome**

This section aims to inform parents of how they can help support children with ASDs. It consists of several simple activities or actions that parents can do when they interact with children with ASDs such as use simplified speech, be clear, concise and calm and utilise visual aids in everyday interaction.

- **What teachers can do to support/meet the needs of children with autism/Asperger syndrome**

This section aims to inform teachers of how they can help to support children with ASDs. It consists of a table with several potential difficulties, effects of the difficulties on classroom activities, and strategies that have been suggested in the literature review e.g. structured approaches (Earles et al., 1998), visual support (Detter et al., 2000), social stories and comic strip (Gray 1996, 1998). On the whole, it suggested the strategies were indicated in the SIGN (2007) ('adapting the communicative, social and physical environments e.g. providing visual prompts, reducing requirements for complex social interactions, using routine, timetabling and prompting and minimising sensory irritations' pg. 17).

The teachers who involved in this study were suggested to try the teaching and learning strategies given in this section. After the data collection, they would be

contacted by the researcher through email in three different times for their feedback on the effectiveness of these strategies.

- **Support agencies in Malaysia**

This section aims to provide parents and teachers with addresses, contact numbers and emails of government and non-governmental support authorities and agencies related to children with ASDs in Malaysia, so that they could personally contact the local authorities and agencies if they had any further inquiries about children with ASDs.

- **Recommended reading**

This section recommends several books for parents and teachers who want more information about ASDs. It suggested several books related to AS and ASDs from seminal sources and established authors in this area.

- **Useful links**

This section aims to provide parents and teachers with several useful website links which is nationally or internationally established information sources for ASDs if they want more information about ASDs.

- **References**

This section **indicates** the resources used in the content of this pack.

6.3.3 Translation

Before it could be used in the pilot study, a back translation process was also done to the information pack. This means that the English version was translated into the Malay language by an expert in both languages. Subsequently, the Malay language version was translated back into English by another expert in both languages to verify that the content resembled the initial version.

6.3.4 Feedback Sheet (See Appendix 2.12)

The information pack would be given to parents and teachers of children diagnosed with autism in the SEUs involved in this study. They would be asked to give some feedback on the usefulness and suitability of the pack through a feedback sheet. Parents' and teachers' feedback in the pilot study would be used to improve the presentation of the information pack in the main study, while feedback received in the main study would be used as part of the findings of the study. It could also be used to improve the information pack to spread the knowledge on ASDs in Malaysian context in the future.

The feedback sheet contains ten straightforward 'yes/no' questions to ensure that parents and teachers could give their answers with ease. However, they could make additional comments to each question if they wanted, in the comment lines provided on the feedback sheet. The feedback sheet contains questions asking whether parents and teachers found the information pack suitable, sufficiently informative, clear and practical for them; a few other questions followed. At the end of the questions, parents and teachers could offer suggestions on how to improve the information pack.

Teachers who involved in the study would be suggested to try the teaching and learning strategies for children with ASDs given in the information pack to support the need of each child. They need to send email reports to the researcher to see the effectiveness of the strategies.

6.4 Summary

This chapter has described the aim, rationale and process of development of the information pack to be used in this study. After reading several other information packs, the criteria for the format and content of the pack were outlined. This was followed by searching for and choosing appropriate information to be put in the pack. The aims and logic behind each section of the pack have been described to illustrate their appropriateness. Parents and teachers feedback sheet and teachers reports were also devised to assess the usefulness and suitability of the information

pack for parents and teachers in this study. Finally, after the process of ‘back translation’, the pack was ready to be used in the pilot study.

CHAPTER 7

PILOT STUDY

7.1 Introduction

The pilot study was done in three schools in Malacca before the main study to see whether the procedures, participants and measures are suitable to be implemented in the main study. It was also to see whether any issues or problems would arise from the pilot study. If there were any problem occurs in the procedures, participants or measures in the pilot study, some alterations or amendments would be made for the main study. This pilot study was undertaken to test whether the proposed procedures and measures could be used effectively to attain these research objectives:

- To identify children with the characteristics of AS in a few schools in the state of Malacca, Malaysia.
- To examine the range of the profile of children with a diagnosis of autism in the special education classes at several schools in the state of Malacca, Malaysia.

Additional objective:

- To do a brief review or a light-touch audit of the teachers' and parents' reaction to the information pack

This pilot study identified children with characteristics of AS within a group of children diagnosed with autism in the SEUs and within children in mainstream classes in three representative schools in Malacca using standardised questionnaires for parents and teachers. In addition to this, several tests and checklists were also used to support the findings from the questionnaires and to examine different features and abilities of children with autism in the SEUs.

After the identification process, participating SEU parents and teachers were given an information pack which had been devised by the researcher in advance, providing information about ASDs for parents and teachers. It was created to fulfil the needs of parents and teachers of children with autism in the special education units. It was also specifically produced to be used within a Malaysian educational and cultural context. Subsequently, parents and teachers were asked to provide written comments or feedback about the information pack to make it more useful and informative when used in the main study.

In the mainstream classes, a screening test (KADI) was used to identify children with characteristics of AS. Class teachers were asked to answer a simple questionnaire for every child in their class. If any children passed the screening test, then only the class teachers need to answer the remaining part of the questionnaire and other questionnaires to confirm that the child had characteristics of AS.

7.2 Participants

Three schools in Malacca were involved in this pilot study. The schools were chosen because they have special education units and are among the few schools with numerous children with learning disabilities. They have more than 30 children in their special education units. The larger numbers of special education children would confer more possibilities that they included children with characteristics of AS. Special education children in the units include children with a range of learning difficulties, such as slow learner, dyslexia, Down syndrome, autism, mental retardation, ADHD, cerebral palsy and speech difficulties. There are also a few children with a diagnosis of quite unique difficulties, such as hydrocephalus, prada willi and Hunter syndrome. However, only children with a diagnosis of autism (n=9) (see table 7.1) and their parents and teachers were involved in this study because autism characteristics are more closely related to AS. Moreover, they are both under the same classification umbrella, i.e. Autistic Spectrum Disorders (ASDs).

Table 7.2 : Participants (Mainstream classes)

School children	Mainstream	Classes	Class teacher involved
S1	209	10	08
S2	1109	30	25
S3	326	12	11
Total	1644	52	44

S – School

Table 7.2 shows that the participants from the mainstream classes of the three schools consisted of 44 mainstream class teachers. It also shows that there were 1,644 children and 52 classes in the three schools, but only 44 class teachers were involved in this study.

7.3 Measures

As described in chapter 4, a range of measures were selected to gather data to address the research questions. The objectives, research questions and measures was summarised as shown in Table 7.3.

Table 7.3 : Objectives, Research Questions and Measures

Objectives	Research Questions	Instruments
(1) To identify children with the characteristics of AS in a few schools in the state of Malacca, Malaysia.	Would the characteristics reported by the parents and teachers for any child diagnosed with autism in the special education classes and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?	Questionnaires (ASDS, KADI, ASAS and GADS parent interview form). Standardised tests (WASI, ToPP, SPT, ToM). Language checklist and social communication checklist.

Table 7.3: Objectives, Research Questions and Measures - continue

Objectives	Research Questions	Instruments
(2) To examine the range of the profile of children with a diagnosis of autism in the special education classes at several schools in the state of Malacca, Malaysia.	What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.	Questionnaires (ASDS, KADI, GADS parent form). Tests (IQ, ToPP, SPT, ToM). Communication checklist, language stages.
(3) Additional objective: To do a brief review or a light-touch audit of the teachers' and parents' reaction to the information pack	How do parents and teachers draw upon the information obtained from the information pack?	Information pack and feedback sheet

7.4 Procedures of Data Collection (Daily schedule)

The pilot study data were collected in three schools within three weeks – one week per school. The same schedule and procedures of data collection were applied to each school, apart from some adjustments and alterations made according to the different environments and situations in different schools. Several ethical points in relation to the procedures of data collection are:

- Seeing children in the units from the first day would allow them to become familiar with the researcher.
- The assessment process for each child took place in one corner of the classroom so they would not felt alone or isolated from other children.
- The researcher stopped doing a test if a child refused to do it. The researcher also tried to make the tests interesting and playful to attract the children's attention.

- If parents felt they needed more support or information about their child's disability and education, they were given contact details of schools, state education departments, government agencies and Non-Governmental Agencies (NGOs) related to autism in Malaysia, e.g. Special Education Department, Malaysia Ministry Of Education and NASOM (The National Autism Society of Malaysia).
- The information pack was given to all involved parents, i.e. parents of children identified as having characteristics of AS and parents of other children, who were not identified as having characteristics of AS. Therefore, parents were treated fairly. Furthermore, the information pack was very useful for them in gaining more knowledge about their children.
- All parents of children with a diagnosis of autism the SEUs were told about the characteristics of their child in relation to the tests and observations carried out over the week, including where these characteristics were associated with AS. They were also told that the characteristics of AS are not actually 'better' than those of autism, just that they are different in some ways and can be supported differently and that all individuals with ASDs require individualised support.

The procedures below describe the data collection procedures in every school.

First day

On the first day, the researcher met with the head teachers and explained the data collection procedures. After that a meeting with the mainstream class teachers was held to give them some information and explanation on how the research will be done. The teachers were told that a screening process will be done to every child in the mainstream classes. To do this, the class teachers need to fill in the questionnaire. After the screening process, class teachers with children who passed the screening test were asked to answer the remaining questionnaires (KADI and ASAS). They need to return it to the researcher within one or two days.

After everything was settled with the mainstream class teachers, the researcher had to see the SEU teachers to explain the data collection procedures that would be applied in the units. They were given two questionnaires (ASDS and KADI) to answer in relation to the children with autism that they were responsible for. The teachers were also asked to give the questionnaires to parents (ASDS, KADI and GADS parent's interview form). They need to return these to the researcher within one or two days. Since the meeting was held in the units, the researcher also had the opportunity to observe children with autism in the units.

Second day

The researcher started to do the IQ test on the second day. It has four different subtests, which overall take about half an hour to be completed. However, how long it would take to finish doing the test depended on a few factors, e.g. the child's emotions condition, cognitive abilities and interest. After that, the researcher need to discuss with the teacher about the child's language and communication abilities using the Assessment of English Language Acquisition: Stage 1 to 4 (AOELA) and the communication checklist.

Third day

The Symbolic Play Test (SPT) and Test of Pretend Play (TOPP) need to be done by the third day, if the children had finished doing the IQ test. These tests, especially the TOPP, take quite a long time to be finished, depending on each child's characteristics. At the same time the researcher also need to collect the completed questionnaires from the mainstream class teachers, parents and special education unit teachers.

Fourth day

Almost the same procedures as the third day were applied to the fourth day. Questionnaires which were returned by teachers and parents had to be scored and summarised.

Fifth day

The researcher finished all the tests and checklists. After that the researcher had a discussion with parents and teachers about the results of the tests and questionnaires. At the same time the researcher handed out the information pack to them.

7.5 Results

This pilot study was done to test whether the procedures, design and instruments were suitable for use in the main study. It was designed to see whether the following research questions could be answered:

1. Would the characteristics reported by the parents and teachers, standardised tests and checklists for any child diagnosed with autism in the special education units and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?
2. What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.

Additional Question

1. How do parents and teachers draw upon the information obtained from the information pack?

Table 7.4 : Participant Data (SEUs)

School	Completion	Comments
S1		
C1	yes	-
C2	yes	-
C3	yes	-

Table 7.4: Participant Data (SEUs) - continue

School	Completion	Comments
S2		
C1	yes	
C2	no	ADHD, Can't follow instructions, No speech (no data for WASI, SPT, TOPP, ToM)
C3	yes	
S3		
C1	no	ADHD, Can't follow instructions, No speech (no data for WASI, SPT, TOPP, ToM)
C2	yes	-
C3	no	Child absent for the whole week (no data for WASI, SPT, TOPP, ToM)

SEU – Special Education Unit
S – School
C – Child

Table 7.4 shows that only six out of nine autistic children from the three schools had complete data. Comments are given to explain why the other three children could not finish or do particular tests. Two of them had ADHD, difficulties in following instructions and no speech, while one of them was absent for the whole week.

RQ 1: Would the characteristics reported by the parents and teachers, standardised tests and checklists for any child diagnosed with autism in the special education units and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?

This research question was answered using several standardised questionnaires, standardised tests and several checklists.

- **Identifying children with characteristics of AS in the SEUs**

Table 7.5 : ASDS (Probability of AS) SEUs

Child	Parents			Teacher			
	ASQ	%	Probability of AS	ASQ	%	Probability of AS	Parents/Teacher Agreement
1	133	99	very likely	80	6	possibly	Disagreement
2	101	53	likely	107	68	likely	Complete agreement
3	97	42	likely	88	18	possibly	Almost agreement
4	92	25	likely	80	6	possibly	Almost agreement
5	92	25	likely	99	47	likely	Complete agreement
6	90	21	likely	82	9	possibly	Almost agreement
7	88	18	possibly	99	47	likely	Almost agreement
8	77	05	unlikely	84	12	possibly	Disagreement
9	67	01	Very unlikely	94	30	likely	Disagreement

Table 7.5 shows the probability of each child having characteristics of AS according to the standardised questionnaires (ASDS) completed by parents and teachers of the children with a diagnosis of autism in the special education units. The ‘Asperger Syndrome Quotient’ (ASQ), ‘the percentile’, and ‘the probability of AS’ were accumulated from the raw scores for each child, using standardised tables in the ASDS’s manual. The parent-teacher agreement (complete agreement, almost agreement and disagreement) were categorised by the researcher. ‘Probability of AS’ means that if a child is ranked as ‘unlikely’ to have AS, it could be because he or she is in another category in the ‘spectrum’ of ASD, or may be not in the spectrum.

Agreement between parents and teachers was categorised into three groups, i.e. complete agreement, almost agreement and disagreement. ‘Complete agreement’ means that parents and teachers of the particular child totally agreed with each other, e.g. both said that their child is ‘likely’ to have the probability of AS. ‘Almost agreement’ means that parents and teachers of the particular child had a secondary level of agreement, e.g. one of them said that the child is ‘likely’ and the other said ‘possibly’. Answers with a combination of ‘very unlikely’ and ‘unlikely’ were also

considered as ‘almost agreement’. ‘Disagreement’ means that parents and teachers of the particular child disagreed with each other, e.g. one said that the child ‘possibly’ had these characteristics and the other said ‘unlikely’, or one said ‘unlikely’ and the other said ‘likely’. Answers with a combination of ‘possibly’ and ‘very unlikely’ were also considered as ‘disagreement’.

Table 7.6 : ASDS (Agreement on Probability of AS): SEUs

Agreement	Parent	Teacher	Child
Complete Agreement (Likely)	Likely	Likely	2, 5
Almost agreement	Likely/possibly	Possibly/likely	3, 4, 6, 7
Disagreement	Very likely	Possibly	1
Disagreement	Unlikely	Possibly	8
Disagreement	Very unlikely	Likely	9

Table 7.6 shows two instances of complete agreement between teachers and parents. Teachers and parents for children number 2 and 5 agreed that their children ‘likely’ had characteristics of AS. Parents and teachers of four other children were in ‘almost agreement’ with each other when they said that their children ‘likely’ and ‘possibly’ had characteristics of AS. Parents and teachers of three other children ‘disagreed’ with each other, e.g. the parent of child number 1 said that their child ‘very likely’ had AS characteristics but the child’s teacher said the child ‘possibly’ had such characteristics. The parent and teacher of child number 8 ‘disagreed’ with each other; the parent said that their child was ‘unlikely’ to have characteristics of AS, whereas the teacher said the child ‘possibly’ had characteristics of AS. The parent and teacher of child number 9 also did not agree with each other; the parent said their child was very ‘unlikely’ to have characteristics of AS, whereas the teacher said the child ‘likely’ had such characteristics.

Table 7.7 : KADI (Likelihood of AS) SEUs

Child	Parents			Teacher			Parents/Teacher Agreement
	Standard Score (SS)	%	Likelihood of AS Diagnosis	(SS)	%	Likelihood For AS Diagnosis	
1	-	-	-	<60	<1	Extremely low	Not Completed
2	<60	<1	Extremely low	Column A <18	-	-	Agreement (Low Likelihood)
3	<60	<1	Extremely low	Column A <18	-	-	Agreement (Low Likelihood)
4	81	12	Somewhat likely	<60	<1	Extremely low	Disagreement
5	<60	<1	Extremely low	Column A <18	-	-	Agreement (Low Likelihood)
6	Column A <18	-	-	Column A <18	-	-	Agreement (not AS at all)
7	<60	<1	Extremely low	105	63	High	Disagreement
8	<60	<1	Extremely low	<60	<1	Extremely Low	Agreement (Low Likelihood)
9	<60	<1	Extremely low	63	<1	Very Low	Agreement (Low Likelihood)

Table 7.7 shows the likelihood of each child having characteristics of AS, according to the standardised questionnaires (KADI) answered by parents and teachers. There were no children with a ‘high likelihood’ of having characteristics of AS according to their parents and teachers.

Table 7.8 : KADI (Agreement on Likelihood of AS) SEUs

Agreement	Parent	Teacher	Child
Agreement (Ext. low likelihood)	Extremely low	Extremely low	8
Agreement (Ext. low likelihood)	Extremely low	Very low	9
Agreement (Not AS at all)	Did not pass the the screening	Did not pass the the screening	6
Disagreement	Extremely low	Did not pass the the screening	2,3,5
Disagreement	Somewhat likely	Extremely low	4
Disagreement	Extremely low	High	7
Not completed data	No data	Extremely low	1

Table 7.8 shows that for the KADI questionnaire, two parents agreed with teachers that their children had a low likelihood of having characteristics of AS (children number 8 and 9). There were five disagreements between teachers and parents. For children number 2, 3 and 5, parents thought the children had an extremely low likelihood of having characteristics of AS, while the teachers thought the children did not have characteristics of AS at all (not pass the screening test). For child number 4, the parent said their child was ‘somewhat likely’, whereas the teacher said the child had an ‘extremely low’ likelihood of having AS characteristics. The parent of child number 7 said the child had an ‘extremely low’ likelihood of having AS characteristics but the teacher said the child had a ‘high’ likelihood.

Table 7.9 : Test/Checklist Scores Ranking

Scores Ranking	VIQ	PIQ	SPT	TOPP	GADS (Cog)	GADS (Lang)	Language (Listen)	Language (Speak)	Com
High (80 & above)	1	1, 3,7, 9	1, 4,7, 8, 9	1, 7	1, 4	1, 4	1	1	-
Moderate (40-80)	3,4,7, 8,9	4,8	2,3	3,4,9	2,3,5,7,8, 9	2,3,5,6, 7,8	3,4,7,9	4	1,2,3,4, 5,6,7,8, 9
Low (0-39)	-	-	-	8	6	-	2,5,6,8	2,3,5,6,7,8, 9	-
Total	6	6	7	6	9	9	9	9	9

Table 7.9 shows the test and checklist scores for children with autism in the units; these are ranked into high scores (80 and above), moderate scores (40-80) and low scores (0-39). The ranked test and checklist scores are summarised in another table (Table 4) to show each child's percentage and mean.

Table 7.10 : Summary of Test/Checklist Scores Ranking

Child	VIQ	PIQ	SPT	TOPP	GADS (Cog)	GADS (Lang)	Lang (Lang)	Lang (List)	Com (Speak)	Total	Mean	%
1	3	3	3	3	3	3	3	3	2	26	2.88	96
2	-	-	2	-	2	2	1	1	2	10	1.66	56
3	2	3	2	2	2	2	2	1	2	18	2.0	67
4	2	2	3	2	3	3	2	2	2	21	2.33	78
5	-	-	-	-	2	2	1	1	2	8	1.6	53
6	-	-	-	-	1	2	1	1	2	7	1.4	47
7	2	3	3	3	2	2	2	1	2	20	2.22	74
8	2	2	3	1	2	2	1	1	2	16	1.77	59
9	2	3	3	2	2	2	2	1	2	19	2.11	70

3 – high score 2 – moderate score 1 – low score

Table 7.10 shows that child number 1 had the highest overall score (96%) in the tests and checklists. This means that the child may have the highest possibility of having characteristics of AS. Child number 1 was followed quite far behind by child number 4 (78%), while child number 6 scored the lowest (47%) likelihood of having characteristics of AS.

- **Identifying children with characteristics of AS in the mainstream classes**

Table 7.11 : KADI Screening for Mainstream Classes

Schools	KADI Column A Score >18	Likelihood of AS Diagnosis
1	6	5 children – standard score <60, percentile <1 (extremely low) 1 child – standard score 64, percentile 1 (very low)
2	None	None
3	none	none

Table 7.11 shows the analysis of questionnaires (KADI) which were answered by the mainstream class teachers in the three schools. Six children in the first school passed the KADI screening test. They scored 18 or above in column A of the KADI. After proceeding to answer column B of the KADI, the teacher's questionnaires show that one of the students had a 'very low', and five of them had an 'extremely low', likelihood of having characteristics of AS. However, in the two other schools, no children passed the KADI screening test.

RQ 2: What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.

Differences in the characteristics of presentation amongst all children with a diagnosis of autism in the special education units are shown in the table below:

Table 7.12 : Summary of Test/Checklist Scores Ranking

Child	VIQ	PIQ	SPT	TOPP	GADS (Cog)	GADS (Lang)	Lang (List)	Lang (Speak)	Com	Total	Mean	%
1	3	3	3	3	3	3	3	3	2	26	2.88	96
2	-	-	2	-	2	2	1	1	2	10	1.66	56
3	2	3	2	2	2	2	2	1	2	18	2.0	67
4	2	2	3	2	3	3	2	2	2	21	2.33	78
5	-	-	-	-	2	2	1	1	2	8	1.6	53
6	-	-	-	-	1	2	1	1	2	7	1.4	47
7	2	3	3	3	2	2	2	1	2	20	2.22	74
8	2	2	3	1	2	2	1	1	2	16	1.77	59
9	2	3	3	2	2	2	2	1	2	19	2.11	70

3 – high score

2 – moderate score

1 – low score

Child number 1 had high scores in most of the tests and checklists, except communication, for which he had a moderate score. This kind of profile could indicate that the child seems to be the most likely to have characteristics of AS compared to the other children in this study.

Child number 2 did not have any scores in VIQ, PIQ and TOPP; he could not do the tests due to his ADHD behaviour, which intervened in the test process. He was unable to sit down and focus his attention on the tests. However, he was able to do the symbolic play test and had a moderate score; this might be because the test is not as complicated as other tests and only takes a few minutes to finish. There were scores for the language and communication checklists because these come from discussion between the researcher and the teacher, whereas the GADS Parent Interview Form was answered by the parents. He scored moderately in the GADS Parent Interview

form (cognitive and language) but low on the language checklist (listening and speaking skills), which was completed by the teacher.

The scores for child number 3 were more complicated because he had a high score for PIQ but moderate scores for the other tests and checklists, with the exception of language (speaking skills), on which he scored low.

Child number 4 scored high on the GADS parents parent interview (cognitive and language) and SPT but had moderate scores in all other tests and checklists. The table shows that he had the second highest percentage in overall scores (78%).

Both children number 5 and 6 had no scores in VIQ, PIQ, SPT and TOPP. Child number 5 has ADHD and seemed to have no response to others, whereas child number 6 did not come to school for almost the whole week when the researcher came to the school to do the pilot study. Both children scored low on the teacher's language checklist and moderate for communication and GADS parent's interview (language). They had different GADS parent's interview (cognitive) scores: child number 5 scored moderate while child number 6 scored low.

Child number 7 scored high in both of the play tests (SPT and TOPP) and PIQ, but scored moderate in VIQ, GADS parent's interview (cognitive and language) and language (listening skills).

The scores for child number 8 were quite interesting because he scored high in SPT but low in TOPP. He also scored low in both listening and speaking skills on the teacher's language checklist, but scored moderate in VIQ, PIQ and GADS parent's interview (cognitive and language).

Child number 9 scored high in PIQ and SPT, and moderate on other tests and checklists except language (speaking), on which he scored low.

Additional Question: How do parents and teachers draw upon the information

obtained from the information pack?

Parents and teachers were asked to give written feedback on the information pack in this pilot study so that it could be improved and made more effective in the main study.

Table 7.13 : Information Pack Feedback

No.	Questions	Answers
1.	Useful	yes (100%)
2.	Enough information for you	yes (100%)
3.	Practical	yes (100%)
4.	Clear	yes (100%)
5.	Enough info in all sections	yes (100%)
6.	Left out any important things	no (100%)
7.	Too much	no (100%)
8.	Discussed with teachers/parents	yes (60%)
9.	Which part is useful/suitable for you	
-	how teachers can help (7)	
-	all (1)	
-	how parents can help (5)	
-	ASD characteristics (3)	
-	support agencies (2)	
-	how to help (1)	
-	cognitive difficulties (1)	
10.	Suggestions	
-	teaching aids suitable for autistic children	
-	the effect of autistic children not having help/support	
-	give the info pack to all SEUs in Malacca	
-	info about suitable food for ADS children	
-	the info pack as a key resource for teachers and parents in SEUs and mainstream schools	
-	give pictures of ASD children and their activities	
-	hope education for autism children will be improved	
-	give examples for all facts and how to manage tantrums and behaviour problems	
-	inform where to get treatment/care centres for ASD children	

Table 7.13 shows the teachers' and parents' feedback on the information pack. They found that the information pack was useful, practical and very clear, and provided enough information in all sections. Only about 60% percent of the parents and teachers discussed the information pack with each other. Many parents and teachers found that the sections 'how parents can help' and 'how teachers can help' were most useful for them. Beside that, the 'ADS characteristics' and 'support agencies in Malaysia' sections were also found useful.

A few suggestions for additions to the information pack were given by the teachers and parents, e.g. information about teaching aids suitable for autistic children, the effects of autistic children not being helped or supported, suitable food for ASD children, pictures of ASD children and their activities, giving examples for all facts, explaining how to manage tantrum and behaviour problems, and where to find treatment or care centres for ASD children. They also suggested that the information pack should be distributed to all SEUs in Malacca and could be a key source of information for parents and teachers in the SEUs and mainstream schools. One respondent hoped that education for autistic children in the country would be improved.

7.6 Implications for the Main Study

The main objective of the pilot study was to test whether the procedures, measures and participants were suitable enough to answer the research questions, and whether the research questions could be suitably answered using the procedures, measures and participants of the study. This means that through the experiences in the pilot study, everything about the procedures, measures and participants which was found not suitable needed to be adjusted or altered for the main study.

7.6.1 Identifying Children with Characteristics of AS in the SEUs

7.6.1.1 Standardised Questionnaires

In the process of identifying children with characteristics of AS in the SEUs, the main questionnaire (ASDS) scores in Table 7.6 showed that the parents and teachers were not always in agreement with each other. Only 22% of the parents and teachers completely agreed with each other; 44% almost agreed and 33% disagreed with each other about the probability that their child had characteristics of AS. The quite high percentage of disagreement between parents and teachers over particular children may suggest that the questionnaire was insufficient to be used alone, and needed to be backed up with additional independent tests to identify children with

characteristics of AS. This supports the need to undertake several tests and checklists with the autistic children in the main study.

The result of KADI in Table 7.8 shows that more than half of the parents and teachers (56%) agreed that their children had an extremely low likelihood for AS diagnosis. The parent and teacher of child number 6 agreed with each other that the child has no likelihood at all for AS diagnosis because the child scored <18 in column A of the KADI. The extremely low scores for most of the children may suggest that KADI was not sensitive enough to be used with the autistic children in the units. For this reason KADI was discarded for the children in the SEUs but only used to screen children in the mainstream classes in the main study.

There were quite a lot of disagreements between teachers and parents about each child's characteristics in the questionnaires (KADI and ASDS). So the questionnaires needed to be re-evaluated to see whether they were clear enough, used suitable vocabulary, and were not too difficult to understand while still having the same meaning as the original version. The instructions (e.g. ASDS) should be short and clear rather than too long. Quite a lot of disagreement between teachers' and parents' answers to the questionnaires showed that the questionnaires were insufficient to be used alone. They needed to be backed up with additional independent tests.

ASDS was quite good at differentiating amongst the children in terms of ranking their probability for Asperger syndrome. It could be used in the main study but with some alterations (e.g. together with some other questions from section VI of the ASDS, which were not used in the pilot study). This would be useful because it would give more background information about each child.

7.6.1.2 Tests and Checklists

Table 7.9 shows how the children's scores on each test and checklist were ranked into high, moderate and low scores, whereas Table 7.12 summarises the ranked scores to arrive at the total and percentage of each child's scores. These tables show that child number 1 had the highest percentage (96%) of all the children, while child number 6 scored the lowest (47%). Since children with AS usually have quite high

scores in IQ, play, language and communication skills compared to children with classic autism, this may suggest that child number 1 has the highest possibility of having characteristics of AS.

The GADS parent interview would be useful as a companion to the tests and checklists, and, since parents provided answers related to the child's development and history, it gives more background information about the children. It was kept for use in the main study. In the language skills checklist (AOELA), only listening and speaking skills were used to assess the child's language skills. To get a clearer picture of each child's language and overall abilities in the main study, beside listening and speaking skills, reading and writing skills were also measured. The tests and checklists used for autistic children in the SEUs in the pilot study were found very useful to support or validate the findings from the questionnaires. They were also suitable enough to be organised within the timeframe of the study.

Parents of the autistic children were too busy to come to the school to discuss the findings from the tests and questionnaires. Therefore, in the main study the researcher would have to grasp the opportunity when they came to the school to pick up or drop off their child in the morning or afternoon to discuss the findings of the assessments.

7.6.2 Identifying Children with Characteristics of AS In Mainstream Classes

Table 7.11 shows the result of the screening process in three mainstream schools in the pilot study. Only six children from the mainstream classes in the first school passed the screening test. They scored 18 or above in the column A of the KADI. But overall scores show that five of them had an extremely low likelihood of having characteristics of AS, and one child had a very low likelihood of having AS characteristics. None of children in the mainstream classes passed the screening test in the second and third schools. This may suggest that, at least for the schools involved in the pilot study, most of the teachers think that few or no children in the mainstream classes have characteristics of AS.

This finding also suggests that even though the KADI is not sensitive enough to be used in the SEUs, it was a more suitable screening test to identify children with characteristics of AS in the mainstream classes because it only identified children with a high likelihood of having characteristics of AS. Moreover, KADI's column A has only 11 questions, which are short and easy to answer, and agrees overall with the indications from the WASI IQ test.

7.6.3 The Range of the Profile of Children with a Diagnosis of Autism in the Special Education Units

Tables 7.10 and 7.12, which show the summary of the test/checklist scores rankings, could be used to describe the differences amongst children with a diagnosis of autism in the SEUs. It shows quite a complex characteristic of presentation within children with autism. Three of them scored high, moderate and low rankings in the tests or checklists. For example, child number 3 scored high in PIQ and moderate in VIQ, SPT, TOPP, GADS parent's interview (cognitive) and (language), language (listening), but scored low in the language (speaking) checklist. Child number 7 scored high in PIQ, SPT and TOPP and moderate in VIQ, GADS parent's interview (cognitive) and (language), and language (listening), but scored low in language (speaking). Child number 8 scored high in SPT but low in TOPP, language (listening) and (speaking), and scored moderate in the other tests/checklists. Child number 9 scored high in PIQ and SPT but low in language (speaking).

Within the tests and checklists, most of the children (71%) scored high in the SPT, all of them (100%) scored moderate in communication and most of them (78%) scored low in language (speaking). This means the tests and checklists show that most autistic children in the units have quite good abilities in SPT, moderate abilities in communication and low language (speaking) skills.

7.6.4 Feedback for the Information Pack

Parents and teachers in the pilot study offered many positive comments regarding the information pack, and some suggestions on how to improve it. The most frequently

asked questions by parents and teachers were how to manage or handle autistic children, and what was the best intervention for them. To answer these questions, there are many approaches and interventions suitable for children with autism but it was not appropriate to include them all in the information pack. Therefore, in the main study one useful website (<http://www.autism.org.uk/approaches>) would be added to the information pack to answer that particular question.

7.7 Summary

The pilot study shows that the procedures, measures and participants designed for the study are adequate, with a few additional amendments needed. The results from the questionnaires, especially ASDS, are generally aligned with the tests and checklists e.g. child number 1, who scored highest for AS in the overall tests and checklists, was the only one who scored as ‘very likely’ having the characteristics of AS by the parent’s ASDS.

Even though the KADI was found not to be very sensitive to children in the SEUs, it was useful as a screening instrument for the mainstream class children since it would only identified children with a high likelihood of having characteristics of AS. Therefore it will reduce the possibility of errors in the process of screening in the mainstream classes.

Through the pilot study, the researcher found that each child with autism had their own different characteristics. Some of them were more highly functioning than the others and some of them have more severe autistic characteristics. As well as trying to find AS as a main objective of the study, it was very interesting to observe the differences in the characteristics of children with diagnosis of autism in the SEUs.

Finally, it was found that a careful pilot study contributes to the efficacy of a subsequent main study by testing the relevance of all proposed instruments and approaches. Moreover, the experience in doing the pilot study allows the researcher to become more knowledgeable and familiar about the processes and instruments that would be used in the main study.

CHAPTER 8

MAIN STUDY METHOD

8.1 Introduction

Through the pilot study, the design, participants, settings, measures and procedures of the study were tested as to their suitability for the main study. Consequently, several suggestions were made at the end of the pilot study chapter. This main study method chapter was outlined after the pilot study findings and suggestions were considered, to make sure the following objectives could be obtained:

- To identify children with the characteristics of AS in a few schools in the state of Malacca, Malaysia.
- To examine the range of the profile of children with a diagnosis of autism in the special education classes at several schools in the state of Malacca, Malaysia.

Additional objective:

- To do a brief review or a light-touch audit of the teachers' and parents' reaction to the information pack

Similar to the pilot study, this study tried to identify children with characteristics of AS in the special education units and mainstream classes of five representative schools in Malacca, and to examine the differences in the characteristics of children with a diagnosis of autism in the SEUs.

In the special education units, parents and teachers of children with a diagnosis of autism were involved in answering a standardised questionnaire, while the children with a diagnosis of autism were given several tests to measure their abilities in IQ, language, communication and play. In the mainstream classes, class teachers were involved in answering a short screening test for each child in their class, especially the children with the highest probability of having characteristics of AS.

After the identification process, participating parents and teachers were given an information pack to help them to gain more knowledge about autism and AS. Parents and teachers were also asked to give their written comments or feedback on the information pack.

There was one further additional objective for the main study, i.e. to see whether the identification of children with characteristics of AS and the information pack would help the SEU teachers understand more about children with ASDs. Therefore, the SEU teachers were asked to give their reports in three different times after the data collection.

8.2 Design

This study used the children's individualised data and grouped data description to identify which children had characteristics of AS and to compare the features amongst the children, and used an individual case study approach to describe each child's characteristics in examining the differences in characteristics of presentation for all children with a diagnosis of autism in the SEUs. Even though the individual case study approach used in this study was not extensively in-depth and was not a longitudinal study, it was useful to describe the complex different features of children with autism spectrum disorders in the special education units.

The standardised questionnaire used in this study was specifically designed to identify individuals with AS. The purpose of using the standardised questionnaire was to gather information in a range of areas to clarify whether children involved in the study had characteristics of AS. The advantages of using the questionnaire, as indicated by Gillham (2007), are that it is an easy and practical way to get information from many people; respondents can complete the questionnaire to suits their time; it requires little time or money; and the structured questions and answers can eliminate an element of bias. It also provides standardised comparable data; therefore, it was used in this study.

Several standardised tests were also used in this study to assess children with autism in the special education units. Most of the measures were standardised and widely

used in studies related to autism. The standardised comparative data provided by the tests and measures could be invaluable to support findings from the standardised questionnaires to identify children with characteristics of AS. Each child's test scores would also be very useful in describing the unique individual features of children with autism.

The data analysis was done in several ways. The standardised questionnaire was scored to see which children had the highest probability or likelihood of having characteristics of AS. A comparison was also made between parents' and teachers' answers to perceive their level of agreement regarding children's probability or likelihood of having characteristics of AS. The scores from the various standardised tests were ranked into high, moderate and low scores. These were mainly used to support the findings from the standardised questionnaires, as well as to describe the different features of autistic children in the special education units. The information pack was assessed through feedback from parents and teachers, and teachers' reports were used to indicate whether the identification of children with characteristics of AS and the information pack would help SEU teachers understand more about children with ASDs.

8.3 Participants

8.3.1 Participants from the SEUs and Mainstream Classes

Five representative schools in the state of Melaka, Malaysia, were involved in this study. The schools were chosen because they have special education units and are among the few schools with numerous children with learning disabilities. Most of the schools have more than 20 children in their special education units. The larger number of special education children would increase the likelihood of there being children with characteristics of AS in the schools. Special education children in the units included a range of children with learning difficulties, such as slow learner, dyslexia, Down syndrome, autism, mental retardation, ADHD, cerebral palsy and speech difficulties.

Only one of the involved schools had fewer than 20 children with learning difficulties in the unit. Since this particular unit was very recently set up, it did not have as many children and still did not have proper settings and classrooms. The school was still involved in the study because it would be interesting to see how children with autism could cope with this newly set up environment.

In the special education units, only children with a diagnosis of autism, their parents and teachers were involved in the study because autism characteristics are more closely related with AS. Moreover they are both under the same classification umbrella, i.e. Autistic Spectrum Disorders (ASDs).

Table 8.1 : Special Education Units: Participants

School	Autistic Children involved	Parents involved	Teachers involved
S1	5	5	3
S2	2	2	2
S3	5	5	4
S4	3	3	3
S5	1	1	1
Total	16	16	13

S – School

Table 8.1 shows that the participants in the main study consisted of 16 autistic children in the special education units (aged 7 to 12), 16 parents of autistic children, 13 SEU teachers.

Table 8.2 : Mainstream classes: Children and class teachers involved

School	Mainstream Children	Classes	Class Teacher Involved
S1	455	13	10
S2	430	13	11
S3	375	11	09

Table 8.2 : Mainstream classes: Children and class teachers involved-continue

School	Mainstream Children	Classes	Class Teacher Involved
S4	540	15	11
S5	629	17	13
Total	2429	69	54

S – School

Table above shows the participants for the study in the mainstream classes. It consist of 2429 mainstream children from five schools in Malacca. The total of classes in the schools are 69 and 54 class teachers were involved in the study.

Table 8.3 : Mainstream classes: Children and class teachers involved in further inquiries

School	Class teachers involved in screening test	Class teachers involved in further inquiries	Mainstream children involved in further inquiries (passed the screening test)
S1	10	0	0
S2	11	1	1
S3	09	0	0
S4	11	0	0
S5	13	1	3
Total	54	2	4

S – School

Table 8.3 shows that 54 mainstream class teachers were involved in the screening test. However, only two teachers and four children from the mainstream classes were involved in further inquiries.

Table 8.4 : Participants' Apparent Language Features: SEUs

Child	Age (M)	Diagnosis	Apparent Language Features
1	103	ADHD & autism	no speech
2	123	autism	no speech
3	109	autism	no speech
4	92	autism	can speak (talkative, with repetitive words)
5	133	autism	can speak but not very clearly
6	83	autism	can speak clearly

Table 8.4 : Participants' Apparent Language Features: SEUs - continue

Child	Age (M)	Diagnosis	Apparent Language Features
7	123	autism	can speak but not very clearly
8	131	autism	can only pronounce a few words, not very clearly
9	106	delayed development ASD	no speech
10	127	autism	no speech (twin)
11	127	autism	no speech (twin)
12	79	autism	no speech
13	121	autism and slow learner	can speak clearly, sometime uses formal/complete sentences but has a small vocabulary
14	88	autism	can speak but not very clearly
15	102	autism	no speech, does not respond to others
16	125	autism	Can speak clearly, always uses complete/ formal sentences

Table 8.4 shows the age, diagnosis and apparent features of children with a diagnosis of autism in the units. It shows that the oldest child was 133 months old and the youngest was 79 months old. Most of the children had a diagnosis of autism, except child number 1, who has ADHD and autism, child number 9, who has delayed development and ASD, and child number 13, who has autism and is a slow learner. It also shows that there were eight children who had no speech, three children who could speak clearly, three children who could speak but not very clearly, one child who could speak with repetitive words, one child who could only pronounce a few words, not very clearly, and one child who always used complete or formal

sentences. There was also a pair of monozygotic twin (children number 10 and 11), and one child who showed no response to other people.

8.3.2 Recruitment

Information letters with consent forms asking the schools to be involved in the study were sent to the chosen schools, with approval from the Malaysia Education Planning Unit and the Malacca State Education Department. Head teachers in the schools that agreed to participate were asked to distribute information letters and consent forms to relevant staff (special education unit teachers and mainstream class teachers). Teachers were asked to return the consent forms directly to the researcher by email or post. Information letters with consent forms for parents of children with autism in the SEUs were also sent to the schools; the special education teachers were asked to hand these to them. Parents were asked to return the consent forms directly to the researcher by email or post. All of the teachers and parents agreed to take part in the study. They returned the consent form to the researcher by email and post; a few of them also returned them on the first day the researcher came to the school for data collection.

8.4 Measures

The structure of the main study could be summarised as below:

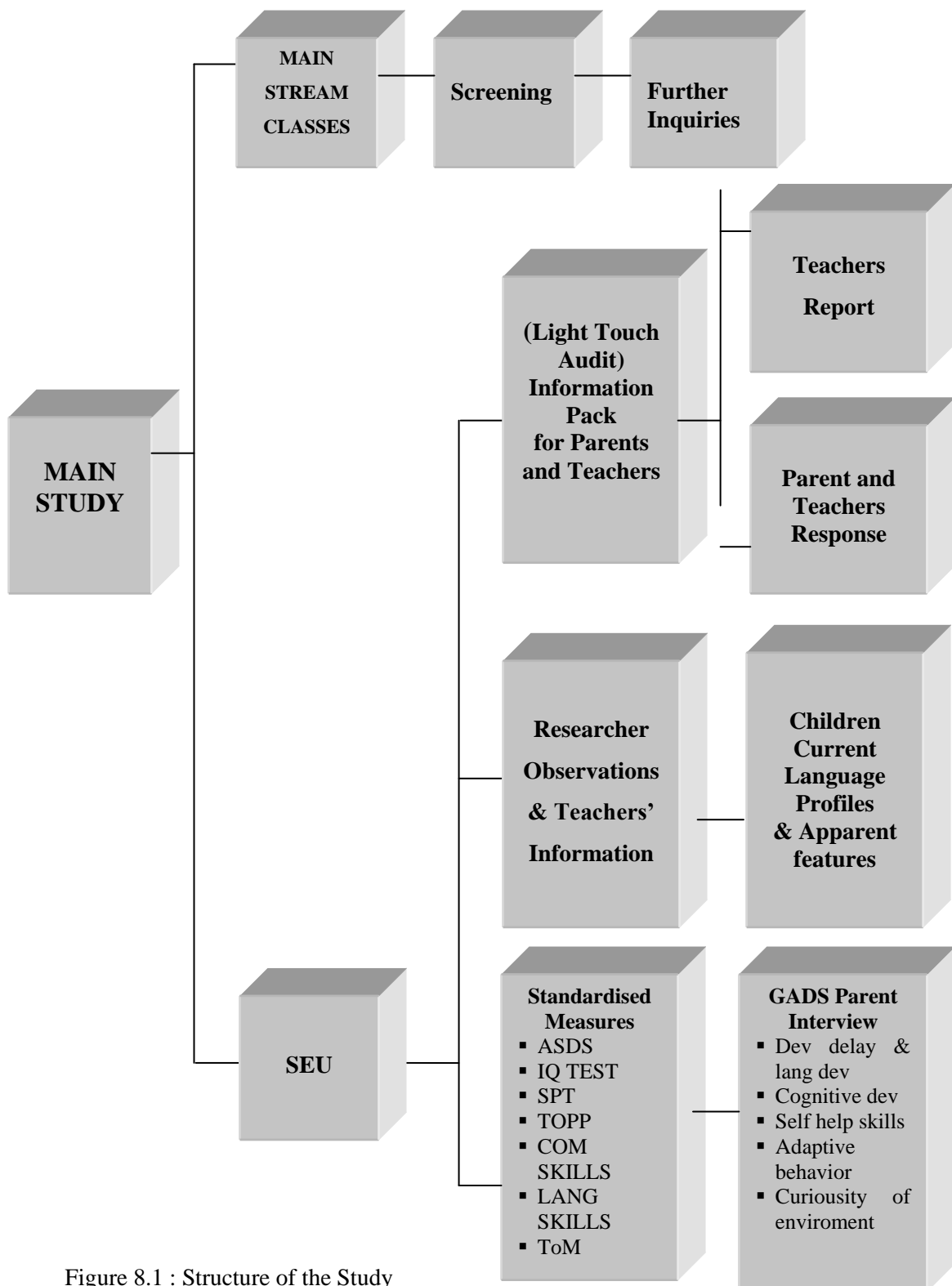


Figure 8.1 : Structure of the Study

8.4.1 Amendments That Have Been Done After the Pilot Study

Instruments or measures used in this study were tested in the pilot study to see whether they were appropriate to answer the research questions. For this reason, after the pilot study, a few alterations were made to the measures. The measures used in this study and the alterations made after the pilot study are described below:

Asperger Syndrome Diagnostic Scale (ASDS) (Myles, Jones-Bock & Simpson, 2000)

As a result of the pilot study, a few amendments were made in translation (in the Malay language version):

- Alterations were made to 46% (23 of 50 questions) of the translated version by using easier, more understandable words.
- Alterations were also made to the instructions on how to answer the questions (reduced from 83 words to 34 words) to make it more clear and understandable.
- None of the alterations made after the pilot study changed the meaning from the original, English version of ASDS. Only one question was altered to be different from its original version, i.e. a question in maladaptive subscale number 6:
 - ‘Appears depressed or has suicidal tendencies’ was changed to:
 - ‘Appears depressed’

The reason for this is because the phrase ‘has suicidal tendencies’ can be distressing, especially for parents of children with autism and not culturally aligned. However, the focus of the question was not changed.

- Section IV (with 10 questions especially for parents) of the original version of ASDS was not used in the pilot study. However, in the main study, five of the questions were included because they could give some information about the history and background of the children, i.e.:
 - At what age did the unusual behaviour first occur?
 - Does the unusual behaviour occur in all settings?
 - Who has evaluated the person and what were the results?
 - What areas are most affected? What are the symptoms?
 - How severe are the symptoms? How do the symptoms interfere with everyday function?

However, another five questions were not included in the main study because they are quite difficult for teachers and parents to answer, i.e.:

- Could the unusual behaviour be the result of another handicapping condition?
 - What assessments and evaluations have been conducted?
 - Are disturbances noted in the areas of the DSM IV or ICD-10 definitions?
 - What information needs to be collected? Who can supply the information?
 - What resources are available for further evaluation?
- In the main study, another column for ‘comments’ was added, beside ‘observed’ and ‘not observed’. This was to give parents and teachers the opportunity to write comments related to the items or questions.

Krug Asperger's Disorder Index (KADI) (Arick & Krug, 2003)

Results from the pilot study showed that most children with a diagnosis of autism in the SEUs scored extremely low in KADI. This shows that KADI may not be sensitive enough or possibly not suitable to be used to identify children with characteristics of AS within children with a diagnosis of autism in the SEUs. Therefore, in the main study KADI was not used for children in the SEUs.

However, KADI does overall agree with the indications from the IQ test (WASI). It could still be used in the mainstream classes to identify children with characteristics of AS since it would only identify children with stronger features of AS in the mainstream classes. Therefore, in the main study KADI was used as a screening test to identify children with characteristics of Asperger syndrome in the mainstream classes. Sentences used in the initial and translated versions of the KADI were found suitable and short enough to be used by parents and teachers; therefore, no alteration was done to the KADI used in the mainstream classes in the main study.

As a screening test in the mainstream classes, class teachers had to answer 11 items in column A of the KADI for all children in their class. Only children who passed the cut-off point (scored 18 and above) could be included in further investigation using column B of KADI.

Gilliam Asperger's Disorder Scale (GADS) Parent Interview Form (Gilliam, 2000)

The purpose of the GADS Parent Interview Form is to examine whether there are any clinical delays in language, cognitive development, adaptive behaviour or curiosity about the environment, as stated in the DSM-IV-TR diagnosis of AS. The parent interview form items are not summed and do not contribute to the GADS rating scale.

Parents of children with autism in the special education units were given this extra parent's interview to get more information about their child's developmental history. The overall GADS parent interview form can be answered within only 5 to 10 minutes.

After the pilot study, a few alterations were made to the GADS parent's interview form, as below:

- a. 27% of the translated version was altered to make it is easier for the parents to understand.
- b. The 'comments' column was also added to the GADS parent interview form so parents and teachers could make any comments regarding the questions.

Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 1999)

There were no changes made to the standardised test's procedures (WASI, SPT, TOPP) in the main study. They were found suitable and could be implemented within the timeframe of the study. Moreover, the experiences in the pilot study helped the researcher to be more efficient in time management and in the accuracy of the implementation of the tests.

Symbolic Play Test (SPT) (Lowe & Castello, 1976)

SPT was used in this study because it can evaluate children's spontaneous non-verbal play activities in a structured situation, which can assist other measures in identifying children with characteristics of AS. It would also enable the researcher to observe children as they play with miniature toys in a variety of situations.

The Test of Pretend Play (TOPP) (Lewis & Boucher, 1997)

TOPP was designed to measure a child's ability to play symbolically in structured play conditions and in unstructured, free play conditions. Furthermore, it is a perfect instrument to assess the three different types of symbolic play: substituting one object or person for another, attributing an imagined property to an object or person, and reference to an absent object, person or substance. It only takes about 45 minutes to administer.

Both SPT and TOPP were used in this study to cover the different range of pretend play abilities amongst children with a diagnosis of autism in the SEUs. TOPP is more

suitable for children with higher abilities in symbolic play, whereas SPT, which observes children's functional play abilities, is more suitable for children with lower abilities in symbolic play, or who have more severe autistic features.

Communication checklist

The communication checklist was used in this study to perceive the level of social and communication skills within children with a diagnosis of autism in the special education units. After the pilot study, to make the questions more clear and understandable, 14% of the questions were altered in their translated versions. The meaning of the questions remained the same as in the original version.

Only one word was changed from the original version, i.e. Engagement in social interaction:

- Uses names to get attention, e.g. 'mummy'

The sentence was changed to:

- Uses names to get attention, e.g. 'teacher'

The reason for this was because the questionnaire was only used with the teachers, and in Malaysia children always call the teachers 'teacher'.

Assessment of English Language Acquisition: Stage 1 to 4

The Assessment of English Language Acquisition: Stage 1 to 4 was used in this study to examine the development of the children's language. It was useful to categorise the children's abilities in language skills. It also gives sensitive details of children's pre-linguistic communication abilities, which were very suitable for use with children with a diagnosis of autism, who usually have very complex features of language abilities.

In the pilot study, only the listening and speaking checklists were discussed with the teachers, but in the main study, reading and writing skills were also discussed. The

reason for this was because reading and writing skills are also important in giving an indication of a child's abilities, particularly in language development.

Information pack

After identifying children with characteristics of Asperger syndrome, the SEU teachers, mainstream class teachers and all parents involved in the study were given an information pack. It contained information about Autism Spectrum Disorder (ASD), i.e. core characteristics of ASD in detail, special characteristics of Asperger syndrome, how teachers and parents could support or help autistic children, support agencies in Malaysia, recommended readings and useful links/websites.

In the pilot study, comments/feedback sheets were given to parents and teachers with the information pack in order to obtain comments and suggestions. There were many positive comments from the teachers and parents, with some suggestions on how to improve it. The most frequent suggestions from parents and teachers were to include strategies on how to manage or handle children with autism, and what the best intervention for them was. Since there are many approaches and interventions for autism, there was not enough space to put them all in the tiny information pack. Therefore, in the main study one useful website was added to the information pack: <http://www.autism.org.uk/approaches>

Teacher's report

In the main study, a teacher's report sheet was given to the SEU teachers and collected in three different times using email after the data collection. This was to test whether the identification process and the information pack helped the SEU teachers in altering their ways of working with the children, to meet their needs and allow them to reach their potential.

Brief information of findings with teachers and parents

In the pilot study, brief information of findings with teachers and parents about children's scores in the standardised questionnaires, tests and checklist was not planned very well. So the findings could not be informed effectively with the parents

and teachers. Therefore, in the main study, towards the end of the week brief information of findings were given to the parents and teachers.

8.5 Ethical Issues

Questionnaires for parents of children with autism in the SEUs were chosen and adapted carefully by the researcher to make sure they were not harmful to the parents' emotions or sensibilities. Moreover, the researcher is a lecturer in a teacher's training institute in Malaysia and is experienced in working with teachers, parents and children with disabilities. However, a few ethical issues and their resolutions are outlined below:

- The questionnaires were quite descriptive and did not ask too many questions about the child's history, e.g. in the ASDS questionnaires, parents only had to circle 'observed' or 'not observed', and in the GADS Parent Interview, parents only had to circle 'yes' or 'no' to answer the questions.
- Seeing children in the unit from the first day allowed them to become familiar with the researcher.
- The assessment process for each child took place in one corner of the classroom so they would not feel alone or isolated from other children.
- The researcher stopped doing a test if a child refused to do it. The researcher also tried to make the tests interesting and playful to attract the child's attention.
- When parents felt they needed more support and information about their child's disability and education, they were given contact details of schools, state education departments, government agencies and Non-Governmental Agencies (NGOs) related to autism in Malaysia, e.g. the Special Education Department, the Malaysia Ministry Of Education and NASOM (The National Autism Society of Malaysia).
- The information pack was given to all parents in the SEUs, i.e. parents of children identified as having characteristics of AS and parents of other children, who were not identified as having characteristics of AS. Therefore,

parents were treated fairly. Furthermore, the information pack would be very useful for them to gain more knowledge about their children.

- All parents of children with a diagnosis of autism the SEUs were told about the characteristics of their child in relation to the tests and observations carried out over the week, including where these characteristics were associated with Asperger Syndrome. They were also told that the characteristics of AS are not actually 'better' than those of autism, just that they are different in some ways and may necessitate different support.

8.6 Procedures and Data Collection

The main study data were collected in five schools within five weeks – one week per institution. The same schedule and procedures of data collection were applied to each government school, except for a few adjustments and alterations made according to the different environment and situation in the different schools. In the government schools, the procedures to identify children with AS characteristics within a group of children with a diagnosis of autism in the special education units used standardised questionnaires for parents and teachers. In addition to this, several tests and checklists were also used to support findings from the questionnaires. In the mainstream classes, the procedures to identify children with AS characteristics used a screening test. Class teachers were asked to answer a simple questionnaire for every child in their class. If any child passed the screening test, the class teachers were asked to continue answering another part of the questionnaire to confirm that the child had characteristics of AS.

After the identification process, participating SEU teachers and parents were given an information pack created by the researcher in advance, providing information about ASDs for parents and teachers. It was created to fulfil the needs of parents and teachers of children with autism in the special education units after the identification process. It was also specifically devised to be used within a Malaysian educational and cultural context.

The procedures below describe the data collection process in every school:

First day

On the first day, the researcher met with the head teachers and explained the data collection procedures. A meeting with the mainstream class teachers was held to give explanations on how to screen every child in the mainstream class. After the screening process, class teachers with children who passed the screening test were asked to answer the remaining questionnaire (KADI). They were asked to return it to the researcher within one or two days.

While the mainstream teachers doing the screening test, the researcher had to see the SEU teachers to explain the data collection procedures that would be applied in the units. They were given a questionnaire (ASDS) to answer in relation to the autistic children they were responsible for. The teachers were also asked to pass on the questionnaires for parents (ASDS and GADS parent's interview). They were asked to return these to the researcher within one or two days. Since the meetings were held in the units, the researcher also had the opportunity to observe children with autism in the units.

Second day

The researcher started to do the IQ test within the second day because it has four different subtests, which took about half an hour to complete. How long each child took to complete the tasks depended on a few factors, e.g. the child's emotions, cognitive abilities and interest. At the same time the researcher had to discuss each child's language stages (AOELA) and communication checklist with the teachers.

Third day

Symbolic Play Test (SPT) and Test of Pretend Play (TOPP) were done by this time if the children had finished the IQ test. These tests, especially the TOPP, take quite a long time to finish, depending on each child's characteristics. The researcher also had to receive the questionnaires from the mainstream class teachers, parents and special education unit teachers.

Fourth day

Almost the same procedures as the third day were applied to the fourth day. Questionnaires which were handed back by teachers and parents had to be scored and summarised.

Fifth day

The researcher finished all the tests and checklists, had a discussion with parents and teachers about the findings and handed out the information pack.

8.7 Summary

This chapter has discussed the main study method. After the pilot study, some procedures and instruments that were found not suitable have been eliminated or adapted to be used in the main study. The process of data collection was done appropriately and the findings will be analysed in the next chapter.

CHAPTER 9

RESULTS

9.1 Children with Autism in the SEUs

9.1.1 Introduction

This section describes the results of the main study, particularly related to 16 children diagnosed with autism in the special education units of five schools in Melaka. This section is used to answer the research questions of whether there are any children with characteristics of AS within children with a diagnosis of autism in the SEUs, and whether there are any differences in the characteristics of children with a diagnosis of autism in the SEUs. To answer these questions, 16 parents and 13 special education teachers were involved in answering a standardised questionnaire (ASDS) which was purposely constructed to identify children with AS. Two checklists were also answered by the teachers, and several standardised tests were conducted with the children sequentially to investigate more specific features of each child. To ensure the confidentiality of the children's identity, they were labelled as child 1 to child 16.

9.1.2 ASDS

Table 9.1 : ASDS (Probability of AS)

Child	Parents			Teachers			
	ASQ	%	Probability of AS	ASQ	%	Probability of AS	Parent/Teacher Agreement
1.	86	14	possibly	97	42	likely	Almost agreement
2.	99	47	likely	80	6	possibly	Almost agreement
3.	80	6	possibly	77	5	unlikely	Disagreement
4.	84	12	possibly	86	14	possibly	Complete agreement
5.	94	30	likely	99	47	likely	Complete agreement
6.	127	97	very likely	114	82	very likely	Complete agreement
7.	71	2	unlikely	90	21	likely	Disagreement
8.	90	21	likely	80	6	possibly	Almost agreement

Table 9.1: ASDS (Probability of AS) - continue

Child	Parents			Teachers			Parent/ Teacher Agreement
	ASQ	%	Probability of AS	ASQ	%	Probability of AS	
9.	69	1	very unlikely	80	6	possibly	Disagreement
10.	94	30	likely	97	42	likely	Complete agreement
11.	94	30	likely	84	12	possibly	Almost agreement
12.	69	1	very unlikely	73	3	unlikely	Almost agreement
13.	82	9	possibly	97	42	likely	Almost agreement
14.	101	53	likely	101	53	likely	Complete agreement
15.	88	18	possibly	90	21	likely	Almost agreement
16.	128	97	very likely	120	91	very likely	

Table 9.1 shows the probability of each child having characteristics of AS according to the standardised questionnaires (ASDS) answered by the parents and teachers of children with a diagnosis of autism in the special education units. The ‘Asperger Syndrome Quotient’ (ASQ), ‘the percentile’, and ‘the probability of AS’ were accumulated from the raw scores of each child, using standardised tables in the ASDS’s manual. The parent-teacher agreement (complete agreement, almost agreement and disagreement) were categorised by the researcher. The ‘probability of AS’ means that if a child is ‘unlikely’ to have AS, this could be because he or she is in another category in the ‘spectrum’ of ASDs, or may be not in the spectrum.

Parent-teacher agreement was categorised into three groups, i.e. complete agreement, almost agreement and disagreement. ‘Complete agreement’ means that the parent and teacher of the particular child totally agreed with each other, e.g. both said that the child is ‘likely’ to have the probability of AS. ‘Almost agreement’ indicates a secondary level of agreement, e.g. either one of them said that their child is ‘likely’ and the other said ‘possibly’. The answers with a combination of ‘very unlikely’ and ‘unlikely’ were also considered as ‘almost agreement’. ‘Disagreement’ means that the parent and teacher of the particular child disagreed with each other, e.g. one of them said that the child ‘possibly’ has characteristics of AS and the other said this was ‘unlikely’, or one of them said ‘unlikely’ and the other said ‘likely’. Answers with a combination of ‘possibly’ and ‘very unlikely’ were also considered as ‘disagreement’.

Table 9.2 : ASDS (Agreement in Probability of AS)

Agreement	Parent	Teacher	Child
Complete Agreement (Very likely)	Very likely	Very likely	16, 6
Complete Agreement (Likely)	Likely	Likely	5, 10, 14
Complete Agreement (Possibly)	Possibly	Possibly	4
Almost agreement	Likely/possibly	Possibly/likely	1, 2, 8, 11, 13, 15
Disagreement	Unlikely	Likely	7
Disagreement	Possibly	Unlikely	3
Disagreement	Very unlikely	Possibly	9
Almost agreement	Very unlikely	Unlikely	12

Table 9.2 shows that, using ASDS (probability of AS), there were six children whose parents and teacher were in ‘complete agreement’ about their child’s characteristics (children 16, 6, 5, 10, 14 and 4). Among these parents and teachers in ‘complete agreement’, only two of them completely agreed that their child (children number 16 and 6) ‘very likely’ had characteristics of AS, three of them completely agreed that their child (children number 5, 10 and 14) ‘likely’ had characteristics of AS, and one of them completely agreed that their child (child number 4) ‘possibly’ had characteristics of AS. The table above also shows that there were seven children (children number 1, 2, 8, 11, 12, 13 and 15) whose parents and teachers ‘almost agreed’ with each other about their child’s probability of having characteristics of AS. There were also three children (children 7, 3 and 9) whose parents and teachers ‘disagreed’ about their child’s probability of having characteristics of AS.

The sequence of ‘complete agreement’ (very likely, likely and possibly), ‘almost agreement’ and ‘disagreement’ shown in the table above will be used in organising different orders for each child, as shown in Table 8.3 below. This different order of children 1 to 16 will be very useful in describing the characteristics of each child in different tests and checklists in comparison to the standardised ASDS agreement between parents and teachers about the children’s probability of having characteristics of AS.

Table 9.3 : ASDS (Probability of AS) in different orders

Child	Parents			Teachers		
	ASQ	%	Probability of AS	ASQ	%	Probability of AS
16.	128	97	very likely	120	91	very likely
6.	127	97	very likely	114	82	very likely
5.	94	30	likely	99	47	likely
14.	101	53	likely	101	53	likely
10.	94	30	likely	97	42	likely
4.	84	12	possibly	86	14	possibly
13.	82	9	possibly	97	42	likely
1.	86	14	possibly	97	42	likely
8.	90	21	likely	80	6	possibly
2.	99	47	likely	80	6	possibly
11.	94	30	likely	84	12	possibly
15.	88	18	possibly	90	21	likely
7.	71	2	unlikely	90	21	likely
3.	80	6	possibly	77	5	unlikely
9.	69	1	very unlikely	80	6	possibly
12.	69	1	very unlikely	73	3	unlikely

The five different background colours in Table 9.3 indicate five different groups of children with autism in the SEUs. They were categorised as ‘complete agreement’ (very likely, likely, possibly), ‘almost agreement’ and ‘disagreement’ by their parents and teachers regarding their ASDS’s probability of having characteristics of AS. Children number 16 and 6 have been put in the highest order because they are in the group of ‘complete agreement’ (very likely) regarding having characteristics of AS. They are followed in the second order by children number 5, 14 and 10, who are in the group of ‘complete agreement’ (likely). Child number 4 is in the third order, with ‘complete agreement’ (possibly). Children number 13, 1, 8, 2, 11 and 15 are in fourth order, the group of ‘almost agreement’ (possibly/likely), whereas children number 7, 3, and 9 are in the fifth order, the group of ‘disagreement’. Child number 12 has been put in the last order even though he is in the group of ‘almost agreement’ because his probability of having characteristics of AS is (very unlikely/unlikely).

This different order in probability of having AS is used in the following tables to describe the characteristics of children with autism in the SEUs in relation to their

scores and achievements in the tests and checklists conducted on them. Therefore, the individual variation of children with autism could be examined and children with a higher probability of having AS features could be highlighted simultaneously.

9.1.3 IQ Test

WASI IQ test was conducted with autistic children in the special education units to determine their level of cognitive functioning. It comprised three main elements, i.e. verbal IQ (vocabulary and similarities), performance IQ (block design and matrix functioning) and full scale IQ. IQ scores for each child were accumulated from the raw scores using the standardised tables in the WASI manual. The children's age was considered in the calculation of the standardised scores; therefore, two children with same raw scores possibly had different IQ scores due to their different ages.

Table 9.4 : WASI IQ Test

Child	Verbal IQ	Performance IQ	Full Scale IQ
16	87	72	77
6	73	94	81
5	58	103	78
14	61	68	62
10	55	59	54
4	60	67	61
13	70	74	69
1	57	64	57
8	55	59	54
2	55	60	54
11	55	59	54
15	57	64	57
7	55	76	65
3	55	62	55
9	57	63	57
12	64	71	65

Table 9.4 shows that in verbal IQ, only children number 16 and 6 from the highest order group of agreement (very likely), and child number 13 from the fourth order group, scored within the normal IQ range (70 and above). Other children, including children from the second order group of agreement between parents and teachers, were below normal IQ range in their verbal IQ.

In performance IQ, six children scored within the normal IQ range, including children number 16 and 6 from the highest order group, child number 5 from the second order group, child number 13 from the fourth order group, and children number 7 and 12 from the fifth order group. Child number 5 from the second order group scored a remarkable highest score, followed by child number 6 from the first order group.

Only three children scored within the normal IQ range in the full scale IQ: child number 6 from the first order group scored highest, followed by children number 5 and 16, while child number 13 was only one point below normal IQ range in full scale IQ.

On the whole, only two children scored within the normal IQ range in their verbal, performance and full scale IQ (children number 16 and 6). Child number 5 scored highest in performance IQ and scored within normal IQ range in full scale IQ, however scored below normal IQ range in verbal IQ. Child number 13 scored within normal IQ range in verbal IQ and performance IQ, and one point below normal IQ range in full scale IQ. All children with autism in the SEUs had better performance IQ scores than verbal IQ scores, except child number 16, who had better verbal IQ scores than performance IQ. This findings may suggest that children with autism usually score higher in VIQ when compared to PIQ whereas children with characteristics of AS may had better VIQ than PIQ.

9.1.4 Symbolic Play Test

All pretend play, whether functional or symbolic, reflects a child's conceptual knowledge and understanding. Symbolic Play Test (Lowe & Castello, 1976) was used in this study to examine functional play of children with autism in the SEUs. Even though it uses the name 'Symbolic Play Test', it particularly assesses functional play because of its use of realistic representational toys. The test is actually applicable to children aged 1 to 3; however, it is considered appropriate to assess functional play of autistic children from age 7 to 11 in this study. Total scores can be

accumulated into age-equivalent scores, so that the researcher could compare the child's functional play with that of normally developing children aged 1 to 3 years.

Table 9.5 : Symbolic Play Test

Child Score	Total	Months	Age
16	23	>36	10y 5m (10)
6	21	33.7	6y 11m (7)
5	21	33.7	11y 1m (11)
14	21	33.7	7y 4m (7)
10	0	<12	10y 7m (11)
4	17	28.5	7y 8m (8)
13	19	31.1	10y 1m (10)
1	17	28.5	8y 7m (9)
8	2	<12	10y 11m (11)
2	0	<12	10y 3m (10)
11	1	<12	10y 7m (11)
15	1	<12	8y 6m (9)
7	21	33.7	10y 3m (10)
3	1	<12	9y 1m (9)
9	9	18	8y10m (9)
12	0	<12	6y 7m (7)

Table 9.5 shows that only child number 16 (10 years old) from the highest order group had functional play appropriate for age 3 and above. Child number 6 (7 years old), also from the highest order group, children number 5 (11 years old) and 14 (7 years old) from the second order group, and child number 7 (10 years old) from the fifth order group have functional play appropriate for age 2.8 years. Child number 13 (10 years old) from the fourth order group has functional play appropriate for age 2.6 years, while child number 4 (8 years old) from the third order group and child number 1 (9 years old) from the fourth order group have functional play appropriate for age 2.4 years. Child number 9 (9 years old) from the fifth order group has functional play appropriate for age 1.5 years. Other children have functional play appropriate for age less than 1 year old, including child number 10 (11 years old) from the second order group.

On the whole, children with autism score quite low in the SPT when compared to their biological age. This finding proved that children with autism have difficulties in pretend play. Difficulties and delay in understanding symbolism related to pretend

play would result the child to experience failure in developing and practising social skills.

Table 9.6 : SPT Subtests

Child	S1	S2	S3	S4
16	5	5	8	5
6	3	5	8	5
5	3	5	7	6
14	4	5	7	5
10	0	0	0	0
4	5	4	3	5
13	1	5	7	6
1	3	2	6	6
8	1	0	0	1
2	0	0	0	0
11	0	0	0	1
15	0	0	0	1
7	3	5	8	5
3	0	0	0	1
9	5	2	1	1
12	0	0	0	0
Max	5	5	8	6

S – Situation

S1 – Discriminate handling of the doll; relates spoon to cup or saucer; feeds, combs or brushes self or other person; feeds, combs or brushes doll; places cup on saucer.

S2 – Discriminate handling of doll; relates doll to bed; relates blanket or pillow to doll; puts doll to bed; uses pillow correctly.

S3 – Relates knife or fork to plate; relates fork, knife or plate to table; relates tablecloths to other object; places doll on chair; relates fork, knife or plate to doll; relates chair to table; relates doll to table; places tablecloth on table.

S4 – Moves tractor or trailer along; relates log(s) to tractor, trailer or man; places man in tractor or trailer, places man in driver's seat; lines up tractor and trailer; attaches tractor to trailer.

Table 9.6 shows SPT subtest scores of children with autism in the SEUs. It shows that only three children scored maximum in situation 1 (children number 16, 4 and 9), while six children scored 0 (children number 10, 2, 11, 15, 3 and 12). In situation 2, six children scored maximum (children number 16, 6, 5, 14, 13 and 7), while seven children scored 0 (children number 10, 8, 2, 11, 15, 3 and 12). Only three children scored maximum (children number 16, 6 and 7) in situation 3, while seven children scored 0 (children number 10, 8, 2, 11, 15, 3 and 12). In situation 4 only three children scored maximum (children number 5, 13 and 1), while three children scored 0 (child number 10, 2 and 12).

9.1.5 Test of Pretend Play

Test of Pretend Play (Lewis & Boucher, 1997) was used in this study to measure the ability of children with autism in the SEUs to play symbolically in structured play conditions. The test has four sections, i.e. self with everyday objects, toy and non-representational materials, representational toy alone and self alone. It could be used to assess symbolic play in children up to approximately 8 years of age. However, it is considered appropriate to assess symbolic play in children with autism aged 6 to 11 in this study. Total scores were converted into age-equivalent scores using the table provided in the manual. This enabled the researcher to compare the child's symbolic play with that of normally developing children of the same age.

Table 9.7 : Test of Pretend Play

Child	Total Score	Months	Age
16	20	49.3	10y 5m (10)
6	20	49.3	6y 11m (7)
5	22	53.3	11y 1m (11)
14	5	19.3	7y 4m (7)
10	0	<11.3	10y 7m (11)
4	31	71.3	7y 8m (8)
13	28	65.3	10y 1m (10)
1	5	25.5	8y 7m (9)
8	2	13.3	10y 11m (11)
2	0	<11.3	10y 3m (10)
11	0	<11.3	10y 7m (11)
15	1	11.3	8y 6m (9)
7	24	57.3	10y 3m (10)
3	1	11.3	9y 1m (9)
9	4	17.3	8y10m (9)
12	0	<11.3	6y 7m (7)

Table 9.7 shows that child number 4 (8 years old) from the third order group scored the highest in symbolic play even though they were only at a level appropriate for children aged 5.9 years. They were followed by child number 13 (10 years old) from the fourth order group, who had symbolic play appropriate for age 5.4 years. Child number 7 (10 years old) from the fifth order group had symbolic play appropriate for age 4.8 years, while child number 5 (11 years old) from the second order group had symbolic play appropriate for age 4.4 years. Both children from the highest order

group (child number 16, who is 10 years old, and child number 6, who is 7 years old) had symbolic play equivalent to children aged 4.1 years.

Child number 1 (9 years old) from the fourth order group had symbolic play appropriate for age 2.1 years, while child number 14 (7 years old) from the second order group had symbolic play appropriate for age 1.6 years. Child number 9 (9 years old) from the fifth order group had symbolic play appropriate for age 1.4 years, while child number 8 (11 years old) from the fourth order group had symbolic play appropriate for age 1.1 years. The rest of the children had symbolic play appropriate for less than 1 year of age.

The finding shows that children with complete agreement that they have the characteristics of AS, who scored VIQ, PIQ and FSIQ within the normal range (70 and above) scored quite low in the TOPP. At the same time, children who scored VIQ, PIQ and FSIQ around 60-70, scored better in the TOPP. Children who scored low especially in VIQ and FSIQ (50-60), scored low in the TOPP.

On the whole, for children with autism with FSIQ 60 and above, their IQ abilities cannot confirm that the child are good at pretend play but for children with very low FSIQ (50-60), they usually scored low in pretend play.

Table 9.8 : TOPP Subtests

Child	S1	S2	S3	S4
16	2	6	6	6
6	2	8	7	3
5	2	8	6	6
14	2	3	0	0
10	0	0	0	0
4	2	7	11	11
13	2	7	8	11
1	2	3	0	0
8	1	0	0	1
2	0	0	0	0
11	0	0	0	0
15	1	0	0	0

Table 9.8 : TOPP Subtests - continue

Child	S1	S2	S3	S4
7	2	7	8	7
3	0	1	0	0
9	1	3	0	0
12	0	0	0	0
Max	2	8	12	12

S – Section

S1 – Self with everyday objects (reference to an absent object)

S2 – Toy and non-representational materials (one, two, three and four substitutions)

S3 – Representational toy alone (reference to an absent object, property attribution, substitution, scripted play)

S4 – Self alone (substitution, reference to an absent object, property attribution, scripted play)

Table 9.8 shows TOPP subtest scores of children with autism in the SEUs. It shows that most of the children scored maximum in section 1, except children number 15 and 9, who scored 1, and children number 10, 2, 11 and 12, who scored 0. Two children scored maximum (8) and six children scored 0 in section 2. Most of the children scored 0 in section 3, except child 4, who scored the highest (11), children number 13 and 7, who scored 8, child number 6, who scored 7, and children number 16 and 5, who scored 6. Most of the children scored 0 in section 4, except children number 4 and 13, who scored the highest (11), child number 7, who scored 7, children number 16 and 5, who scored 6, child number 6, who scored 3, and child number 8, who scored 1.

9.1.6 Communication Skills

Communication skills of children with a diagnosis of autism in the SEUs were examined using a checklist adapted from Cumine et al. (1989) and Cumine et al. (2000). It was answered only by the teachers to assess the characteristics of each child's communication skills. It consisted of five main communication skills (understanding simple verbal and non-verbal approaches, strategies for meeting his need, engaging in social interaction, joint attention strategies and social communication). Answers for the checklist were classified into three categories ('very agree'/'always' (3 marks), 'agree'/'sometimes' (2 marks) and 'not agree'/'

‘not at all’ (1 mark)). The total marks or scores for each child from all the questions and their sub skills scores (in percentage) are shown in the tables below.

Table 9.9 : Communication skills: SEU

Child	Total Score
16	99
6	106
5	85
14	82
10	74
4	91
13	102
1	70
8	67
2	67
11	78
15	62
7	86
3	64
9	63
12	79
Max	150

Table 9.9 shows that only seven children scored more than 80 in their communication skills, including children number 16 and 6 from the first order group, children number 5 and 14 from the second order group, child number 4 from the third order group, child number 13 from the fourth order group and child number 7 from the fifth order group. Child number 6 scored the highest, followed by children number 13 and 16. Generally, in terms of total score for communication skills, children in the first, second and third order groups scored more than 80, except child number 10, who scored only 74, whereas most children in the fourth and fifth order groups scored lower than 80, except child number 13, who scored 102, and child number 7, who scored 86.

The finding shows that children who scored the VIQ and FSIQ 60 and above, scored quite high in the communication skills (80 and above) but children who scored VIQ and FSIQ 50-60, scored quite low in the communication skills (70 and below).

Table 9.10 : Subtests of Communication Skills (%)

Child	Skill 1	Skill 2	Skill 3	Skill 4	Skill 5
16	54	58	80	92	63
6	83	64	80	75	63
5	58	61	63	58	49
14	63	61	50	67	47
10	58	52	53	67	37
4	75	58	77	67	45
13	83	61	77	58	63
1	63	58	33	58	37
8	54	58	33	33	41
2	63	45	30	67	39
11	46	79	43	58	41
15	42	42	43	50	37
7	83	45	57	42	57
3	38	58	37	42	39
9	46	52	40	42	35
12	54	79	43	58	39

Skill 1 – Understanding simple verbal and non-verbal approaches
 Skill 2 – Strategies for meeting his need
 Skill 3 – Engaging in social interaction
 Skill 4 – Joint attention strategies
 Skill 5 – Social communication

Table 9.10 shows the subtest scores of the communication skills for children in the SEUs. These have been accumulated as a percentage from the raw scores. In Skill 1 (understanding simple verbal and non-verbal approaches), child number 6 from the first order group, child number 13 from the fourth order group and child number 7 from the fifth order group scored highest, followed by child number 4 from the third order group. In Skill 2 (strategies for meeting his need), child number 11 from the fourth order group and child number 12 from the fifth order group scored highest, followed by child number 6 from the first order group. In Skill 3 (engaging in social interaction), children number 6 and 16 from the first order group scored highest, followed by child number 4 from the third order group and child number 13 from the fourth order group. Child number 16 from the first order group scored highest in Skill 4 (joint attention strategies), followed by child number 6, also from the first order group. In Skill 5 (social communication), children number 16 and 6 from the first order group and child number 13 from the fourth order group scored highest, followed by child number 7 from the fifth order group.

9.1.7 Language Skills

Assessment of English Language Acquisition (AELA): Stage 1 to 4 was used in this study to examine the level of language development of children with autism in the SEUs. It was translated into the Malay language. Teachers of children with autism were given this checklist to measure each child's level of ability in listening, speaking, reading and writing in the Malay language. It is sensitive to pre-linguistic language skills, therefore suitable for use with autistic children. Pre step 1, step 1, step 2, level 1 threshold and level 1 secure are under 'Stage 1' (for people who are new to the language). Stage 2 and advanced Stage 2 are under 'Stage 2' (for those becoming familiar with the language), whereas early Stage 3, intermediate Stage 3 and advanced Stage 3 are under 'Stage 3' (for those becoming confident users of the language). 'Stage 4' is for fluent users of the language in most social and learning contexts. The stages acquired by the children in listening, speaking, reading and writing are shown in the table below.

Table 9.11 : Language Skills

Child	Listening	Speaking	Reading	Writing
16	S4-11	S4-11	S4-11	S1-5
6	S2-7	S1-4	S1-4	S1-3
5	S2-7	S1-4	S1-4	S1-4
14	S2-6	S1-4	S1-2	S1-3
10	S1-2	S1-2	0	S1-1
4	S2-7	S1-4	S1-3	S1-1
13	S2-7	S1-4	S2-7	S2-7
1	S1-4	S1-1	0	S1-1
8	S1-3	S1-3	S1-1	S1-1
2	S1-4	S1-1	S1-2	S1-2
11	S1-2	S1-2	0	S1-1
15	S1-1	0	0	S1-1
7	S1-3	S1-3	S1-3	S1-3
3	S1-2	S1-1	0	S1-1
9	S1-2	S1-3	S1-1	S1-1
12	S1-2	S1-2	S1-1	S1-1

S = Stage

S1-1 (Pre Step 1)

S1-2 (Step 1)

S1-3 (Step 2)

S1-4 (Level 1 Threshold)

S1-5 (level 1 Secure)

S2-6 (Stage 2)

S2-7 (Advanced Stage 2)

S3-8 (Early Stage 3)

S3-9 (Intermediate Stage 3)

S3-10 (Advanced Stage 3)

S4-11 (Stage 4)

Table 9.11 shows the language skills of children with autism in the SEUs in listening, speaking, reading and writing skills. In listening skills, child 16 from the highest order group is at Stage 4 (a fluent user of this language in most social and learning contexts), while child number 6 is at advanced Stage 2 (becoming familiar with this language). Other children at advanced Stage 2 in listening include child number 5 from the second order group, child number 4 from the third order group and child number 13 from the fourth order group. Child number 14 from the second order group is also at Stage 2, but one level lower. The rest of the children are at different levels in stage 1 (new to the language).

Only child 16 from the highest order group is at the highest level (Stage 4) in speaking skills. Most of the other children are at various low levels of Stage 1 (new to the language). Speaking skills for child number 15 were not recognised by the teacher through the checklist due to lower skills of speaking.

In reading skills, only child number 16 from the highest group order is at Stage 4 (a fluent user of this language in most social and learning contexts), while child number 13 is at advanced Stage 2 (becoming familiar with this language). Most of the other children are at different levels of Stage 1 (new to the language), except children 10, 1, 11 and 15, whose level of reading could not be recognised by the teacher through the checklist due to extremely low reading skills.

Only child 13 from the fourth order group is at advanced Stage 2 in writing skills. Other children, including children in the highest order group, are at Stage 1 (new to this language). Child 16 is at Stage 1 (level 1 secure) while child 6 at Stage 1 (step 3).

On the whole, child number 16 from the highest order group has outstanding language skills, particularly in listening, speaking and reading. However, to some extent his writing skills are still quite low. Child number 13 is considered as having much better skills in listening, reading and writing when compared to other children, even though he is in the fourth order group. However, his speaking skills are still at the Stage 1 threshold.

The finding shows that most of the children scored better in receptive skills (listening) when compared to the expressing skills (speaking). For children with FSIQ more than 60, their reading skills is better than writing. On the whole, children with VIQ and FSIQ more than 60, scored higher in language skills when compared to the others.

9.1.8 GADS Parent Interview

GADS parent interview is a questionnaire specifically for parents. It was used in this study to help the examiner distinguish children with Asperger syndrome, who are characterised by not showing clinically significant delays in language development, cognitive development, age-appropriate self-help skills, adaptive behaviour, or curiosity about the environment compared to other pervasive developmental disorders. Since there is no standardised measure for this questionnaire, and to give more details of children's characteristics in these skills, a few tables of the interview are presented below.

9.1.8.1 Developmental Delay and Language Development

Table 9.12 : Developmental Delay and Language Development

Child	Q1	Q2	Q3	Q4	Q5	Q6
16	x	x	x	x	x	/
6	/	x	x	/	/	/
5	x	x	x	x	x	/
14	/	x	x	x	x	/
10	x	x	x	x	x	/
4	/	/	x	/	x	/
13	-	/	/	/	x	/
1	/	/	/	/	/	/
8	x	/	x	x	-	/
2	/	/	x	/	x	/
11	x	/	/	/	x	/
15	/	/	/	x	x	/
7	/	/	/	x	x	/
3	/	/	/	x	x	/
9	/	/	x	x	x	/
12	/	/	x	x	x	/

/ = yes

x = no

- = no data

Q1 – the child is diagnosed as having any developmental delay	Q4 – receptive vocabulary appropriate by age
Q2 – single word by age 2	Q5 – expressive vocabulary appropriate by age
Q3 – uses communication phrases by age 3	Q6 – normal hearing

Table 9.12 shows GADS parent interview results for children with autism in the SEUs in relation to developmental delay and language development. Only children number 16, 5, 10, 8 and 11 were reported by their mothers as not having been diagnosed with any developmental delay. Children number 16, 6, 5, 14 and 10 were reported as not using single word by age two, while only children number 13, 1, 11, 15, 7 and 3 are reported as using communication phrases by age 3. Only children number 6, 4, 13, 1, 2 and 11 had receptive vocabulary appropriate to their age, while only children 6 and 1 had expressive vocabulary appropriate to their age. All children were reported as having normal hearing.

Over all, the finding shows that most of the children have developmental delay and delay in language development. When compared between receptive and expressive vocabulary, most of the children are better in receptive vocabulary. This finding comparable with the finding in language skills which indicated that most of the children scored better in receptive skills (listening) when compared to the expressing skills (speaking).

9.1.8.2 Cognitive Development

Table 9.13 : Cognitive Development

Child	Q1	Q2	Q3	Q4	Q5
16	/	/	x	x	/
6	/	x	x	x	/
5	/	x	x	x	x
14	/	x	x	x	/
10	/	x	x	x	/
4	/	x	x	x	/
13	/	/	/	x	/
1	x	x	x	x	x
8	/	x	x	x	x
2	x	/	/	x	/
11	/	x	x	x	x
15	x	x	x	x	/
7	/	/	x	x	/

Table 9.13: Cognitive Development - continue

Child	Q1	Q2	Q3	Q4	Q5
3	/	x	x	x	/
9	/	x	x	x	x
12	/	x	-	x	x

/ = yes

x = no

- = no data

Q1 – average memory skill

Q2 – learn like average child

Q3 – average intellectual skill

Q4 – generalisation like average child

Q5 – tries to solve tasks or problems

Table 9.13 shows GADS parent interview results for children with autism in the SEUs in relation to cognitive development. It shows that all children were reported by their parents as having average memory skills except children number 1, 2 and 15. Only children number 16, 13, 2 and 7 could learn like average children, while only children number 13 and 2 were reported as having average intellectual skills. No child was reported as having generalisation like average child, and all children tried to solve tasks or problems except children number 5, 1, 8, 11, 9 and 12.

Over all, most of the children are reported as having average memory skills. This may support that children with ASDs usually have a good rote memory. Most of the children do not have generalisation like average child, average intellectual skill and learn like average child. This may be because of their low abilities in cognitive skills and have less abilities in flexibility and creativity. However, with these difficulties in cognitive abilities more than half of the children show some effort to solve tasks of problem.

9.1.8.3 Self-Help Skills

Table 9.14 : Self-Help Skills

Child	Q1	Q2	Q3	Q4	Q5
16	/	x	/	/	/
6	/	x	/	/	/
5	/	/	/	/	/
14	/	x	/	x	/
10	/	/	/	x	/
4	/	/	/	x	x
13	/	/	/	/	/
1	x	/	x	x	x
8	x	x	x	/	/
2	x	x	x	x	x
11	x	x	x	x	/
15	x	x	x	x	x
7	/	/	/	/	/
3	/	/	x	x	/
9	x	x	x	x	x
12	/	/	x	x	x

/ = yes

x = no

- = no data

Q1 – dress appropriate by age

Q2 – feed appropriate by age

Q3 – brush teeth independently appropriate by age

Q4 – wash/clean appropriate by age

Q5 – appropriate toileting skills by age

Table 9.14 shows GADS parent interview results for children with autism in the SEUs in relation to their self-help skills. It shows that all children could dress themselves appropriately for their age except children number 1, 8, 2, 11, 15 and 9. Only children number 5, 10, 4, 13, 1, 7, 3 and 12 could feed appropriately for their age, while only children number 16, 6, 5, 14, 10, 4, 13 and 7 could brush their teeth independently appropriate for their age. No child could wash or clean themselves appropriately for their age, except children number 16, 6, 5, 13, 8 and 7, while only children number 16, 6, 5, 14, 10, 13, 8, 11, 7 and 3 had appropriate toileting skills for their age.

Over all, the finding shows that more children with FSIQ 60 and above can do the self-help skills when compared to children with FSIQ 50 – 60.

9.1.8.4 Adaptive Behaviours

Table 9.15 : Adaptive Behaviours

Child	Q1	Q2	Q3	Q4	Q5
16	/	x	x	x	x
6	x	/	x	x	/
5	/	/	x	x	x
14	/	/	x	x	/
10	/	x	x	x	/
4	/	x	x	x	x
13	/	/	/	x	/
1	/	x	x	x	x
2	/	x	x	x	/
11	x	x	x	x	x
15	/	x	x	x	x
7	/	/	/	x	/
3	/	x	x	x	x
9	x	x	x	x	x
12	-	-	x	x	x

/ = yes

x = no

- = no data

Q1 – average motor skills to age

Q4 – knows own phone number and address

Q2 – engage in usual leisure time by age and gender

Q5 – responsibilities for things

Q3 – move about community independently by age and gender

Table 9.15 shows GADS parent interview results for children with autism in the SEUs in relation to their adaptive behaviours. It shows that almost all the children had average motor skills for their age except children number 6, 11 and 9, while only children number 6, 5, 14, 13 and 7 could engage in usual leisure time for their age and gender. Almost none of the children could move about the community independently for their age and gender except children number 13 and 7; none of the children knew their phone number or address. Only children number 6, 14, 10, 13, 2 and 7 were reported as having responsibilities for things.

The finding shows that most of the children have average motor skills to age but have less abilities in other adaptive behaviours that was listed in the GADS parent interview.

9.1.8.5 Curiosity About The Environment

Table 9.16 : Curiosity about the Environment

Child	Q1	Q2	Q3	Q4	Q5
16	/	/	/	/	/
6	/	x	/	/	/
5	x	x	x	x	x
14	/	x	x	-	x
10	x	x	x	x	x
4	x	x	x	x	x
13	/	/	/	/	/
1	x	x	x	x	x
8	x	x	x	x	x
2	x	/	/	x	x
11	x	x	x	x	x
15	x	x	x	x	x
7	/	x	x	/	/
3	x	x	x	x	x
9	x	x	x	x	x
12	x	x	x	x	x

/ = yes

x = no

- = no data

Q1 – curious about things

Q2 – reads to gain knowledge

Q3 – reads for leisure

Q4 – figures out how things work

Q5 – asks questions to learn new facts

Table 9.16 shows GADS parent interview results for children with autism in the SEUs in relation to their curiosity about the environment. It show that only children number 16, 6, 13 and 7 were reported by their parents as being curious about things, while only children number 16, 13, and 2 read to gain knowledge. No children read for leisure except children number 16, 6, 13 and 2, and only children number 16, 6, 13 and 7 figured out how things work. No children asked questions to learn new facts except children number 16, 6, 13 and 7.

On the whole, the finding indicated that only children with FSIQ more than 65 show curiosity about the environment.

9.1.9 Theory of Mind Test

The Theory of Mind (ToM) test was used in this study to observe children's abilities in the theory of mind. Baron-Cohen, Leslie and Frith (1985) proposed that individuals with autism lack a 'theory of mind', i.e. the ability to think about other people's thinking. However, some individuals with autism are capable in Theory of Mind tests, especially children with higher mental ages, including children with AS.

Table 9.17 : Theory of Mind Test

Child	Ann and Sally Test	Smarties Test
16	box	smarties
6	box	pencil
5	box	smarties
14	-	-
10	-	-
4	box	pencil
13	box	pencil
1	-	-
8	-	-
2	-	-
11	-	-
15	-	-
7	box	pencil
3	-	-
9	-	-
12	-	-

- = no data due to no speech or hyperactive

Table 9.17 shows the results of the Theory of Mind test for children with autism in the SEUs. It shows that answers were collected from only six children. The rest of the children could not follow or understand the instructions due to having no speech or being hyperactive. Of the six children, none could answer the Ann and Sally task correctly. In the Smarties task, child number 16 from the highest order group and child number 5 from the second order group provided the correct answer, as normally developing children would. The finding shows that most of the children have difficulties in the ToM tests especially in the Ann and Sally test. However, procedures that have been applied e.g. not use some 'control' questions in the tests

may have some impact to the findings (see Chapter 5: section 5.3.2 Standardised Tests – Theory of Mind test) page 107-111.

9.1.10 Test/Checklist Scores Ranking

Table 9.18 : Test/Checklist Scores Ranking

Test Scores Lang Ranking (Write)	VIQ	PIQ	FSIQ	SPT	TOPP	Com	Lang (Listen)	Lang (Speak)	Lang (Read)
High (80 and above)	16	5, 6	6 5, 6, 7 13, 14 16	4, 13	-	16	16	16	-
Moderate (60-80)	4, 6 12, 13 14	1, 2, 3 4, 7, 9 12, 13 14, 15 16	4, 5, 7 12, 13 14, 16	1, 4	5, 6, 7 16	4, 6 13, 16	4, 5, 6 13	-	13 13
Low (0-59)	1, 2, 3 5, 7, 8 9, 10 11, 15	8, 10 11,	1, 2, 3 8, 9, 10, 11 15	2, 3 8, 9 10, 11 12, 15	1, 2, 3 8, 9 10, 11 12, 14 15	1, 2, 3 5, 7, 8 9, 10 11, 12 14, 15	1, 2, 3 7, 8, 9 10, 11 12, 14 15	1, 2, 3 4, 5, 6 7, 8, 9 10, 11 12, 13 14, 15	1, 2, 3 4, 5, 6 7, 8, 9 10, 11 12, 14 15, 16
Total	16	16	16	16	16	16	16	16	16

Table 9.18 shows the test and checklist scores for children with autism in the units; these are ranked into high scores (80 and above), moderate scores (60-79) and low scores (0-59). The ranked test and checklist scores were summarised into another table (below) to show each child's percentage in overall scores ranking.

9.1.11 Summary of Test/Checklist Scores Ranking

Table 9.19 : Summary of Test/Checklist Scores Ranking

Child	VIQ	PIQ	FSIQ	SPT	TOPP	Com	Lang	Lang (List)	Lang (Speak)	Lang (Read)	Total (Write)	%
1	1	2	1	2	1	1	1	1	1	1	12	40
2	1	2	1	1	1	1	1	1	1	1	11	37
3	1	2	1	1	1	1	1	1	1	1	11	37
4	2	2	2	2	3	2	2	1	1	1	18	60
5	1	3	2	3	2	1	2	1	1	1	17	57
6	2	3	3	3	2	2	2	1	1	1	20	67
7	1	2	2	3	2	1	1	1	1	1	15	50
8	1	1	1	1	1	1	1	1	1	1	10	33
9	1	2	1	1	1	1	1	1	1	1	11	37
10	1	1	1	1	1	1	1	1	1	1	10	33
11	1	1	1	1	1	1	1	1	1	1	10	33
12	2	2	2	1	1	1	1	1	1	1	13	43
13	2	2	2	3	3	2	2	1	2	2	21	70
14	2	2	2	3	1	1	1	1	1	1	15	50
15	1	2	1	1	1	1	1	1	1	1	11	37
16	3	2	2	3	2	2	3	3	3	1	24	80

3 – high score

2 – moderate score

1 – low score

Table 9.19 shows that child number 16 had the highest overall score (80%) in the tests and checklists. Since children with characteristics of AS usually score high in those skills shown in the table, this means that the child may have the highest possibility of having characteristics of AS. He was followed by child number 13, who scored 70%, and child number 6, who scored 67%. Children number 8, 10 and 11 scored lowest overall (33%) in the tests and checklists.

On the whole, children who scored more than 60 in FSIQ also scored higher in the percentage of test/checklist scores ranking.

Table 9.20 : Summary of Test/Checklist Scores Ranking

Child	Cronological Age	Gender	VIQ	PIQ	FSIQ	SPT (month)	TOPP (month)	Lang Listening	Lang Speaking	Lang Reading	Lang Writing	Comm Skills (Max =150)	ASDS % (by parent)	ASDS Probability of AS (by parent)	ASDS % (by teacher)	ASDS Probability of AS (by teacher)
16	10y 5m	male	87	72	77	>36	49.3	S4-11	S4-11	S4-11	S1-5	99	97	very likely	91	very likely
6	6y 11m	male	73	94	81	33.7	49.3	S2-7	S1-4	S1-4	S1-3	106	97	very likely	82	very likely
5	11y 1m	female	58	103	78	33.7	53.3	S2-7	S1-4	S1-4	S1-4	85	30	likely	47	likely
14	7y 4m	male	61	68	62	33.7	19.3	S2-6	S1-4	S1-2	S1-3	82	53	likely	53	likely
10	10y 7m	male	55	59	54	<12	<11.3	S1-2	S1-2	0	S1-1	74	30	likely	42	likely
4	7y 8m	male	60	67	61	28.5	71.3	S2-7	S1-4	S1-3	S1-1	91	12	possibly	14	possibly
13	10y 1m	male	70	74	69	31.1	65.3	S2-7	S1-4	S2-7	S2-7	102	9	possibly	42	likely
1	8y 7m	male	57	64	57	28.5	25.5	S1-4	S1-1	0	S1-1	70	14	possibly	42	likely
8	10y 11m	male	55	59	54	<12	13.3	S1-3	S1-3	S1-1	S1-1	67	21	likely	6	possibly
2	10y 3m	male	55	60	54	<12	<11.3	S1-4	S1-1	S1-2	S1-2	67	47	likely	6	possibly
11	10y 7m	male	55	59	54	<12	<11.3	S1-2	S1-2	0	S1-1	78	30	likely	12	possibly
15	8y 6m	male	57	64	57	<12	11.3	S1-1	0	0	S1-1	62	18	possibly	21	likely
7	10y 3m	male	55	76	65	33.7	57.3	S1-3	S1-3	S1-3	S1-3	86	2	unlikely	21	likely
3	9y 1m	male	55	62	55	<12	11.3	S1-2	S1-1	0	S1-1	64	6	possibly	5	unlikely
9	8y10m	male	57	63	57	18	17.3	S1-2	S1-3	S1-1	S1-1	63	1	very unlikely	6	possibly
12	6y 7m	male	64	71	65	<12	<11.3	S1-2	S1-2	S1-1	S1-1	79	1	very unlikely	3	unlikely

Table 9.20 above showed the results of the tests that have been done and ASDS indication of AS diagnosis (by parents and teachers) for children who were involved in this study. Children with characteristics of AS usually have some specific features including the absence of mental retardation, have milder form of autism and have higher cognitive and language abilities (Klin, Mc Partland & Volkmer, 2005; DSM IV). Therefore a few children could be excluded from the possibilities of having characteristics of AS i.e. children number 1, 8, 2, 11, 15, 7, 3, 9, 12 and 10 because of their low scores in IQ and languages skills. Furthermore, for this group of children, there is also disagreement between parents and teachers in the ASDS indication of AS except child number 10 that the parent and teacher agreed that he has the characteristics of AS.

However, within another 6 children who may have characteristics of AS, there are some difficulties to indicate that they have the characteristics of AS especially for children number 5, 14 and 4. Even though their parents and teachers agreed that they are 'likely' (for children number 5 and 14) and 'possibly' (for child number 4) to have the characteristics of AS, they scored low in a few skills. For example, child number 5 scored very low verbal IQ, child number 14 scored low in listening and reading skills and child number 4 scored low in writing skills.

For child number 13, even though he scored quite high in all tests but the parent and teacher have not agreed with each other to indicate whether the child has the characteristics of AS. The parent indicated that the child 'possibly' has the characteristics of AS while the teacher indicated that the child is 'likely' to have the characteristics of AS.

On the whole, the table showed that only children number 16 and 6 may have the characteristics of AS since they have scored quite high in all tests and have been agreed by the teachers and parents that they have the characteristics of AS.

9.1.12 GADS Parents Interview Score Ranking

Table 9.21 : GADS Parents Interview Score Ranking

Scores Ranking environment)	GADS (Lang Dev)	GADS (Cog Dev)	GADS (Self-Help Skills)	GADS (Adaptive behaviours)	GADS (Curiosity about environment)
High (80 and above)	1, 11 13	13	5, 6, 7 10, 13 16	7, 13	6, 13 16
Moderate (60-80)	2, 3, 4 6, 7 15	2, 7 16	3, 4 14	14	7
Low (0-59)	5, 8, 9 10, 12 14, 16	1, 3, 4 5, 6, 8 9, 10 11, 12 14, 15	1, 2, 8 9, 11 12, 15	1, 2, 3 4, 5, 6 8, 9 10, 11 12, 15 16	1, 2, 3 4, 5, 8 9, 10 11, 12 14, 15
Total	16	16	16	16	16

Table 9.21 shows the GADS parents interview scores for children with autism in the units; these are ranked into high scores (80 and above), moderate scores (60-80) and low scores (0-59). The ranked GADS parent interview scores were summarised into another table (below) to show each child's percentage in overall score ranking.

9.1.13 Summary of GADS Parent Interview Score Ranking

Table 9.22 : Summary of GADS Parent Interview Score Ranking

Child	GADS (Lang Dev)	GADS (Cog Dev)	GADS (Self-Help Skills)	GADS (Adaptive behaviours)	GADS (Curiosity about environment)	Total	%
1	3	1	1	1	1	7	47
2	2	2	1	1	1	7	47
3	2	1	2	1	1	7	47

Table 9.22 : Summary of GADS Parent Interview Score Ranking - continue

Child	GADS (Lang Dev)	GADS (Cog Dev)	GADS (Self-Help Skills)	GADS (Adaptive behaviours)	GADS (Curiosity about environment)	Total	%
4	2	1	2	1	1	7	47
5	1	1	3	1	1	7	47
6	2	1	3	1	3	10	67
7	2	2	3	3	2	12	80
8	1	1	1	1	1	5	33
9	1	1	1	1	1	5	33
10	1	1	3	1	1	7	47
11	3	1	1	1	1	7	47
12	1	1	1	1	1	5	33
13	3	3	3	3	3	15	100
14	1	1	2	2	1	7	47
15	2	1	1	1	1	6	40
16	1	2	3	1	3	10	67

3 – high score

2 – moderate score

1 – low score

Table 9.22 shows that in the GADS parents interviews, child number 13 scored highest (100%), followed by child number 7 (80%) and children number 6 and 16, who both scored 67%. Several children scored 47%, including children number 1, 2, 3, 4, 5, 10, 11 and 14, while child number 15 scored the lowest (40%). Children with higher score in percentage of GADS, also scored 65 and above in the FSIQ.

9.1.14 Differences in the Characteristics of Children with a Diagnosis of Autism in the SEUs

Differences were found in the children's scores on different tests, e.g. child 4 scored highest in TOPP but low in language skills; child 5 scored very high in PIQ, quite high in SPT but low in communication and language; child 6 scored high in PIQ, FSIQ and SPT but low in language; and child 7 scored highest in SPT but low in VIQ, communication and language skills. Child 13 scored high in both play tests (SPT and TOPP), moderate in other skills and low in speaking skills. Child 14 scored high in SPT, moderate in VIQ, PIQ and FSIQ but low in other skills, while child 16

scored high in VIQ, SPT, listening, speaking and reading, moderate in PIQ, FSIQ, TOPP and communication, but low in writing skills. There are also differences in the children's scores amongst the GADS parents interview scores, e.g. child 1 scored high in language development but low in other skills, while child 5 scored high in self-help skills but low in all other skills. Child 6 scored high in self-help skills and curiosity about environment, moderate in language development, and low in cognitive development and adaptive behaviours. Child 7 scored high in self-help skills and adaptive behaviours but moderate in other skills, while child 10 scored high in self-help skills but low in all other skills. Child 16 scored high in self-help skills and curiosity about the environment but low in language development and adaptive behaviours.

In fact, differences between children's scores were also found amongst the subtests of particular skills, e.g. in the IQ test, child 5 scored low in VIQ, high in PIQ and moderate in FSIQ. Child 16 scored high in most language skills (listening, speaking and reading) but low in writing skills, while child 13 scored moderate in listening, reading and writing but low in speaking.

The differences in children's apparent features which gathered from information from the teachers and the researchers' observation were shown below:

Table 9.23 : Children's Apparent Features

Child	Apparent Features
1.	<ul style="list-style-type: none"> - hyperactive - can only make sounds (like singing but with no meaning/cannot be understood) - always brings something to school to play with, e.g. wire, nut; will have a tantrum/cry if somebody takes it from him - sensitive to noise (always blocks ears with hands)
2.	<ul style="list-style-type: none"> - can understand instructions in English - likes to move/shake his desk - can have a tantrum if somebody takes his belongings - likes to smell/sniff everything - cannot do up buttons
3.	<ul style="list-style-type: none"> - hyperactive - always spitting in class, knocking his desk until it broke - appears clumsy, likes to turn to his right or left while sitting or walking

Table 9.23 : Children's Apparent Features – continue

Child	Apparent Features
4.	<ul style="list-style-type: none"> - repeats what the teacher says - likes Tan Yin Yin (always talking about her/calling her name) - can remember songs - has friends - comes too close to other people - last time had a tantrum (throwing bin to the fan) - cannot read, has problems with writing
5.	<ul style="list-style-type: none"> - likes to repeat dialogue from cartoons/movies - very moody, can have tantrums - ritualistic; likes lining her colour pencil, keep on erasing her writing - can write nicely; likes to write on the blackboard - can spell some English words correctly (depends on her mood) - always eats the same food
6.	<ul style="list-style-type: none"> - has health problems (bowel), always goes to hospital for medical check-ups - can understand and follow teacher's instructions - can recognise colours - continues trying to do tasks given by teachers; he is the one who finished the task - eats selective food only - only uses his own goods; doesn't like to share with friends - sensitive to loud noises, e.g. bell ringing
7.	<ul style="list-style-type: none"> - always flaps his hands - thin, eats a restricted diet - plays, walks, runs alone during recess time
8.	<ul style="list-style-type: none"> - always throws tantrums (if the weather is not good, if he feels tired/angry/disappointed/anxious) - when he throws a tantrum, he will bite his hands, knock his head with his hands, bend his leg backwards
9.	<ul style="list-style-type: none"> - his mother gives him dietary supplements to overcome his autistic problem (seeing a few autism specialists, including from the USA and Europe) - his mother said that he made good progress after using the dietary supplement suggested by a specialist from the USA
10.	<ul style="list-style-type: none"> - no speech - likes to make sounds (like singing/tones) - when having a tantrum, clenches his teeth, shouts loudly - plays alone, likes to play with his fingers
11.	<ul style="list-style-type: none"> - plays alone, likes to play with his fingers - likes to make sounds (like singing/tones) - when having a tantrum, knocks his head
12.	<ul style="list-style-type: none"> - likes to lean/lie down on the floor - likes to play with puzzles, can do (8) puzzle - can join dots - likes to tear paper - unstable emotions, tantrums/crying

Table 9.23 : Children's Apparent Features – continue

Child	Apparent Features
13.	<ul style="list-style-type: none"> - likes to smile, speak while he is alone - can read - can do simple addition operations (mathematics) - can write, draw, colour nicely
14.	<ul style="list-style-type: none"> - hyperactive - can write his name - can colour nicely (good hand-eye coordination) - very moody (whether he want to do his work or not depends on his mood) - can use a computer (typing his name, letters, numbers, simple diagrams) - recognises the alphabet but cannot read
15.	<ul style="list-style-type: none"> - hyperactive - like to sit/stand alone in the corner of the room - does not respond to/follow instructions - make sounds with no meaning - morning assembly - teacher needs to hold/control him to stay in the line - teacher needs to do behaviour modification with him - has no/poor hand-eye coordination - does not want to play at all - comes to teacher when teacher does not give him attention - passive – does not want to eat by himself
16.	<ul style="list-style-type: none"> - has no friends, always plays/eats alone - likes to play his fingers - make unsuitable faces - difficulties in fine motor skills (has problem with hand-eye coordination) - has bad handwriting - colours everything with the same colour. Teacher has to explain that green is for trees, brown for people) - can read, likes to read, especially about current news (must get the latest newspaper every day) - can give details of current news – has quite a broad vocabulary – lining up at morning assembly - cannot stand properly, always flaps his hands and goes out of the line - very sensitive to loud noises, e.g. lawnmower - eats only certain food

Table 9.23 shows the differences in the apparent features of children with autism in the SEUs. Four children were hyperactive, i.e. children 1, 3, 14 and 15. Children 1, 4, 5 and 15 had repetitive behaviour patterns and children 1, 2, 4, 5, 8, 10, 11 and 12 had tantrums. Children 1 and 6 were sensitive to noise, while children 2 and 16 had fine motor problems. Child 15 did not pay attention and made no responses to other people, while child 5 had ritualistic patterns of behaviour. Child 6 had health

problems, while child 16 sometime made unsuitable faces. Three children only ate the same foods, i.e. children 5, 6 and 7, and children 7, 15 and 16 always played alone. Children 7 and 16 always flapped their hands, while children 5, 12 and 14 had unstable emotions. Children 10, 11 and 16 liked to play with their fingers.

9.1.15 Differences in the Characteristics of Each Child with a Diagnosis of Autism in the SEUs

Differences in the characteristics of each child with a diagnosis of AS in the SEUs are described below:

Child 1

Child 1, age 8 years and 7 months, was diagnosed with ADHD and autism. He has no speech, always plays with small things made of metal, and always blocks his ears with his hands. He will easily throw a tantrum if somebody takes the metal from him. In the ASDS questionnaire, he was perceived by his parent as 'possibly', and by his teacher as 'likely', having characteristics of AS. However, he scored low in most the assessments, including below average in FSIQ (57), SPT (28.5 months) and TOPP (25.5 months). He also scored among the lowest in social communication skills and language skills. In reading skills he scored 0, which means his level of reading was too low to be recognised by the teacher through the checklist. Due to his very low language abilities, he could not do the Theory of Mind test. In the GADS parent interview he scored low in cognitive development, self-help skills, adaptive behaviours and curiosity about the environment but, interestingly, he scored high (5 out of 5) in language development.

Child 2

Child 2 was 10 years and 3 months old. He has a diagnosis of autism. He has no speech but can follow instructions in English. He likes to move or shake his desk and smell or sniff everything. He has poor fine motor skills, e.g. he cannot button his shirt. He also can throw a tantrum if somebody takes his belongings. In the ASDS questionnaire, he was perceived by his parent as 'likely', and by the teacher as

‘possibly’, having characteristics of AS. However, he scored very low in most of the assessments, e.g. below average in FSIQ (54), <12 months in SPT and <11.3 months in TOPP. He also scored low in social communication and language skills. In the GADS parent interview he scored moderate in language development (4 out of 6 skills) and cognitive development (3 out of 5 skills) but low in self-help skills, adaptive behaviours and curiosity about the environment.

Child 3

Child 3 was 9 years and 1 month old, with a diagnosis of autism. He has no speech, is hyperactive and is always spitting in the classroom and knocking his desk until it broke. He also appears clumsy and likes to turn his body to the left and right while sitting or walking. In the ASDS questionnaire, his parent and teacher disagreed with each other. He was perceived by his parent as ‘possibly’, and by his teacher as ‘unlikely’, having characteristics of AS. He scored low in most of the assessments, with FSIQ below average (55), SPT (<12 years), TOPP (11.3 months) and communication (64). In language skills he scored level 1 (new to the language) in most skills. In reading skills, he scored 0 due to a very low skill level that could not be recognised by the teacher through the checklist. In the GADS parent interview, he scored moderate in language development (4 out of 6) and self-help skills (3 out of 5) but scored low in other skills.

Child 4

Child 4 was 7 years and 8 months old, with a diagnosis of autism. The child can speak and is quite talkative but always uses repetitive words. He also likes to repeat what the teacher has said, can remember a few songs, has some friends and likes to come too close to other people. However, he still cannot read, has problem with writing and sometimes has tantrums. In the ASDS, he was perceived by his parent and teacher as ‘possibly’ having characteristics of AS. Compared to other children, in the assessments he scored highest (71.3 months) in the TOPP. He also scored moderate in FSIQ (61), SPT (28.5 months), communication (91) and listening (advanced Stage 2, i.e. becoming familiar with the language). However, in other language skills he scored low, especially in writing skills (pre step 1). In the GADS

parent interview he scored moderate in language development (4 out of 6) and self-help skills (3 out of 5) but low in other skills.

Child 5

Child 5 was 11 years and 1 month old. She has a diagnosis of autism. She can speak but not very clearly, and likes to repeat dialogue from cartoons or movies. She likes to eat the same food each time she goes to the school canteen. She also likes to line up her coloured pencils and keeps on erasing what she has written in her jotter. She can write nicely in her jotter and sometimes writes on the blackboard at the front of the classroom. She also can spell some English words correctly, but this depends very much on her mood. She sometimes throws a tantrum. In the ASDS, her parent and teacher agreed that she 'likely' has characteristics of AS. Compared to other children, in the assessment she scored high in PIQ (103) and SPT (33.7 months). She scored moderate in FSIQ (78), TOPP (53.3) and listening skills (advanced Stage 2, i.e. becoming familiar with the language). However, she scored low in social communication and other language skills. In the GADS parent interview, she scored high (5 out of 5) in self-help skills but low in other skills.

Child 6

Child 6 was only 6 years and 11 months old, with a diagnosis of autism. He can talk and looks like a normal child. He can follow the teacher's instructions and keeps trying to complete tasks given by the teacher. He uses only his things and does not like to share. The child has health problems (bowel) and needs to go to the hospital regularly for medical check-ups. He only eats selective foods and is very sensitive to loud noises, e.g. bells ringing. The child was among those children who most probably had characteristics of AS, as discussed before. His parent and teacher agreed that he 'very likely' has characteristics of AS in the ASDS questionnaire. Compared to other children, he scored high in VIQ (73), FSIQ (81), SPT (33.7 months), TOPP (49.3 months), social communication (106) and listening skills (advanced Stage 2, i.e. becoming familiar with the language). However, he scored low in other language skills. In the GADS parent interview, he scored high in self-

help skills (4 out of 5) and curiosity about the environment (4 out of 5), and moderate in language development (4 out of 6).

Child 7

Child 7 was 10 years and 3 months old with a diagnosis of autism. He can speak but not very clearly. His parent and teacher disagreed with each other in the ASDS questionnaire. The child was perceived by the parent as ‘unlikely’, and by the teacher as ‘likely’, to have characteristics of AS. He was also among the children who most probably have characteristics of AS due to his high scores in the GADS parent interview. Compared to other children he scored high in SPT (33.7 months) and moderate in FSIQ (65) and TOPP (57.3), but low in social communication and language skills. However, he scored high in the GADS parent interview, i.e. self-help skills (5 out of 5) and adaptive behaviour (4 out of 5), and scored moderate in language development (4 out of 6), cognitive development (3 out of 5) and curiosity about the environment (3 out of 5).

Child 8

Child 8 aged 10 years and 11 months, was diagnosed with ADHD autism. He can only pronounce a few words, which are not very clear. He easily throws tantrums if he feels tired, angry, disappointed or anxious, and in bad weather. When he throws a tantrum, he will bite his hands, knock his head with his hands, and sometimes has a seizure (folds his legs backwards tightly). In the ASDS questionnaire, he was perceived by his parent as ‘likely’, and by his teacher as ‘possibly’, having characteristics of AS. However, he scored low in most of the assessment skills, i.e. FSIQ (54), SPT (12 months), TOPP (13.3 months), social communication (67) and language skills (pre step 1, step 1 and step 2). He also scored low in most of the GADS parent interview skills.

Child 9

Child 9 was 8 years and 10 months old with a diagnosis of delayed development and ASD. He has no speech. His mother, an ex-college lecturer, had seen several specialists in autism, including in the USA and Europe, to support her child. She

claimed that the child was making better progress after using a dietary supplement suggested by specialists from the USA. In the ASDS questionnaire, the child was perceived by his parent as 'very unlikely', and by his teacher as 'possibly', having characteristics of AS. However, he scored low in most of the assessment skills, i.e. FSIQ (57), SPT (18 months), TOPP (17.3 months), social communication (63) and language skills (pre step 1, step 1 and step 2). He also scored low in most of the GADS parent interview skills.

Child 10 and Child 11

Children 10 and 11 are twins. They are 10 years and 7 months old, with a diagnosis of autism. They have no speech. They are identical physically and also in many aspects of their behaviour, e.g. they play alone and like to play with their fingers, make singing sounds (with no words), knock their heads, and shout loudly and clench their teeth when they throw tantrums. In the ASDS, child 10 was perceived by their parent and teacher as 'likely' having characteristics of AS, while child 11 was perceived by their parent as 'likely', and by their teacher as 'possibly', having characteristics of AS. However, both children scored low in most of the assessments skills. Both had similar scores in FSIQ (54), SPT (<12), TOPP (<11.3) and language skills (step 1 in listening and speaking skills, 0 in reading skills and pre step 1 in writing skills). In social communication skills, child 11 scored higher (78) than child 10 (74). Both also scored low in most of the GADS parent interview, though child 10 scored high in self-help skills (4 out of 5) and child 11 scored high in language development (4 out of 6).

Child 12

Child 12 was only 6 years and 7 months old with a diagnosis of autism. He has no speech. He likes to play with puzzles and can do very simple ones. In writing, he also can join dots with lines, but he likes to tear paper and has unstable emotions which sometimes make him throw tantrums or cry. He was perceived by his parent as 'very unlikely', and by his teacher as 'unlikely', to have characteristics of AS in the ASDS questionnaire. Compared to other children he scored moderate in FSIQ (65) but low in other skills, e.g. SPT (<12 months), TOPP (<11.3 months), social communication

(79) and language skills (pre step 1 in reading and writing, step 1 in listening and speaking). He also scored low in all GADS parent interview skills.

Child 13

Child 13 was 10 years and 1 month old with a diagnosis of autism and slow learner. He can speak clearly, sometimes using formal or complete sentences, but has a limited vocabulary. He can read and do simple addition and subtraction mathematical operations. He can also write, draw and colour nicely. He is one of the children who most probably has characteristics of AS. In the ASDS questionnaire, he was perceived by his parent as 'likely', and by his teacher as 'possibly', having characteristics of AS. Compared to other children he scored high in the play tests, i.e. SPT (31.1) and TOPP (65.3). He scored moderate in FSIQ (69), social communication (102) and most of the language skills. Moreover, he scored high in all GADS parent interview skills.

Child 14

Child 14, age 7 years and 4 months, was diagnosed with autism. The child can speak but not very clearly, and is hyperactive. He can write his name, colour nicely (has good hand-eye coordination) and use a computer to type his name, letters and numbers. He also recognises letters but still cannot read and is very moody (whether he wants to do his work or not depends on his mood). He was perceived by his parent and teacher as 'likely' having characteristics of AS. Compared to other children he scored high in SPT (33.7 months). He scored moderate in FSIQ (62). However, he scored low in other assessments. In the GADS parent interview he scored moderate (3 out of 5) in self-help skills and adaptive behaviours but low in other skills.

Child 15

Child 15 was 8 years and 6 months old with a diagnosis of autism. He was hyperactive and did not respond to others. He liked to sit or stand alone in the corner of the room. He made no response to the teacher's instructions and only approached when the teacher did not pay him attention. He was very passive and did not want to play at all or eat by himself. He sometimes made sounds and had poor hand-eye

coordination. The teacher had to control him, especially in the morning assembly, in which he had to stand in a straight line with the other children before coming into the classroom. In the ASDS questionnaire, he was perceived by his parent as ‘possibly’, and by his teacher as ‘likely’, having characteristics of AS. However, he scored low in most of the assessments, i.e. FSIQ (57), SPT (<12 months), TOPP (11.3 months), social communication (62), and in language skills. In fact, he scored 0 in speaking and reading skills due to very low skill levels that were not recognised by the teacher through the checklist. In listening and writing skills he only scored pre step 1. He also scored low in the GADS parent interview skills, though in language development he scored moderate (4 out of 6).

Child 16

Child 16 was 10 years and 5 months old with a diagnosis of autism. He can speak very well and sometimes uses complete or formal sentences. He also likes to read, especially about current news (he must get the latest newspaper every day). Therefore, he can give details about any current news and has quite an extensive vocabulary. However, he has no friends and always plays or eats alone. He likes to play with his fingers and sometimes makes unsuitable faces. He has poor handwriting, which the teacher suggested is because of difficulties in the fine motor skills (he has problems with eye-hand coordination). In colouring activities he always colours everything with the same colours. The teacher has to tell him, for example, that the trees should be coloured green and the sky should be white and blue. In the morning assembly, he cannot stand properly like the other children, and likes to go out of the line and play or flap his hands. He is also very sensitive to noise, e.g. lawnmowers, and eats only certain foods. He is one of the children who most probably has characteristics of AS. In the ASDS, he was perceived by his parent and teacher as ‘very likely’ having characteristics of AS. Compared to other children he is the only one who scored high in the VIQ (87). He also scored high in SPT (>36 months) and language skills (the highest level, or Stage 4, in listening, speaking and reading skills), but scored low in writing skills (level 1 secure). In the GADS parent interview he scored high in curiosity about the environment (5 out of

5) and self-help skills (4 out of 5), moderate in cognitive development (3 out of 5), but low in language development and adaptive behaviours.

9.1.16 Summary

The main purpose of this chapter is to present and describe the data gathered through the standardised questionnaires, tests and checklists used to identify children with characteristics of AS amongst children with a diagnosis of autism in the SEUs.

Data from the standardised questionnaire (ASDS) revealed that there are two children (children number 6 and 16) whose parents and teachers completely agree that the child 'very likely' has characteristics of AS. Since ASDS is a standardised questionnaire specifically used to identify individuals with AS, it gives an initial indication of which children would most probably have characteristics of AS, to be compared with the results of other tests and checklists used in this study.

Children's scores on the tests and checklists examining several skills in which children with characteristics of AS usually score higher on were also used in this study to identify children with characteristics of AS amongst children with a diagnosis of autism in the SEUs. The scores were ranked into three different levels (high, moderate and low) to see the differences in children's abilities in these skills. A summary revealed that child number 16 scored the highest percentage, followed by children number 13 and 6.

Since data from the standardised tests were collected by the researcher and data from the checklists were gathered from discussion between the researcher and teachers, GADS parents interview provided data from the perspectives of the parents. Children's scores on the GADS parents' interview were also ranked into three different levels; a summary revealed that child number 13 scored the highest percentage, followed by children number 7, 16 and 6.

On the whole, through the results from parent-teacher agreement in the ASDS, the standardised tests gathered by the researcher, checklists from teachers' perspectives and GADS parents interview, it was found that child number 16 has the highest

probability of having characteristics of AS, followed by children number 6, 7 and 13. These findings are discussed in greater depth in the discussion chapter.

The purpose of this chapter is also to present and describe the data gathered through the standardised tests, checklists and GADS parents interview to examine the differences in individual features presented amongst children with a diagnosis of autism in the SEUs. It was revealed that children with autism in the SEUs have different levels of ability in cognitive, language, play, Theory of Mind, communication, language and cognitive development, self-help skills, adaptive behaviours and curiosity about the environment. This result supports the hypothesis of a “spectrum” of autism, which has been suggested by Wing & Gould (1979).

9.2 Mainstream Classes

9.2.1 Introduction

This section describes the results of identifying children with characteristics of AS within children in the mainstream classes in five representative schools in Malacca. This was done using a screening test answered by the mainstream class teachers. With the head teacher’s endorsement, the researcher held a meeting with mainstream class teachers in each school to explain the main features of children with characteristics of AS and the procedures of doing the screening test. Only children who passed the cut-off point of the screening test were included in further investigation.

Table 9.24 : Participants (Mainstream classes)

School	Mainstream children	Classes	Class teacher involved	
S1	455	13	10	
S2	430	13	11	
S3	375	11	09	
S4	540	15	11	
S5	629	17	13	
Total	2429	69	54	S – School

Table 9.24 shows the participants for the study in the mainstream classes. It consists of 2429 mainstream children from five schools in Malacca. The total of classes in the schools are 69 and 54 class teachers were involved in the study.

9.2.2 Screening Test Findings

Table 9.25 : Mainstream classes: Screening Test

School	Class teachers involved in screening test	Children passed the screening tests (column A score >18)	Likelihood of AS diagnosis
S1	10	0	-
S2	11	1	Standard score <60, percentile <1
S3	09	0	-
S4	11	0	-
S5	13	3	Standard score <60, percentile <1
Total	54	4	

S – School

Table 9.25 shows that 54 mainstream class teachers were involved in the screening test. Only one child from school 2 and three children from school 5 passed the screening test. However, their scores in further investigation showed that they had an extremely low likelihood of having characteristics of AS.

9.2.3 Summary

These findings indicate that only 4 out of 2429 (0.16%) children in the mainstream classes passed the screening test. Furthermore, 100% of them were in the <1 percentile for the likelihood of an AS diagnosis, as noted by the standardised rating scale. Since this questionnaire was answered by the mainstream class teachers, it shows that the majority of mainstream class teachers in this study did not think any children in their classrooms had characteristics of AS.

9.3 Feedback on the Information Pack

9.3.1 Introduction

This section describes parents' and teachers' feedback on the information pack. The participating 16 parents and 13 teachers of children with a diagnosis of autism in the special education units, and four parents and three teachers from the early intervention centre, were given the information pack. After reading the information pack, they were asked to fill in the feedback sheet. The feedback sheet contained eight 'yes/no' questions and two more open-ended questions ('which part is useful/suitable for you' and 'suggestions'). The objective of the feedback sheet was to measure the usefulness and effectiveness of the information pack for teachers and parents, and to know in what area more sources and information were needed. This information was gathered after participants were told their children's assessment results.

9.3.2 Parents' Feedback on 'Yes/No' Questions

Table 9.26 : Parents' Feedback

No.	Questions	Yes (%)	No (%)	No Answer (%)	Comments
1.	Useful	88	6	6	-give a lot of information about autism -more understand about my child's difficulties -because this is first case in my family, so this info help me to answer questions asked about my child -this info pack is very useful to parents who has autism children -good -it is informative for parents with a child diagnose with autism

Table 9.26 : Parents' Feedback - continue

No.	Questions	Yes (%)	No (%)	No Answer (%)	Comments
2.	Enough information for you	56	31	13	-there are more information should be add in -from what age it can be diagnosed? Did taking some medicine when pregnant can be the cause of autism? -this info pack can be more helping if you can give a talk about it -it is informative for parents with a child diagnose with autism -as a basic guideline -explanation on different characteristics of the children with ASD should be included
3.	Practical	74	13	13	-yes, this info pack is very practical
4.	Clear	94	6	-	-clear -clear but there are a few words that I don't quiet understand -this is very clear
5.	Enough info in all sections	62	25	13	-yes, but still can be improved -yes, to understand more about autism basically
6.	Left any important things	31	56	13	-should also stress on recognising criteria in a child that has autism and what should parents do to help the child. Early intervention should be mentioned -can the child being totally normal or become less autistic or would they be like that for their whole life? -all aspects have been covered but it was quiet general, especially how parents can help children with autism/AS -yes, biomedical approach to autism
7.	Too much	-	88	12	-the information is ok but still should be more detailed
8.	Discussed with teachers/parents	31	44	25	

Table 9.26 shows feedback from parents about the information pack. 88% said that the information pack was useful. Some commented that the pack contained a lot of information about autism for parents who have children with autism; others said that the info pack helped him/her better understand his/her child's difficulties. Furthermore, one parent said that because this is the first case of autism in her family, the information pack helped her in answering questions about her child.

In contrast to the teachers' feedback, the parents' feedback shows that only 56% of the parents thought the pack contained enough information. Some suggested that there should be more information in the pack, e.g. from what age autism could be diagnosed, and whether taking some medicine while pregnant could cause autism. Other parents suggested that the pack would be more useful if it provided some information and explanations about autism and AS. Some of the parents said that the pack was useful as a basic guideline, while parents who had more advanced knowledge about ASD suggested that explanation of different characteristics of children with ASD should be included.

When asked whether the info pack was practical, 74% said 'yes'; indeed, one said it was very practical. However, even though 94% of the parents said the information was clear, one parent complained that there were a few words he/she did not quite understand. A possible reason for this is the inclusion of some technical English words which could not be translated into the Malay language, such as 'hypersensitive', 'hyposensitive' and 'genetic factors'.

62% of parents agreed that the pack had enough information in all sections. One parent said that even though he/she thought that the pack had enough information in all sections, it could still be improved. Another parent said that it is basically easy to understand aspects of autism throughout the info pack. Only 31% of parents said that the pack might have left out something important; one suggested that main characteristics of children with autism, how parents could help and methods of early intervention should also be mentioned in the pack. One parent commented that all aspects had been covered but that it was quite general, especially regarding how parents can help children with autism.

There is also the question of whether autism can be cured; one parent said that information about how biomedical approaches could be used to help children with autism should be in the pack. No parent said that the pack had too much information but one suggested that the information should be more detailed. Only 31% of parents discussed the info pack with teachers. The ‘yes/no’ feedback given by the parents is summarised in the bar chart below:

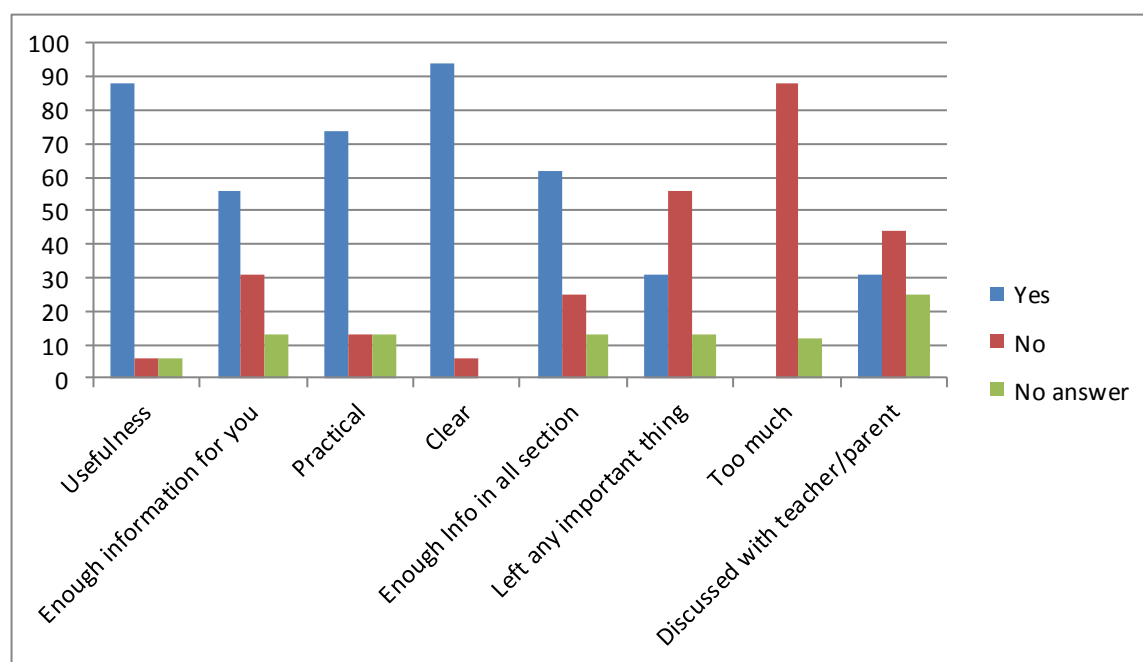


Figure 9.1 : Parents' Feedback

9.3.3 Teachers' Feedback On 'Yes/No' Questions

Table 9.27 : Teachers' Feedback

No.	Questions	Yes (%)	No (%)	No Answer (%)	Comments
1.	Useful	100	-	-	-we get more information about children's difficulties
2.	Enough information for you	93	7	-	-there are few more things that should be add in
3.	Practical	100	-	-	-suitable for teaching and learning activities -yes, some ideas are very useful. Its remind me again what should I do in class
4.	Clear	100	-	-	-

Table 9.27 : Teachers' Feedback - continue

No.	Questions	Yes (%)	No (%)	No Answer (%)	Comments
5.	Enough info in all sections	86	7	7	-put more information about AS to make sure readers know the differences between AS and autism -I'm not sure. I think there are few information that was not stated in
6.	Left any important things	-	79	21	-not sure
7.	Too much	-	79	21	-
8.	Discussed with teachers/parents	21	57	21	-not yet, it will be distributed to parents and teachers in this school

Table 9.27 shows feedback from teachers about the information pack. 100% of the teachers said the information pack was useful. One commented that he/she got more information about his/her children's difficulties from the information pack. About 93% of teachers said that the information pack had enough information, even though some felt that a few more things should be added. However, they did not mention what information they thought should be added to the information pack. When asked whether the information pack was practical, 100% of the teachers said 'yes'. Moreover, some of them said that it is suitable for teaching and learning activities, and in fact gave them ideas about how to create more activities in their classes. 100% of the teachers agreed that the information given was clear. However, only 86% of the teachers said that there was enough information in all sections of the pack. One suggested that more information about the differences between AS and autism should be added, while another said he/she was not sure but still thought something was missing from the pack. However, 79% of the teachers did not think that the pack left out anything important or contained too much information. Only 21% of the teachers had opportunities to discuss the pack with parents; one suggested that the pack should be distributed to all parents and teachers in the school. The 'yes/no' feedback given by the teachers is summarised in a bar chart below:

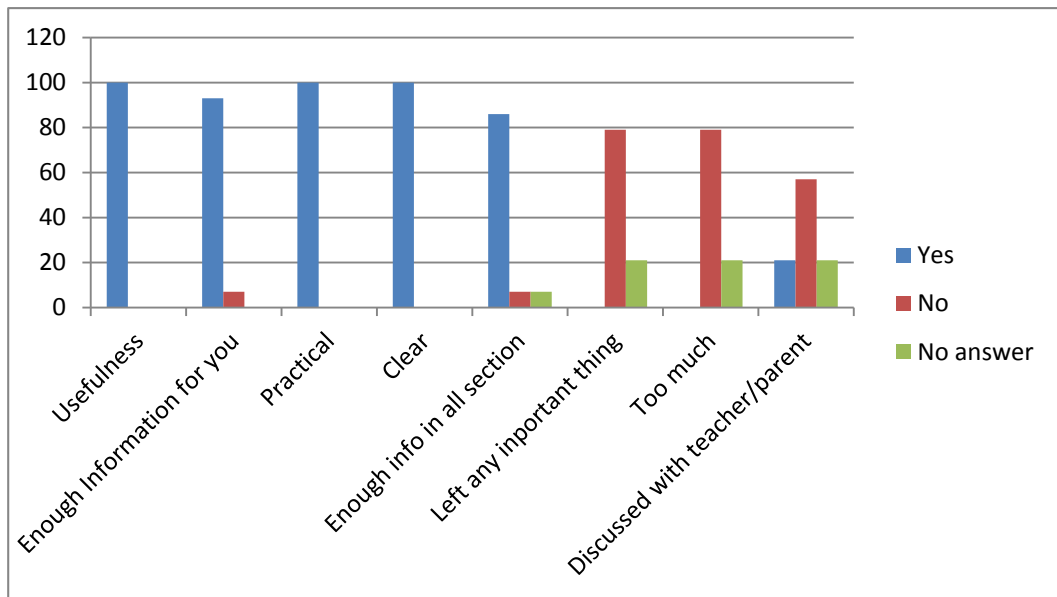


Figure 9.2 : Teacher's Feedback

The comparison between parents' and teachers' feedback on the 'yes/no' questions is summarised as a bar chart below:

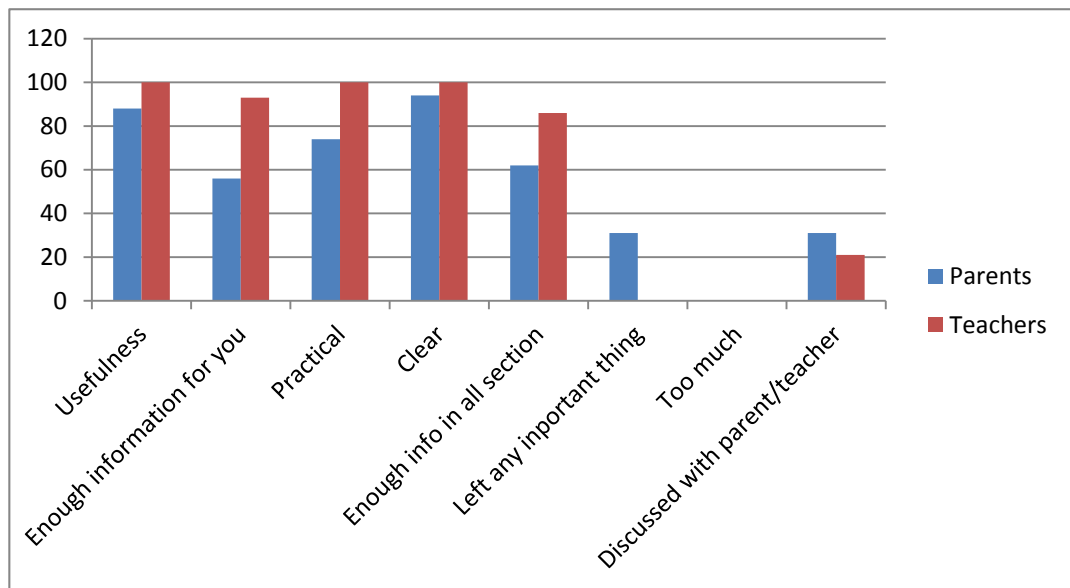


Figure 9.3 : Comparison between Parents' and Teachers' Feedback

9.3.4 Parents' Suggestions

Table 9.28 : Parents' Suggestions

No.	Questions	Answers	How Many
9.	Which part is useful/suitable for you?	-all sections are useful -contact details of support agencies in Malaysia -suggestions for teachers how to help/support children with autism/AS -suggestions for parents how to help/support children with autism/AS	2 2 2 2
10.	Suggestions	-to suggest to the authorities to provide more facilities suitable for autism children -give example of people with autism who are succeeded in life including support which has been given to them -give this info pack with some exposure to parents -mention more about ABA, RDI and CARDS. Give link to Autism Research Institute, IAN, TACA...ect.	

When asked about which part of the pack they thought was most useful or suitable, two parents said all sections were useful, two parents chose 'contact detail of support agencies in Malaysia', two parents chose 'suggestions for teachers on how to help/support children with autism/AS', and two parents chose 'suggestions for parents on how to help/support children with autism/AS' section. A few parents made suggestions, e.g. to ask the authorities to provide more facilities for children with autism, provide models/examples of people with autism who have succeeded in their lives, including ways in which they were supported, distribute the pack to more parents, and give more information about intervention and strategies to support children with autism.

9.3.5 Teachers' Suggestions

Table 9.29 : Teachers' suggestions

No.	Questions	Answers	How Many
9.	Which part is useful/suitable for you?	-all sections are useful -suggestions for teachers how to help/support children with autism/AS -the suggested readings section -suggestions for parents how to help/support children	3 6 1 1
10.	Suggestions	-can be improved in content arrangement -this info pack will be distributed among parents and teachers in this school -put more suggested readings -put more info about AS and put more graphic e.g. mind map -useful as teachers' and parents' references to understand children with autism	

When asked about which part of the pack they thought was most useful or suitable, three teachers said all sections were useful, six teachers chose the 'suggestions for teachers on how to help/support children with autism/AS' section, one teacher chose the 'suggested reading' section and one teacher chose the 'suggestions for parents on how to help/support children with autism/AS' section. Other parents did not answer the question. A few teachers made suggestions, e.g. improve the content arrangement, distribute the pack among parents and teachers, suggest more further reading, give more information about AS, include more graphics and use the info pack as a teacher's and parent's reference to understand more about children with autism.

9.3.6 Summary

These findings indicate that both parents and teachers gave positive feedback regarding the information pack. However, teachers were more satisfied overall, especially with the 'suggestions for teachers on how to help or support children with

ASDs' section. They found that it was useful for their teaching and learning activities.

Parents were less satisfied, particularly with the information in the pack. They felt it contained insufficient information, and that it left out something important. This was not surprising; parents' comments and suggestions had shown that they wanted more detail and specific information about their children, especially approaches on how to cope with children with ASDs, which is not the initial aim of the information pack. However, contacts for several support agencies in Malaysia, and website links to approaches for intervention for children with ASDs, were provided at the end of the pack.

Nearly half of parents and teachers discussed the pack with each other, which is good for their collaboration. Through discussion they could explain their concerns to each other and try to support children with ASDs in more collaborative ways.

9.4 Teachers' Reports

9.4.1 Introduction

This section describes the SEU teachers' reports. It consists of the background and analysis of three reports. Report 1 contains open-ended questions and table analysis. Reports 2 and 3 contain 'yes/no' questions and analysis of teachers' comments.

9.4.2 Background

13 special education teachers involved in this study were asked to send their reports to the researcher through email at three different times. The first report was to be sent three months after they received the information pack, during the identification process. This would give them enough time to try any classroom strategies suggested in the information pack, and give their comments on the effectiveness of the strategies. This was to be followed by the second and third report three months after the previous report. As shown in the table below, 63% of teachers sent their first report and 69% teachers sent their second and third reports.

Table 9.30 : Teachers' Report

Teacher	School/Child	First report	Second report	Third report
School 1				
Teacher 1	Child 1	/	/	/
Teacher 2	Child 2	/	/	/
Teacher 3	Child 3	/	/	/
Teacher 1	Child 4	/	/	/
Teacher 3	Child 5	/	/	/
School 2				
Teacher 4	Child 6	/	/	/
Teacher 5	Child 7	x	x	x
School 3				
Teacher 6	Child 8	x	x	x
Teacher 7	Child 9	x	x	x
Teacher 8	Child 10	x	x	x
Teacher 9	Child 11	x	x	x
Teacher 9	Child 12	x	/	/
School 4				
Teacher 10	Child 13	/	/	/
Teacher 11	Child 14	/	/	/
Teacher 12	Child 15	/	/	/
School 5				
Teachers 13	Child 16	/	/	/
Total		10 (63%)	11 (69%)	11 (69%)

/ - gave report

x - no report

Table 9.30 shows that in School 1, teachers 1, 2 and 3 sent their first, second and third reports. Both teachers 2 and 3 sent reports for two children. In School 2, only teacher 4 sent all the reports. In school 3, teacher 9 sent the second and third reports for child number 12 but did not send reports for child number 11. The other teachers did not send their reports. In schools 4 and 5 all teachers (11, 12 and 13) sent all three reports.

9.4.3 Report 1

Report 1 consisted of two open-ended questions asking teachers whether they had any different understanding or expectations of children with ASDs after receiving the information pack, and the ways in which they had changed their practice due to this new understanding. Report 1 also consisted of a table (see appendix 2.11) to be completed by the teachers with the strategies suggested in the information pack that they used, their perceptions of the child's development, the effectiveness of the strategies, and the teacher's reflection and future teaching plan.

9.4.3.1 Open-ended Questions Analysis

10 out of 16 teachers responded to the open-ended questions. Most of them found that they had different understanding and expectations of the child's potential learning and development after being given the information pack. Some comments reflecting this different understanding and expectations include:

'After reading the brochure, I had a positive and better perception towards autistic children's potentials. A few suggestions in the brochures really helped me in improving my teaching approach.'

'After reading the brochure I came to understand that autistic children's potentials could further be developed with the right techniques and guidance. The brochure helped me a lot in identifying strategies that I could adopt to address different problems.'

'Through reading I know more about autism/asperger syndrome and it helps me look for alternatives for teaching and learning.'

'It helped me a lot in having a deeper understanding of child's potentials besides identifying the suitable approach to be used on him.'

'Child's potentials could further be developed based on his ability.'

Some teachers also showed that they tried to implement strategies suggested in the information pack, related to their new understanding and expectations. Comments reflecting this include:

'By using various activities and visual aids. Using simple language and simple instructions through gestures.'

'By using more visual aids, simple communication and routine activities. Example: repeating words based on pictures and repeating gestures.'

'Controlled environment is needed to improve child's functional skills and behaviour.'

'Using various approaches suggested in the brochure. For examples :

Using Puppets

Using teaching aids and other objects'

'Systematic and continuous programmes would be very beneficial. Duties should be assigned accordingly and enhancement activities should be varied.'

'Using simple language and eye contact and stimulating activities with the help of child's peers.'

Some teachers also indicated that the strategies they used had a positive impact on the child's learning process:

'Though it was initially difficult, the child was able to comprehend instructions when the teacher used simple language and gestures.'

'Child 14 has difficulties in focussing during teaching and learning process and I tried to use visual aids to overcome this problem. I found that he responded better whenever I used visual aids.'

- continue

'Based on my observation, he did not have problems in matching the sentences with the pictures because he could read. His main challenge was to complete everything within the time limit as he has the tendency to get distracted. To sustain his interest, I gave him coloured cartoon pictures. As a result, he managed to complete the task within the time limit.'

However, two teachers reported that the strategies they used were not effective enough:

'The usage of simple language and simple approach could improve child's potentials but it was only sustained for a short period of time and only at certain period of time such as in the morning.'

'I implemented teaching using visual aids to the child by using demonstration and picture cards. However, the child's interest was only sustained for a very short time.'

9.4.3.2 Table Analysis

Only seven teachers filled out the table with their responses in report 1. They were teachers for children number 1, 4, 6, 13, 14, 15 and 16. Throughout the table, these teachers explained the problems faced by the child (including communication and language skills, social skills, flexible thinking, and communication and sensory perception skills), strategies that they used which were suggested in the pack, their perception of the child's development, and their reflections and future plans.

For child 1, the teacher indicated that he/she used several strategies, including visual aids, clear and consistent rules and staggered stimulation. Even though the teacher found that the child's improvement was quite slow or they did not even achieved minimal acquisition, he/she did not give up. Therefore, after reflection, and for future planning, the teacher planned to use more varied activities and better and simpler visuals, spend more time with the child, use a routine and structured approach, and

continue using a staggered stimulation approach until the desired results were achieved.

The same teacher completed the table for children number 1 and 4. For child number 4 he/she indicated that he/she had used the same strategies as for child number 1 (e.g. visual aids, simple language, clear and consistent rules), but for sensory perception skills, he/she changed from staggered stimulation to providing a distraction-free environment. The teacher found that there was some improvement in the child's communication and language skills, social skills, flexible thinking and communication, but for sensory perception skills, the improvement was minimal. The teacher noted that in the future he/she would use the same approaches that had been shown to be effective but would try to vary the activities. The teacher also planned to give more attention to the child, who needs more enhancements, to use structured approaches and to place the child in a distraction-free environment.

For child number 6, the teacher did not state specific strategies that had been used, but indicated that the child has good communication skills and increased social skills. However, the child showed low interest in cognitive and art related activities. Moreover, the teacher also noted that it was difficult to assess the child's abilities in different skills because the child was absent on most schooldays.

The teacher for child number 13 indicated that he/she had provided visual aids and done a retelling of past experiences activity to improve the child's social, communication and language skills. The teacher found that the approach was effective for the child, and that he learned better with visuals. Therefore, the teacher planned to adopt the approach for future teaching and learning activities. To help the child with cognitive and flexible thinking, the teachers usually informed the child beforehand about any changes and the consequences of the changes. The teacher agreed that it was initially difficult for the child since he had a strong preference for routines. The teacher tried to solve the problem by offering the child other activities that he liked, e.g. playing computer games. In sensory perception, the teacher provided a different choice of activities when the child could not overcome sensory difficulties. However, he/she found that this strategy only worked if the choices

interested the child. The teacher also indicated that he/she would try to implement this strategy in response to different problems and situations.

Visual aids were used to facilitate child number 14's communication, language and social skills. The teacher indicated that this strategy worked on the child because it could attract the child's attention. Moreover, the child could remember the picture and could talk about the visuals shown to him earlier. In flexible thinking skills, the teacher encouraged the child to participate in activities carried out in the class, e.g. playing games and singing. For sensory perception and social skills, the teacher indicated that he/she provided a distraction-free environment, and ensured the child was given ample rest time. He/she found that these strategies helped the child to have more controlled and acceptable behaviour.

The teacher for child number 15 indicated that he/she tried several strategies, i.e. demonstration and picture cards, to facilitate the child's communication and language skills, but it did not really work because the child was not interested in looking at the flash cards shown. The teacher also indicated that cartoon videos and other multimedia were used to facilitate the child's social skills, but these were also not very effective as the child was not interested in the visuals shown. He only reacted by tapping on the laptop screen. The child had some reactions, but not what the teacher expected after introducing staggered stimulation. The teacher noted that the child may need more time before assessment could be made.

The teacher for child number 16 also indicated that he/she tried some strategies suggested in the pack, including providing enough time for the child to digest information to support the child's communication and language skills, introducing a buddy system to help the child develop friendship and social skills, and teaching new concepts from concrete to abstract. The teacher found that these strategies were effective in improving the child's performance in different skills. However, the teacher highlighted that the child still had problems focussing on individual activities, and was still dependent on the teacher, especially in activities related to living skills. Therefore, the teacher indicated that in the future he/she would guide and teach the child until he would be able to produce what he was asked to do.

9.4.4 Report 2

Reports 2 and 3 consisted of 12 ‘yes/no’ questions and a comment box at the end of each report.

9.4.4.1 ‘Yes/No’ questions analysis

Table 9.31 : Report 2 ‘Yes/No’ questions

No.	Questions	Yes	No	Comments
1.	Have you read the booklet overall?	11	0	
2.	Have you read the ‘Suggestions For Teachers To Help’ section?	11	0	
3.	Do you understand the content of the section?	11	0	
4.	Have you found the information to be useful?	11	0	
5.	Have you changed your practice in any way because of reading the booklet?	7	4*	*Child no. 3, 5, 6, 15
6.	Do you think the technique suggested in the section are or will be effective?	11	0	
7.	Did you try any technique suggested in the section?	11	0	
8.	Did you recognise any technique that you will use?	-	-	
9.	Will you try the technique after this?	-	-	
10.	You are not interested to try any technique?	-	-	
11.	Did you find the technique that you have used was effective to your autism children?	9	2*	Child no. 1, 15
12.	Do you intend to try this technique to other children?	11		

Table 9.31 shows that 11 (69%) of 16 teachers returned their second report. All of them reported that they had read the booklet/information pack, including the

‘Suggestions For Teachers To Help’ section, understood the content of each section, found the information useful, and thought the techniques suggested in the section were or would be effective. However, only seven teachers noted that they had changed their practice in any way because of reading the booklet. Four other teachers who noted that they had not changed their practice included teachers for children number 3, 5, 6 and 15. When teachers were asked whether they had tried any techniques suggested in the section, all of them said ‘yes’. All the teachers that tried strategies in the pack found them effective for children with autism, except the teacher for children number 1 and 15. Finally, all the teachers noted that they intended to implement the strategies and techniques suggested in the pack with other children.

9.4.4.2 Analysis of Teachers’ Comments

In the comments section for report 2, the teacher for child number 1 indicated that the child had rejected any attempt to introduce changes. Therefore, he thought that the child was not fully prepared for the suggested approach and technique. However, he noted that in future he would adopt different strategies.

The teacher for child number 2 commented that the ‘What Teachers Can Do to Support’ section had overall helped her to identify teaching objectives, approaches and environments that could facilitate effective learning. The teacher for child number 3 indicated that when the techniques and suggestions to help children with ASDs were implemented with child number 3, even though the desired response was not sustained, the techniques proved to have a positive impact on the child.

The teacher for child number 4 indicated that he/she had already changed his language and communication approach when dealing with the child. Besides visual aids, the teacher used simple language and instructions, carried out more activities in which the child could participate, and got the child’s attention before giving any instructions. The teacher also noted that the approach generally worked 65% of the time. He also managed to overcome the child’s problem in understanding and

following instructions by having more communication with the child both inside and outside the classroom.

Even though the teacher for child number 5 did not indicate which strategies he/she had tried, he/she noted that the combination of suggested techniques impacted the teaching and learning process. For child number 6, the teacher commented that he/she thought the techniques could be effective with autistic children in the school, but since child number 6 was absent most schooldays because of health problems, the teacher could not provide more comments.

The teacher for child number 7 noted that the child had begun using more gestures to communicate with him/her, which helped a lot in understanding what the child was trying to say or what he wanted. For instance, if the child wanted to go to the toilet, he would point to the door. The teacher for child number 13 commented that the suggested technique was effective and could be applied in teaching, while the teacher for child number 14 noted that the techniques were effective but, due to health problems, the child needed more supervision, as his health affected his learning process.

The teacher for child number 15 indicated that even though he/she had tried to adopt the techniques suggested in the pack, he/she found that the child still failed to achieve desired results. The teacher for child number 16 commented that, with regards to sensory perception skills, there remained many challenges which could not be overcome by using the techniques suggested in the pack. The child had difficulties in individual activities, especially in carrying out living skills activities. The child also depended very much on the teacher in every activity.

9.4.5 Report 3

9.4.5.1 'Yes/No' Questions Analysis

Table 9.32 : Report 3 'Yes/No' questions

No.	Questions	Yes	No	Comments
1.	Have you read the booklet overall?	11	0	
2.	Have you read the 'Suggestions For Teachers To Help' section?	11	0	
3.	Do you understand the content of the section?	11	0	
4.	Have you found the information to be useful?	11	0	
5.	Have you changed your practice in any way because of reading the booklet?	10	1*	*Child no. 6
6.	Do you think the technique suggested in the section are or will be effective?	11	0	
7.	Did you try any technique suggested in the section?	11	0	
8.	Did you recognise any technique that you will use?	-	-	
9.	Will you try the technique after this?	-	-	
10.	You are not interested to try any technique?	-	-	
11.	Did you find the technique that you have used was effective to your autism children?	11		
12.	Do you intend to try this technique to other children?	11		

Table 9.32 shows that 11 (69%) of 16 teachers returned their third report. All the teachers reported reading the booklet/information pack, reading the 'Suggestions For Teachers To Help' section and understanding the content of each section; they said they found the information useful and thought the techniques suggested in the section were or would be effective. All teachers also indicated in their third report that they had tried techniques suggested in the 'Suggestions For Teachers To Help' section. Only one teacher (the teacher for child number 6) noted that he/she had not changed

his/her practice in any way after reading the booklet. However, all teachers, including the teacher for child number 6, found that the techniques that they used were effective for autistic children, and they intended to try these techniques with other children.

9.4.5.2 Analysis of Teachers' Comments

In the comments section for report 3, the teacher for child number 1 indicated that the child still showed very minimal responses towards the strategy adopted by the teacher because of his speech challenge. However, the teacher also indicated that the child could understand and follow about 50% of simple instructions given by the teacher. Moreover, when exposed and encouraged to join other friends in the activities, the child could participate, even at a very minimal level.

The teacher for child number 2 briefly commented that, besides helping the children fulfil their needs and improve their quality of life, these children had the right to be treated well, while the teacher for child number 3 indicated that suggested skills adopted in teaching and learning processes had greatly helped in assisting the child to focus and follow simple instructions. The teacher for child number 4 described how simple instructions had a positive impact on the child's participation during teaching and learning. In fact, the child could retell his experience to the teacher using simple sentences. The child could also understand the classroom rules and, since he has quite a good memory, it helped the child to communicate with others.

The teacher for child number 5 also gave only brief comments that the techniques suggested managed to facilitate learning in children with autism, while the teacher for child number 6 thought that the techniques were good and could attract the child's interest. However, they could not be applied as the child was always absent from school. The teacher for child number 12 made no comments in the third report, and the teacher for child number 13 indicated that after using the techniques suggested, the child showed positive changes. However, the child still needed to be trained by means of drills, so that it would become a routine for him.

Brief comments from the teacher for child number 14 indicated that the brochure had helped him/her a lot in finding suitable teaching techniques for the child. Interesting comments from the teacher for child number 15 indicated that the child had difficulties in showing emotions and following the teacher's instructions. Visual aids did not seem to catch the child's attention to make him want to do the assigned activity. However, he showed better response when tangible objects, such as LEGO blocks or other objects, were used. When asked to separate objects in a container, the child could perform the task well; he managed to do it after a few trainings. The teacher also indicated that, when using puzzle blocks to create an object, the results were still minimal but promising. Through this approach, the child's attention span was extended to 30 minutes, longer than when he was not doing any activities. He could also connect dots or coloured pictures without showing aggressive behaviour, as he had in the past. The teacher for child 16 made similar comments in reports 2 and 3.

9.4.6 Summary

First report

In the first report, 100% of the teachers who returned their report agreed that they had different understanding and expectations about the child's potential learning and development after reading the information pack and trying the suggested techniques. The teachers also indicated (in the comments section and the table), that the most common strategies they used were visual support or aids; these were mentioned about 18 times by the teachers. This was followed by using simple language and instructions, which was mentioned about six times in the report. Other strategies that were mentioned more than once (two to five times) in the report were: using a distraction-free environment, giving clear and consistent rules, using staggered stimulation, using a buddy system and using psychomotor activities. Strategies that were mentioned at least once by the teachers were: using a structured approach, giving duties and enhancement, providing time to process the information, preparing children for change, teaching new concepts from concrete to abstract, demonstration, providing other options, playing games, retelling of past experience and using objects

or puppets. When teachers were asked about their perception of children's development after using these strategies, most made positive comments, even though for some children the improvement was quite slow (child number 1), or the child had some reaction, but not the ones expected by the teacher (child number 15). For child number 6, the teacher noted that it was difficult to assess the child because he was absent on most schooldays.

Second report

Overall, 100% of the teachers who returned the second report found that the information pack and the strategies suggested were useful for children with autism. Only four (36%) teachers did not change their practice in any way after reading the pack. Only two (18%) teachers found that the suggested strategies were not effective for children with autism. In the teachers' comment section, most teachers made positive comments on the strategies they had tried, except the teacher for child number 15, who indicated that even though he/she had tried to adopt the techniques suggested in the pack, the child still failed to achieve the desired results. The teacher for child number 1 also noted that the child rejected any attempt to introduce changes, and showed resistance and adverse responses. However, the teacher indicated that he/she would try another strategy from the pack to support the child.

Third report

Similar to the second report, in the third report 100% of the teachers found that the information pack and the strategies suggested were useful for children with autism. However, compared to the second report, fewer teachers, i.e. only one (9%) teacher, had not changed their practice in any way after reading the information pack, and no teacher found that the strategies they had used were ineffective for children with autism. In the teachers' comment section, most also made positive comments on the strategies they tried from the pack, except the teacher for child number 12, who made no comments, and the teacher for child number 16, who made similar comments to those in the second report. In fact, the teacher for child number 15, who made not very positive comments in the previous reports, indicated in the third report that the child showed better responses when tangible objects, such as LEGO and puzzle

blocks or other objects, were used. The teacher also noted that the child's attention span had extended to 30 minutes, and aggressive behaviours have been minimised when doing these activities. For child number 1 the teacher also noted some improvements compared to the previous reports, i.e. the child could now understand and follow about 50% of simple instructions given by the teacher and, when exposed and encouraged to join other friends in activities, the child could participate, even though at a very minimal level.

CHAPTER 10

DISCUSSION

10.1 Introduction

This study set out to explore whether there are any children with characteristics of AS among children with a diagnosis of autism in SEUs and mainstream classes in schools in Malacca; to examine differences in the characteristics of each child diagnosed with autism in the SEUs; to create and assess an information pack for teachers and parents of children with a diagnosis of autism and children with characteristics of AS; and to explore whether the identification of children with characteristics of AS and the information pack helped the SEU teachers better understand children with ASDs. This study attempted to identify children with characteristics of AS using several methods. It uses a standardised rating scale specifically to identify individuals with AS and is supported by other measures that assess children's abilities in different skills. It was also supported by a parents' questionnaire used to gain information about children's developmental history. This chapter consists of four sections which discuss each of the research questions, with a conclusion for each section.

10.2 Research Question 1:

Would the characteristics reported by the parents and teachers, standardised tests and checklists for any child diagnosed with autism in the special education units and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?

10.2.1 Children with Characteristics of AS Within Children with Diagnosis of Autism in the SEUs

Through the procedures described above, four (child 16, 6, 13 and 7) out of 16 children were identified as ‘most probably’ having characteristics of AS. However, this finding was not straightforward, even though each of the four children had convincing possible characteristics of AS, they also showed some other unrelated characteristics. For example, children 16 and 6 scored complete agreement by their parents and teachers as ‘very likely’ having characteristics of AS in the ASDS rating scale, and scored quite high in most of the tests, but neither fulfilled the DSM-IV criteria of ‘no language and cognitive developmental delays’. Child 13 scored high in most of the tests and had no language or cognitive developmental delays, but he was only perceived by the parent as ‘possibly’, and by the teacher as ‘likely’, having characteristics of AS in the ASDS. Child 7 scored quite high in overall parent questionnaire (GADS) but did not score high in most of the tests. The findings become more complicated when the child was perceived by the parent as ‘unlikely’, but perceived by the teacher as ‘likely’, to have characteristics of AS.

These findings indicated that even though there are four out of sixteen children in the SEUs may have some characteristics that similar to AS, however none of them have fulfil all the characteristics of AS i.e. scored ‘very likely’ in parents and teacher agreement in the ASDS, scored high in most of the tests, scored high in GADS parent interview and have ‘no language and cognitive developmental delays’ as indicated in the DSM IV criteria for AS. Therefore it could be suggested that individuals in the ASDs can’t be easily distinguish as having AS, autism or PDDNOS due to the complexity of the presentation of their characteristics. This supports the empirical sub-typing studies which indicated that sub-types of ASDs are not qualitatively unique from each other. Differences between them have typically been regarded as reflecting variations in the severity of impairments (see Fein, Stevens & Dunn, 1999; Prior et al., 1998; Volkmar, Klin & Cohen, 1997; Waterhouse, Morris & Allen, 1996). These findings also support the concept of autism is a spectrum which indicated that the impairments in children with ASDs are varied within a spectrum including mild and severe and that their abilities are also

varied along continua from within the typical range to profoundly impaired (Wing & Gould, 1979).

Children who scored 'very high' in the agreement between their parents and teachers as having characteristics of AS as indicated in the ASDS and scored quite high in most of the tests (child 16 and 6), however do not fulfil the criteria 'use single words used by age 2, communicative phrases used by age 3'. The findings comparable to other studies which failed to support the validity of the language delay criterion to differentiate AS from autism (e.g. Eisenmajor et al., 1998; Mayes & Calhoun, 2001). It means that normal language onset does not prevent any child from later communication difficulties and the presence of a language delay does not predict that the child will have differences in other core areas of disturbance (Sciutto & Cantwell, 2005).

It was also found that not all parents and teachers agreed with each other as to whether the child have the characteristics of AS or not. Dinnebeil & Rule (1994) and Sheehan (1988) found that parents estimate their child's development at higher levels than teachers. However, this current study found that teachers tend to rate children as having characteristics of AS more than parents. Suen et al. (1995) indicated that it is not surprising to find differences between parents and teachers in assessing children's developmental levels since parents and teachers know children for different periods of time and in different contexts and operate with different frameworks. Therefore in this study instead of only using ASDS questionnaire, another individual assessments have also been applied to children with diagnosis of autism in the SEUs to identify children with characteristics of AS.

10.2.1.1 Prevalence

Findings from the standardised rating scale specified to identify individuals with AS (ASDS) have clearly indicates that there are children who perceived by their parents and teachers as 'very likely' have characteristics of AS amongst children with a diagnosis of autism in the SEUs. Even though it was not the aim of this study to estimate the prevalence of children with AS, due to the nature of the sample used in

this study, in some ways these findings could also provide some clues in relation to the prevalence of AS amongst children with a diagnosis of autism in the SEUs in Malaysian schools.

The key prevalence study of AS in children age 7 to 16 years old in Goteborg borough Sweden, suggests a rate of 36 in 10,000 (0.36%) (Ehler & Gilberg, 1993) and the latest prevalence of AS in children under 17 in Rhondda and Taff Ely, districts of south Wales suggests a rate of 35.4 in 10,000 (Latif & William, 2007). In this current study, if all children with 'complete agreement' ('very likely', 'likely' and 'possibly') between their parents and teachers were included to accumulate the prevalence, it would be around 0.32%, or 32 in 10,000; this is very close to what have been suggested by Ehler & Gilberg (1993) and Latif & William, (2007). The difference in findings compared to the current study is not surprising, since both of the previous studies used Gilberg & Gilberg's (1989) criteria, while most of the instruments used in this current study employ the DSM-IV criteria. However, if children with complete agreement but who were deemed as only 'likely' and 'very likely' were considered, the prevalence suggested would be around 0.26%, or 26 in 10,000.

If children with complete agreement but who were only considered 'very likely' were counted, the prevalence suggested would be around 0.11%, or 11 in 10,000. This finding is comparable to Chakrabarti & Fombonne (2001) who suggested the prevalence of AS is around 8.4 in 10,000 (0.084%) in children aged 2.5-6.5 years in Staffordshire, England. Similar to the current study, Chakrabarti & Fombonne (2001) also used the DSM-IV diagnostic criteria.

The findings indicated that estimated prevalence of children with AS which was found in the current study is comparable as what have been indicated in the previous studies. These findings are very usefull for Malaysian context since there are still no specific prevalence for children with ASDs or AS in Malaysia that have been stated in any research. The findings may also indicated that children with characteristics of AS may need to be identified in the SEUs in Malaysian schools to be given an appropriate support since their needs and potentials may be different from other

children. However, it should be noted that the prevalence was just based on the standardised rating scale (ASDS).

10.2.1.2 Assessment Scores

Several specific assessments were used to identify children with characteristics of AS in this study in the areas of language and social communication, cognitive, play and Theory of Mind which have been reported to score highly by children with characteristics of AS.

10.2.1.2.1 Language

Klin, Mcpartland & Volkmar (2005) suggested that the term 'AS' refers to individuals with ASDs, including autism without mental retardation and 'milder' forms of autism marked by higher cognitive and linguistic abilities. Therefore, this section discusses the language skills among children who 'most probably' have the characteristics of AS to see whether their scores were indeed higher than other children.

Child number 16 has outstanding language skills, particularly in listening, speaking and reading. However, to some extent his writing skills are still quite low. This is not surprising since high functioning individuals with autism or AS have reported as having weakness in motor coordination (see Ghaziuddin et al., 1992a; Gillberg & Ehlers, 1998; Volkmar & Klin, 1998). He scored low in writing skills due to very bad handwriting and taking too long to finish his writing tasks. The teacher who answered the language checklist also commented that the child has problems with hand-eye coordination, which was thought to be the cause of the writing problems.

Child number 6 did not, however, score very high, especially in reading, writing and speaking skills. These differences might be because of a biological age factor (Mayes & Calhoun, 2003), as at the time of assessment child number 6 was only 6 years and 9 months old, while child number 16 was 10 years and 4 months old. Mayes & Calhoun (2003) found that the verbal and non-verbal IQs and the ability profiles in children with ASDs are influenced by age and level of intelligence in children

age 3 to 15. Therefore they suggested that the intervention needs of young children with ASDs may differ from those of older children.

Child number 13 was also considered to have much better skills in listening, reading and writing in the language check list when compared to other children. However, he scored quite low in speaking (in stage 1 threshold). The teacher indicated that even though he is a quiet boy, he use formal sentences which is one of the characteristics of individuals with AS. Child number 7 scored quite low in listening, speaking, reading and writing. Therefore he is not totally fulfil the characteristics that are related to AS in language. There are also children who are not amongst those with 'most probably have the characteristics of AS' but scored quite high in listening (children number 4 and 5), in speaking (children number 5, 14 and 4), in reading (child number 5) and in writing (child number 5).

It was found that not all children with 'most probably have the characteristics of AS' scored high in language skills and there are also children who are not with 'most probably have the characteristics of AS' but scored quite high in language skills. These findings support that children with ASDs in the SEUs have very mixed language profiles that couldn't confirm any of them as having the characteristics of AS. Therefore this supports the concept of autism as a spectrum.

Children with 'most probably have the characteristics of AS' are expected to score higher than other children with autism in the SEUs in social communication. This was found true only for three out of four of them who scored high in the social communication which was gathered through a checklist that was answered by the discussion between teachers and the researcher. Child number 6 scored highest (106), followed by child number 13 (102) and child number 16 (99).

Child number 7 only score (86) which is lower than child number 4 (91) who is not within the 'most probably have the characteristics of AS'. Furthermore, two other children (children number 5 and 14) who are not amongst the 'most probably have the characteristics of AS' also scored quite high (85) and (82).

These findings indicated that even though it supported results of a study done by Macintosh & Dissanayake (2006), where individuals diagnosed with autism showed more social impairments compared to those with AS it also shows the uneven profiles of the characteristics of children with ASDs. Therefore it still couldn't be confirmed that children with 'most probably have the characteristics of AS' are different from other children in the SEUs. The differences between the two groups may occur because of some reason e.g. Eisenmajer et al. (1996) noted that despite possessing stronger desire for friendship and a greater ability to be involved in pro social behaviours, individuals with AS do not have a greater tendency towards forming and maintaining relationships. Eventhough children with AS may have better score in language and communication skills, they still have problem in developing relationship with other people.

10.2.1.2.2 Language Development (From GADS Parent Interview)

GADS parent interview has been used in this study to gather further information about children's developmental history particularly in language and cognitive abilities. Of the four children with 'most probably have the characteristics of AS', only children number 13 and 7 were reported to have used single words by age two and communication phrases by age three. Children 16 and 6 from the first order group in the ASDS agreement have not used single words by age two and communication phrases by age three. This is contrary to the expectation but it may be explained by arguments over the validity of the DSM-IV criteria 'using words by age 2 and phrases by age 3' as a distinctive factor in identifying AS. Ghaziuddin et al. (1992a), when comparing different criteria used to identify AS, found that very few individuals qualified for the diagnosis, which took into account normal cognitive and language development. Furthermore, a study by Eisenmajer et al. (1998) showed that language delay and current language level predicted autistic characteristics differently based on the individual's age. According to them, language variables could not provide clear differences between groups.

Mayes & Calhoun (2001) also suggested that early speech delay may be irrelevant to later childhood functioning and outcome in children with normal intelligence and

clinical diagnoses of autism or AS. Therefore, using absence of significant speech delay as one of the DSM-IV criteria to distinguish children with AS from classic autism may not be reasonable.

There are also possibilities for parents of children who are thought to have characteristics of AS, to say that their children do not have age-appropriate receptive vocabulary and expressive vocabulary because they think that the child's abilities are higher than what is considered age-appropriate e.g. parent of child number 16 in informal conversation with the researcher. Parents may also do not think that the child have age-appropriate receptive vocabulary and expressive vocabulary because of the characteristics of children with AS who usually have a 'bookish' quality of speech with the use of obscure words (Wing, 1981), have peculiar language patterns (Mayes et al., 1993) or have pedantic speech and being overly precise in a rather concrete way (Ghaziuddin et al., 1992a).

The findings from the GADS parent interview also show that there are a few children who apparently have no speech (see table 9.12) but whose parent said they used single words by age two and communication phrases by age three (children number 1, 2, 3, 9, 11, 12 and 15). In these cases, it is possible that the child had these abilities in their early years, before they experienced regression. In the regressive pattern of onset, there is a period of normal development (usually at least 12 months) followed by a change in or loss of previously acquired behaviour and the onset of autistic symptoms (Kurita, 1985; Wiggins, Rice & Baio, 2009). Loss of language is the most commonly described and perhaps most salient manifestation of regression (Lord, Shulman & Dilavore, 2004) but even within the communication domain, the nature and extent of loss is heterogeneous.

There are also few children with current features of having no speech but whose parents said that they had a receptive vocabulary appropriate by age. This might be explained by the child's abilities to understand what they have been told and follow instructions, making their parents aware that they had a receptive vocabulary appropriate to their age. Moreover, parents' retrospective reports of language development may not accurately represent true language functioning (Sanders, 2009). Woodbury-Smith et al., (2005) indicate that data obtained retrospectively may

present a number of issues, e.g. dates of developmental milestones may not be remembered, minor developmental delays may be inflated and present diagnostic realities may distort parents' memories of their children's development.

Language development findings from the GADS parent interview as discussed above supported that children with ASDs have very uneven profiles and it was very difficult to totally discriminate children with characteristics of AS from other children in the SEUs. Therefore it also supported that autism is a spectrum.

10.2.1.2.3 Cognitive

This section discusses the cognitive abilities among children who 'most probably have the characteristics of AS'. Since AS is usually characterised by the presence of normal intelligence, children with 'most probably have the characteristics of AS' are expected to have higher scores in the IQ test compared to other children. However, it was found true only for children number 16 and 6 because they scored within normal IQ range (70 and above) in their VIQ, PIQ and FSIQ. In the literature, it also has been suggested that individuals with AS possess a distinct profile on intelligence tests characterised by a high VIQ and relatively low PIQ (Klin et al., 1995; Ozonoff, 2000), while individuals with HFA are usually stronger in their non-verbal abilities and often score higher on PIQ than VIQ on standardised tests of measurement (Lincoln, Allen & Kilman, 1995; Rumsey, 1992). In this study only child number 16 scored higher VIQ than PIQ; therefore, it is possible that he has characteristics of AS, while child number 6, who is also within normal IQ range but has higher PIQ than VIQ, may have characteristics of HFA. However, studies which tried to differentiate AS and HFA using VIQ and PIQ have yielded inconsistent results, e.g. in a study of the neurocognitive aspects of AS, Szatmari et al. (1990) who compared 26 subjects with AS and 17 HFA controls have found no significant differences between the two groups on verbal, performance or full-scale IQ scores. Two factors that might contribute to the contrasting findings in these studies were the sample characteristics and the diagnostic criteria used in each study.

Since most of the children in the SEUs scored higher in PIQ than VIQ, the findings support most studies in this area, e.g. Manjiviona & Prior (1999), who indicated that children with ASDs have higher abilities in PIQ relative to VIQ. This pattern of cognitive ability supports the idea that rote tasks are performed better than tasks that require understanding and interpretation of information in children with ASDs. Therefore their strength in this area should be use appropriately especially in the teaching and learning process.

For child number 13, he scored within normal IQ range (70 and above) in VIQ and PIQ but not in FSIQ whereas child number 7 only scored within normal IQ range (70 and above) in PIQ but not in VIQ and FSIQ. There are also other children who are not included in the group with ‘most probably have the characteristics of AS’ but scored normal IQ range (70 and above) in particularly PIQ i.e. children number 5 and 12. These findings support that children with ASDs have a very complex cognitive profiles. Furthermore, the profile of child number 5 who scored very high (103) in PIQ when compared to the VIQ (58) support that children with ASDs sometimes have an island of ability i.e. ‘skills that are significantly better than would be expected on the basis of an individual’s overall level of intellectual achievement’ (p.204) (Heaton, William & Cummins, 2008).

10.2.1.2.4 Cognitive Development (From GADS Parent Interview)

GADS parent interview was also used in this study to gather further information about children’s developmental history in cognitive abilities. DSM-IV criteria for individuals with AS has indicated that individuals with AS should have ‘no clinically significant delay in cognitive development’ while Klin et al. (2005), suggested that higher cognitive abilities and no mental retardation are a mark of individuals with AS.

It was found in this study that was not the case for all children with ‘most probably have the characteristics of AS’ in the ASDS. For example, even though all of them have been perceived by their parents as have ‘average memory skill’ and ‘tries to solve tasks and problem’, child number 6 does not ‘learn like average child’, children 16, 6 and 7 do not have ‘average intellectual skill’ and all of them do not have

‘generalisation like average child’. The findings become more complicated because there are also children who are not from the ‘most probably have the characteristics of AS’ group but perceived by their parents as have ‘average memory skill’ (children 5, 14, 10, 4, 8, 11, 3, 9 and 12). However this may not be surprising since children within the ASDs usually have a good rote memory (Rumsey, 1992; Toichi & Kamio, 2002).

These findings support that children with diagnosis of autism in the SEUs have very complex profiles in their cognitive development and it has to be used with more care when describing the children’s characteristics. Moreover, as what have been discussed before, parents’ retrospective reports of language development may not accurately represent true cognitive functioning due to some issues, e.g. dates of developmental milestones may not be remembered, minor developmental delays may be inflated and present diagnostic realities may distort parents’ memories of their children’s development (Woodbury-Smith et al., 2005).

These findings indicate that children with ASDs in the SEUs have very complex cognitive profiles. Therefore it couldn’t be confirm that children with ‘most probably have the characteristics of AS’ are different from other children in the SEUs in their cognitive profiles.

10.2.1.2.5 Adaptive Behaviour, Self-Help Skills and Curiosity about the Environment (GADS Parent Interview)

According to the DSM-IV (1994), children with AS also do not show clinically significant delays in self-help skills, adaptive behaviour or curiosity about the environment. Therefore, the GADS parent interview form which examined these characteristics, have been used in this study. This section discusses whether the children who ‘most probably have characteristics of AS’ (children number 16, 6, 13 and 7) have scored higher than other children in the SEUs in these characteristics.

Szatmari et al. (1995) found that children with AS are more competent than children with high-functioning autism on adaptive behaviours in a study of 4 to 6 years old children. However, in the current study only children number 13 and 7 from the group

with ‘most probably have characteristics of AS’ scored high in adaptive behaviours whereas children number 16 and 6 scored low. These findings support Kamp-Becker, Ghahreman & Smidt, (2009) who found that children with high-functioning autism show a remarkable impairment in adaptive behaviour and Klin et al. (2007) and Saulnier & Klin (2007) who indicated that it is because their ability to transfer cognitive potential into real-life skills is often considerably impaired.

Over all, children scores in adaptive behaviours, self-help skills and curiosity about the environment show that it was not the case that children with ‘most probably have the characteristics of AS’ scored high in most of the skills and children who are not from that group scored low in most skills. These findings support that children with autism have very uneven profiles in adaptive behaviours, self-help skills and curiosity about the environment. Therefore it couldn’t be confirm that children with AS can be differentiate from other children in the SEUs through these characteristics.

10.2.1.2.6 Theory of Mind

Bowler, (1992) and Ozonoff et al., (1991) suggested that subjects with AS are more able to solve theory of mind problems. Therefore it was use in this study to see whether children with ‘most probably have the characteristics of AS’ have this abilities. The theory of mind test data was collected from only six children in the SEUs. The other children could not follow the instructions due to very low receptive language abilities, having no speech and being hyperactive.

Children who ‘most probably’ have characteristics of AS (children number 16, 6, 13 and 7) were among the six children for whom data was collected. However, the findings show that it was very difficult to differentiate children with characteristics of AS from other children in the SEUs using the Theory of Mind tests since all of them have not answered the ‘Sally Anne’ test correctly. However, there are also possibilities that these children couldn’t give the right answer because they are not very familiar with this sort of task. Furthermore, some of them focussing on the object themselves and keep playing with the toys during the test. Some procedures that have been applied in the study that not followed the standard procedures in ToM

tests may also give some effect to the findings. For example, not use some 'control' questions in the tests may have some impact to the findings (see Chapter 5: section 5.3.2 Standardised Tests – Theory of Mind test) page 107-111.

The findings are more complicated because child number 16 from the 'most probably have the characteristics of AS' group and child number 5 who is not from the same group have answered correctly in the 'Smarties' task. Therefore the Theory of Mind findings supports the concept that autism is a spectrum rather than could be used to differentiate children with characteristics of AS from other children with diagnosis of autism in the SEUs.

Since all children who had FSIQ below normal range (<60) answered both ToM tasks incorrectly; this finding supports most studies which have shown that understanding false belief is difficult for the majority of children with autism who also have cognitive disabilities or have low cognitive levels (see Baron-Cohen et al., 1985; Leekam & Perner, 1991; Leslie & Frith, 1988; Leslie & Thaiss, 1992). However, a few children within normal FSIQ range (>70) also answered incorrectly in one or both of the ToM tests, possibly because their VIQ was not high enough (58-87). This finding supports a few other studies which have found a positive link between cognitive abilities (mainly verbal IQ or verbal mental age) and performance on first-order false belief tasks (e.g., Happe, 1995; Yirmiya, Solomonica-Levi, & Shulman, 1996). Child no 16 may could answer the smarties task due to the high VIQ (87) while for child no 5, even though the VIQ is quite low (58) but the PIQ is very high (103). However, even though high cognitive abilities may be useful in solving ToM tasks, they may not be enough to function well in real social situations (Ozonoff & McEvoy, 1994; Rutter & Bailey, 1993). They may be aware that people have thoughts and feelings, but their understanding of these phenomena is restricted (Losh and Capps, 2003).

10.2.1.2.7 Play

This section discusses the symbolic play abilities among children who ‘most probably have characteristics of AS’. Some individuals with autism have been known to have the ability to produce limited symbolic play, especially children with higher verbal mental ages (Jarrold, Carruthers & Smith, 1994; Kavanaugh & Harris, 1994). Therefore it was expected that children with characteristics of AS score higher on assessments of play than children with autism. However, this was not found true for all children with ‘most probably have the characteristics of AS’ since some of them scored lower than other children with autism in the play tests scores.

Only child number 16 scored highest (>36 months) in the SPT. Children number 6 and 7 scored second highest (33.7 months) followed by child number 13 who scored the third highest (31.1 months). However there are also other children who are not from the ‘most probably have the characteristics of AS’ group who scored quite high in the SPT e.g. children number 5 and 14 who scored the second highest (33.7 months) and child number 4 who scored the fourth place (28.5 months).

In the TOPP scores only child number 4 who is not from the ‘most probably have the characteristics of AS’ group scored highest (71.3 months). Children with ‘most probably have the characteristics of AS’ only scored the second highest i.e. child number 13 (65.3 months), the third highest i.e. child number 7 (57.3 months) whereas children number 16 and 6 scored the fifth highest (49.3 months). Child number 5 who are not from the ‘most probably have the characteristics of AS’ group also scored quite high (53.3 months) or the fourth highest. Since child 5 also gave the right answer to the ToM (smarties) test, there are possibilities that this child has quite good symbol representative abilities even though she cannot speak clearly.

These findings show the complexity in the presentation of the characteristics of children with diagnosis of autism in the SEUs. Therefore it support that autism is a spectrum rather than to differentiate children into different groups such as classic autism and AS.

The findings also show that most children scored higher in SPT than TOPP because the SPT actually focuses more on assessing functional play (Lowe & Castello, 1976), which is easier for children with ASDs, compared to TOPP, which actually assesses the ability of true symbolic play. This also supports Leslie (1987), who suggests that the autistic difficulty lies in understanding and using symbolic play which need more for mental state understanding, whereas functional play may be unaffected.

The findings also show that most of the children's scores in the play test are not as high when their biological age is considered. For example, children 6, 5 and 14 only scored 33.7 months (2 years and 8 months) in the SPT but their biological age are 6 years and 11 months, 11 years and 1 month and 7 years and 4 months. This finding supports Jordan (1999, 2003), who claimed that difficulties and delay in understanding symbolism, especially in relation to pretend play, are characteristic of individuals with ASDs, including AS. This was also the reason why the SPT and TOPP, which have been devised for younger children, were used in this study.

10.2.1.2.8 Conclusion for Research Question 1(a)

The findings indicated that estimated prevalence of children with AS which was found in the current study is comparable as what have been indicated in the previous studies. It may be useful as a guideline of the prevalence of children with characteristics of AS in the SEUs in Malaysian schools. Therefore children with characteristics of AS may need to be identified in the SEUs in Malaysian schools to be given an appropriate support since their needs and potentials may be different from other children. However, it should be noted that the prevalence was just based on the standardised rating scale (ASDS).

It was found that four out of 16 children were identified as 'most probably having characteristics of AS through the ASDS, tests and GADS parent interview. However, this finding was not entirely straightforward. Even though each of the four children had convincing characteristics that suggested they may have characteristics of AS, they also showed some other characteristics that did not fulfil the criteria for AS e.g. have cognitive and language developmental delay, low scores in the ASDS parent-

teachers agreement and low scores in the tests and GADS parent interview. Therefore, there was no clear confirmation that any of the children had definite characteristics of AS. Instead, it was only found that a few children were more likely to have characteristics of AS than the others.

This supports the empirical sub-typing studies which indicated that sub-types of ASDs are not qualitatively unique from each other. Differences between them have typically been regarded as reflecting variations in the severity of impairments (see Fein et al., 1999; Prior et al., 1998; Volkmar, Klin & Cohen, 1997; Waterhouse et al., 1996). These findings also support the concept of autism is a spectrum which indicated that the impairments in children with ASDs are varied within a spectrum including mild and severe and that their abilities are also varied along continua from within the typical range to profoundly impaired (Wing & Gould, 1979).

The findings also comparable to other studies which failed to support the validity of the language delay criterion to differentiate AS from autism (e.g. Eisenmajor et al., 1998; Mayes & Calhoun, 2001). It means that normal language onset does not prevent any child from later communication difficulties and the presence of a language delay does not predict that the child will have differences in other core areas of disturbance (Sciutto & Cantwell, 2005).

It was also found that not all parents and teachers agreed with each other as to whether the child have the characteristics of AS or not. Suen et al. (1995) indicated that it is not surprising to find differences between parents and teachers in assessing children's developmental levels since parents and teachers know children for different periods of time and in different contexts and operate with different frameworks. Therefore in this study another individual assessments have been apply to children with diagnosis of autism in the SEUs to identify children with characteristics of AS. These findings also supported that children with ASDs have very uneven profiles therefore parents and professionals sometimes do not have agreement between each other regarding the characteristics of each child.

Variances were also found in children scores in the tests (language and social communication, IQ, TOM, play tests) and GADS parent interview. Not all children

who are in the group with ‘most probably have the characteristics of AS’ have scored high in most of the skills and vice versa as what have been expected. It also supported that autism is a spectrum and children within the spectrum have very complex features. Through all these findings it was suggested that children with diagnosis of autism in the SEUs to be identified as autism spectrum disorders (ASDs) rather than AS or classic autism. Therefore, their different abilities and needs should be address differently and to be given appropriate supports and education that suit their individual needs and abilities.

10.2.1.2.9 Relation to DSM 5

Overall, it was found in this study that it was difficult to differentiate children with characteristics of AS from autism. The findings also not supported the DSM IV diagnostic criteria for AS ‘no language and cognitive developmental delays’. Therefore this study have been strongly supported by the latest diagnostic criteria (DSM 5) which has merged subtypes of autism into one umbrella diagnosis called Autism Spectrum Disorder (ASD). In DSM 5, severity was based on social communication impairments and restricted, repetitive patterns of behaviour. They were classified into three groups based on their severity level:

Level 1: requiring support

Level 2: requiring substantial support

Level 3: requiring very substantial support

The diagnostic criteria for Asperger syndrome in both ICD-10 and DSM-IV include qualitative abnormalities in reciprocal social interaction (criteria as for autism), and restricted and repetitive stereotyped patterns of behaviour (as for autism). The disorder also includes specific onset criteria i.e. there is no history of significant delay in spoken language, and that self-help skills, adaptive behaviour and curiosity about the environment should be at level consistent with normal development (Smith, Klin & Volkmar, 2005).

The main difference between AS and autism in the diagnostic criteria is that children with AS have no clinically significant general delay in language or in cognitive development whereas children with autism may or may not. Another criterion that can differentiate children with AS and autism is both children have impairment in social interaction and restricted, repetitive and stereotyped patterns of behaviour, interests, and activities but children with autism also have impairment in communication (Mayes & Calhoun, 2001).

However, researchers and clinicians were not in total agreement regarding criteria for Asperger syndrome and the definitions differed in some ways from one researcher or clinician to another (Klin, 1994; Szatmari, 1992; Leekam, 2007).

Different diagnostic criteria for autism and AS have caused a lot of confusion because the two have many similarities in their characteristics that overlap with each other while the differences between them are not substantiated or significant as diagnostic criteria that can distinguish between them. Considering all these confusion and disagreements, therefore when DSM 5 was published in 2013, AS was merged with other subtypes of autism into one umbrella diagnosis called Autism Spectrum Disorder (ASD).

Actually this study was done before the DSM 5 was published in 2013. From the literature review, the researcher understand that it was quite difficult to differentiate AS from autism (HFA) but the researcher still interested to do the research for some reasons.

1. Most of the research in the literature were done in other country especially in the western countries. The researcher want to explore whether this is also happen in Malaysian context.
2. The malaysian context literature review also showed that there are lack of knowledge, research and awareness in Malaysia regarding children with autism when compared to other countries. therefore the researcher want to explore more on the characteristics of children with autism in Malaysian context.

From the findings of this study the researcher could confirmed that similar to findings of research from other countries, children with diagnosis with autism could better be identified as ASD rather than to differentiate them into AS or autism. Therefore the DSM 5 which have classified these children into three groups based on their social communication impairments and restricted, repetitive patterns of behaviour might be suitable to be implemented in the Malaysian context.

10.2.2 Children with Characteristics of AS Within Children in the Mainstream Classes

The second part of the first research question is to identify children with characteristics of AS within children in the mainstream classes. Since the prevalence of children with AS is 1 in 270 (Ehler & Gilberg, 1993) and 1 in 286 (Latif & William, 2007) it was expected that there must be children with characteristics of AS in mainstream classes in 5 school in Malacca. However, no children in the mainstream classes (age 7-12 years) were identified as having characteristics of AS in this current study. There may be some reasons for this finding. It is known from the literature that diagnosis of children with AS is usually made much later than diagnosis of autism. The average age when a diagnosis of autism was confirmed was around 5.5 years, compared to 11 years for AS (Frith, 2004). It is possible that even at an early age the problems of AS are obscured by the specific strengths that are often associated with the disorder. Initial worries in both groups centred on abnormal social development, but parents and teachers of children with AS were less likely to have noted communication problems since some of these children have good language skills and have special interests and higher intellectual ability (Frith, 2004). For these reasons, possibly, teachers in this study could not distinguish them from other children.

Children with characteristics of AS aged 7-12 in the primary schools involved in this study may also have been able to survive in their school environment. It is possible that the environment in the primary schools was more structured than the secondary schools. Children were well organised because there were not too many pupils in one classroom (not more than 40 pupils), and each child could get enough support from

the teachers and other school staff. It is also possible that, if there were any children with characteristics of AS who sometimes could not cope with e.g. unexpected situations, such children could have been misclassified by the teachers as lazy, naughty or disruptive (Scott, Baron-Cohen & Bolton, 2002).

Since academic achievement is very important in Malaysian schools, there are also possibilities that teachers do not give great attention to children's difficulties in social skills as long as the child can score good results. Some teachers especially in the mainstream classes may also not very familiar with the concept of ASDs or the characteristics of children with AS. Therefore they can't identify these children. Some mainstream class teachers may also have been very protective that they don't want any children in their class to be labelled as having AS since it will be quite difficult for them to explain it to the parents. Furthermore, parents would not easily to accept that their children are identified as different from other children.

The instruments and screening process used in this study may also have some implications for the findings. A standardised rating scale (KADI) which is specifically for identifying individuals with AS was used in this study. The mainstream class teachers answered the KADI for all the children in their class. Testing in the pilot study showed that it has a good agreement with the IQ test; therefore, it was used as a screening test in the main study. However, only the first part of the KADI, which contains 11 items, was used as the screening test.

Only children who scored above the cut-off point of the KADI were involved in further investigation. A few children that were screened did score above this cut-off point, but further investigation showed that they did not have characteristics of AS. Furthermore, since the mainstream class teachers had to answer the screening test for every child in their class, it was suggested that they might not have completed it precisely due to having too many forms to fill in.

This finding suggested that the screening test would be more appropriate if teachers did not need to fill in too many forms, i.e. one for every child in their class, but only for children that they thought might possibly have characteristics of AS. Since the

age of identification for AS is may be as late as 11 years old, perhaps only children around this age should be screened.

10.2.2.1 Conclusion for Research Question 1 (b)

No child in mainstream class was identified as having characteristics of AS in this study, possibly due to the reasons discussed above. The characteristics of children with AS, different abilities amongst children with autism spectrum, schools environment or Malaysian schools context and the procedures used in the study may have some implications for the results. No children was identified as having characteristics of AS in the mainstream classes may also indicated that it is not easy to differentiate subtypes of ASDs since they are actually not qualitatively unique from each other. Differences between them may only reflecting variations in the severity of impairments in different skills or abilities as indicated in some research in this area.

10.3 Research Question 2:

What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.

The findings and discussion in research question 1 have indicated the range and complexity of differences in abilities of children with diagnosis of autism in the SEUs and it will be addressed in more detail in the discussion of research question 2.

It was found that children with diagnosis of autism in the SEUs scored differently in different skills. There are differences in the characteristics of children who 'most probably have characteristics of AS' as phrased by the ASDS compared to children with 'low probability of having characteristics of AS', as indicated in the discussion of the first research question. Moreover, there are also differences in the characteristics amongst children in each of these groups. It was found that children from the same group are different from each other as well as from children in the

other groups. This finding indicates that children with autism have very uneven profiles and very large range of abilities and needs. It support Wing & Gould (1979), who introduced the concept that autism as a spectrum.

More detail observation into the characteristics of children, including children with a low probability of having characteristics of AS may further explain the findings of the uneven profiles in children with diagnosis of autism in the SEUs. Therefore this section looked at particular findings in relation to ASDS parents' and teachers' agreement, current language profiles, cognitive, observable behavioural features and age factor. The discussion will start with children's current language profiles, cognitive, observable behavioural features, age factor and followed by the ASDS findings in relation to research question 2.

10.3.1 Current language profile

'Current language profile' is the characteristics of children's spoken language abilities that have been observed indirectly by the researcher during the tests procedures and also as what have been told by the teachers. It was used in this study to describe the differences in children's current language profile in relation to their scores in the tests and GADS parent interview scores. It was found can accurately differentiate children into three different groups as described below.

Table 10.1 : Current language profile

Apparent Language Profile	Children	Tests and GADS parent interview scores
Can speak clearly	6	High in most scores
Can speak clearly but very quiet; sometimes uses complete or formal sentences but has a small vocabulary	13	High in most scores
Can speak clearly; always uses complete or formal sentences; has a large vocabulary	16	High in most scores

Table 10.1 : Current language profile - continue

Apparent Language Profile	Children	Tests and GADS parent interview scores
Can speak but not very clearly	5, 7, 14	Mixed scores (high, moderate or low)
Can speak; talkative but with repetitive words	4	Mixed scores (high, moderate or low)
No speech	1, 2, 3, 9, 10, 11, 12, 15	Low in most scores
Can pronounce a few words but not very clearly	8	Low in most scores

Table 10.1 shows that children's current language profiles could be used to differentiate children with autism into three different groups. It shows that children with low abilities in current language profiles also scored low in most of the tests and GADS parent interview; children who are moderate in current language profiles have mixed scores (whether high, moderate or low) in the tests and GADs parent interview; and children with higher abilities in current language profiles scored high in most of the tests and GADS parent interview. The table was summarised as below:

Table 10.2 : Summary of children's current language profile

Current Language Profile	Children	Tests and GADS parent interview scores
High abilities in current language	16, 6, 13	High in most scores
Moderate abilities in current language	4, 5, 7, 14	Mixed scores (high, moderate or low)
Low abilities in current language	1, 2, 3, 8, 9, 10, 11, 12, 15	Low in most scores

These findings indicates that children's current language profile could differentiate children with diagnosis of autism in the SEUs into groups of children who scored high in most of the tests and GADS parent interview, children who had mixed scores

(high, moderate and low) and children who scored low in most of the tests and GADS parent interview. This finding supports Prior et al. (1998) and Leekam et al. (2000), who found that behavioural grouping was better distinguished on the basis of current verbal and cognitive profiles. Therefore, this kind of grouping (children with high, mixed and low scores) will be used in further explanation of the differences in the characteristics of children with a diagnosis of autism in the SEUs.

When these findings were compared to the language checklist scores used in this study it was found that only listening skills could differentiate the children into the three different groups. This suggested that observation of the children's current language profile may be more simple but effective way to differentiate children into the three different groups. Since children with autism have complex characteristics due to the nature of autism, comorbid conditions and development needs (Simpson, 2003), therefore the teacher could differentiate children into different groups more at ease when using their spoken language abilities.

This broadly grouping into three groups i.e. children with high, moderate and low scores in the tests and GADS parent interview might be useful for the teachers since it indicate more different abilities within the spectrum of autism rather than grouping children into different groups such as AS, HFA and classic autism which indicate different disorders in the PDD.

However, it should be noted that children's current language profile could only accurately differentiate children who scored high and low in most of the tests and GADS parent interview but not for the children with the mix scores because some of them scored high, moderate or low in different skills. These findings support that children with autism have very uneven profiles and the range of individual needs and abilities need to be highlighted.

Since the language checklist used in this study describes more detailed language features, it might be more suitable for the teachers to gain information about individual children's language profiles for teaching purposes and behaviour management (Jones, 2002). Therefore, appropriate strategies which are more child-

specific and reflect their strengths, interests and preferences would be implemented (Jones, 2002).

10.3.2 Relation to DSM 5

In the DSM 5, people with ASD were classified into three groups based on their severity level on social communication impairments and restricted, repetitive patterns of behaviour. They were classified into three groups based on their severity level:

Level 1: requiring support

Level 2: requiring substantial support

Level 3: requiring very substantial support

Findings from the current study supported the DSM 5. It was found in this study that children's current language profiles could be used to differentiate children with autism into three different groups. Actually, the phrases 'current language profiles' that have been used in this study could also describe the social communication aspect of each child (see table 10.1). It means that in this study social communication aspect of children with autism could be use to differentiate them into three groups:

1. Children with higher abilities in social communication scored higher in most of the test and GADS parent interview
2. Children who are moderate in social communication abilities have mix scores (high, moderate or low) in the test and GADS parent interview
3. Children with low abilities in social communication scored low in most of the test and GADS parent interview

These findings supported DSM 5 because children could also be group as indicated in the DSM 5:

Children in group 1 similar to level 1 – requiring support

Children in group 2 similar to level 2 – requiring substantial support

Children in group 3 similar to level 3 – requiring very substantial support

10.3.3 Cognitive Profile

It was found that children's scores in VIQ could also be used in differentiating children with autism into three different groups. Children who scored VIQ 70 and above scored high in most of the tests and GADS parent interview. Children who scored a VIQ between 60 and 69 had mixed scores (high and low), except child 12, who scored low in most of the tests and GADS parent interview scores. Children who scored a VIQ below 60 scored low in most of the tests and GADS parent interview, except children 5 and 7, who had mixed scores (high, moderate and low).

Children's PIQ scores could also be used to differentiate children with autism into three different groups. Children who scored 70 and above scored high in most of the tests and GADS parent interview, except children 5 and 7, who had mixed scores, and child 12, who scored low in most of the tests and GADS parent interview. Children who scored 60-69 had mixed scores, except children 1, 2, 3, 9 and 15, who scored low in most of the tests, whereas children who scored below 60 in PIQ scored low in most of the tests and GADS parent interview.

In PIQ, no children were found to have been placed in a lower order group. This shows that children with autism in this study have higher or better abilities in PIQ than VIQ, which supports the findings of most studies in this area, e.g. Manjiviona & Prior (1999); Rumsey, (1992); Siegel, Minshew & Goldstein (1996), who indicated that children with autism have higher PIQ relative to VIQ, with superior performance on the block design subtest and poor performance on the comprehension subtest. This pattern of cognitive ability supports the idea that rote tasks are performed better than tasks that require understanding and interpretation of information in children with autism (Manjiviona & Prior, 1999).

A few children who scored low in most of the tests and GADS parent interview (children 1, 2, 3, 9, 15) were placed in the middle group in the PIQ. This once again supports the finding that children with autism scored better in PIQ than VIQ, even though they scored low in most other skills.

The FSIQ scores could also be used to differentiate children with autism into three different groups, with a few exceptions. Children with high scores in most of the tests and GADS parent interview were placed in the higher group, except child 5. Children with mixed scores in the tests and GADS parent interview were placed in the middle group, except child 13 from the highest group and child 12 from the lower group, whereas children who scored low in the tests and GADS parent interview were placed in the lower group.

Child 5 was placed in the higher group because of the very high PIQ score (103); therefore, the FSIQ scores were quite high even though the VIQ was quite low (58). The child's profile once again supported that tasks relying on spatial ability are likewise performed better than verbal tasks by children with autism (Manjiviona & Prior, 1999). Child 13 from the higher group was placed in the middle group because of the borderline scores in VIQ (70) and PIQ (74); therefore, the FSIQ scores (69) were placed in the middle group.

It was found that children scores in the VIQ, PIQ and FSIQ can differentiate children into the three different groups as discussed before but with some exception. Several other assessments that were used in this study e.g. social communication, TOM and play tests could also differentiate children to the three different groups with some exceptions. It showed that children with autism in the SEUs have very complex characteristics or uneven profiles that supported that autism as a spectrum.

Overall, findings in PIQ, VIQ and FSIQ showed that they could be used to differentiate children into different groups. These findings supported Prior et al. (1998) and Leekam et al. (2000) who indicated that cognitive profile could also be used to distinguish the behavioural groups of children with autism. As indicated before, this broadly grouping into three groups i.e. children with high, moderate and low scores in the tests and GADS parent interview might be useful for the teachers for teaching and learning purposes since it indicate more different abilities within the spectrum of autism. Moreover, the range of individual features could also be used to guide for individualised support. It also suggested that the measure used in this study (WASI) is suitable for use in other studies or by teachers attempting to examine the IQ profile of children with a diagnosis of autism within comparable settings, contexts

and cultures. However, it also must be noted that when using this instrument, children's age differences were already accumulated in the final scores.

10.3.4 Apparent Features

'Apparent features' is the observable behavioural features which can be associated with autism e.g. stereotypes, emotional regulation, sensory sensitivities which have been observed informally by the researcher during the implementation of the tests procedures and have been confirmed by the teachers.

Table 10.3 : Apparent Features

Groups	Children	Apparent Features (from the researcher's observation)
Scored high in most of the tests and GADS parent interview	6, 13, 16	Plays with fingers – 1 child Makes unsuitable faces – 1 child Flaps hands – 1 child Sensitive to noise – 1 child Fine motor problem – 1 child Health problem – 1 child Eats only the same food – 1 child Plays alone – 1 child
Mixed scores (scored high, moderate or low)	7, 4, 5, 14	Hyperactive – 3 children Repetitive – 2 children Tantrum – 2 children Ritual – 1 child Eats only the same food – 2 children Plays alone – 1 child Flaps hands – 1 child Emotionally unstable/moody – 1 child
Scored low in most of the tests and GADS parent interview	1, 2, 3, 8, 9, 10, 11, 12, 15	Hyperactive – 3 children Repetitive – 2 children Tantrum – 6 children Sensitive to noise – 1 child Fine motor problem – 1 child Does not pay attention – 1 child Plays alone – 1 child Emotional stability/moody – 1 child No responses/passiveness – 1 child Plays with fingers – 1 child Clumsy body movements – 1

Table 10.3 shows that there are eight apparent features related to the group of children who scored high in most of the tests and GADS parent interview; only one child demonstrated each feature. Even though children in the mixed scores group also related to only eight apparent features, four features involved more than one child. Children in the third group, who scored low in most of the tests and GADS parents interview, demonstrated more (11) apparent features/behaviours usually related to the characteristics of individuals with autism than children from the first or second groups. Moreover, three of the features/behaviours related to more than one child.

It was possible that since children in the first group had no apparent features that could strongly impacted their abilities in different skills, e.g. hyperactivity, tantrums, emotional instability/moodiness or no responses/passivity therefore they could perform better or show stronger abilities in different skills compared to other groups, which contained with individuals with these characteristics.

However, it was also found that overall behavioural features which can be associated with autism are seen in all groups including children with high scores in most of the tests and GADS parent interview. These findings support Howlin et al. (2004) who indicated that majority of individuals with ASDs have at least mild to moderate problems associated with repetitive and stereotyped behaviours even amongst individuals with IQ above 70. Therefore they supported that autism as a spectrum.

10.3.5 Relation to DSM 5

These findings also support the DSM 5 because in DSM 5, 'restricted, repetitive patterns of behaviour' could also differentiate people with ASD into three level i.e. requiring support, requiring substantial support, requiring very substantial support. It was very clear as shown in table 10.3, children in this study could be differentiate into three level through their restricted, repetitive patterns of behaviour. Even though the phrases that have been used in the table are 'apparent features', but actually they are showing the 'restricted, repetitive patterns of behaviour' of the children.

It was found that children who scored high in most of the tests and GAD parent interview, have less restricted, repetitive patterns of behaviour (only 8), the group with mix scores have moderate restricted, repetitive patterns of behaviour (13) whereas children from the group with low scores in most of the tests and GADS parent interview have more restricted, repetitive patterns of behaviour (19).

These findings support DSM 5 that children with ASD could be classified into three level through their restricted, repetitive patterns of behaviour:

Level 1 – requiring support – have less restricted, repetitive patterns of behaviour

Level 2 – requiring substantial support – have moderate restricted, repetitive patterns of behaviour

Level 3 – requiring very substantial support – have more restricted, repetitive patterns of behaviour

10.3.6 Age

Age did not differentiate children with autism into different groups. Two children from the first group, who scored high in most tests and GADS parent interview, were 10 and 7 years old. However, there are also children who are 10 and 7 years old in the second and third groups. For that reason, no specific age pattern could differentiate children in this study into any different groups.

This finding is not surprising since this is cross-sectional and not longitudinal study. Therefore, only children's scores at that particular time could be examined. Mayes & Calhoun's (2003) findings suggesting that 'age may affect the pattern of abilities in children with autism' could not be confirmed since differences in the children's scores in relation to their age at different times are not known. It was possible that further studies using a longitudinal method might be valuable to see the difference in children's scores in relation to their age.

10.3.7 Parents' And Teachers' Agreement

In relation to the agreement levels between parents and teachers that have been used to identify children with characteristics of AS in this study, several ASDS items have been found to have a good percentage of agreement between parents and teachers when compared to the other items, as shown in table 10.4:

Table 10.4 : ASDS Items with High Parent/Teacher Agreement

Item	% of Agreement
displays limited interest in what other people say or what others find interesting (social)	90
speaks like an adult in an academic or bookish manner and/or overly uses correct grammar (lang)	80
does not understand or use rules governing social behaviour (social)	80
displays behaviour that is immature and similar to that of much younger child (maladaptive)	80
has difficulty understanding the feelings of others (social)	75
has difficulty understanding social cues (i.e. turn-taking in conversation, politeness) (social)	75
does not change behaviour to match the environment (i.e. uses loud outside voice in the library (maladaptive)	75
functions best when engaged in familiar and repeated tasks (cognitive)	75
learns best when pictures or written words are present (cognitive)	75
lacks organisational skills (cognitive)	75
frequently stiffens, flinches or pulls away when hugged (sensory)	75
overreacts to smells that are hardly recognizable to those around him or her (sensory)	75

The higher agreement means that the parent and teacher of a particular child agreed with each other as to whether the child had that particular characteristic or not. Items with a high percentage of agreement might indicate that the characteristic described was well understood by the parents and teachers. It was also suggested that the item was easily observed or not observed by the parents and teachers, or obviously shown or not shown by that particular child. It could also suggest that these items are more suitable to be used in other studies that attempt to identify children with characteristics of AS within similar settings, contexts and cultures.

Table 10.5 : ASDS Item analysis: Low Parent/Teacher Agreement

Item	% of Agreement
has a restricted diet consisting of the same food cooked and presented in the same way (sensory)	35
displays unusual reaction to loud, unpredictable noise (e.g. screams, has a tantrum, or withdraws) (sensory)	45
has few or no friends in spite of desire to have them (social)	45
experiences difficulty in beginning and continuing a conversation (language)	45
interprets conversations literally (i.e. has difficulty understanding metaphors, idioms) (language)	35

In contrast to this, the items with low agreement levels between parents and teachers, as shown in table 10.5, may indicate that they have not been fully understood by the parents and teachers, or the child may only demonstrate this characteristic occasionally. The reason for the items not being fully understood may be because it was not asking a very clear question, or the parents and teachers did not have enough knowledge about what was being asked. This finding may suggest that these questions should be used with more appropriate explanations if they are going to be used in other studies in similar settings, contexts and cultures, to make sure they are understandable for parents and teachers.

A number of other explanations have been proposed for the poor agreement between parent and teacher ratings for the ASDs symptoms. Suen et. al. (1995) indicated that since parents and teachers know children for different periods of time and in different contexts and operate within different frameworks, it is not surprising to find differences between parent and teacher assessment of children's developmental levels. A study by Sexton, Thompson & Perez (1990) suggested that intelligence quotient (IQ) may be one such factor. They found that mothers' ratings of children's developmental status were more in agreement with professionals' ratings when their children had higher IQs. The current study clearly supports Sexton et al. (1990) when parents and teachers have 'complete agreement' regarding children with higher IQs, i.e. who scored 'very likely', 'likely' and 'possibly' having characteristics of AS.

In contrast, Szatmari et al. (1994) failed to find IQ as a significant predictor of differences between parent and teacher ratings of children with pervasive developmental disorders on the Vineland Adaptive Behavior Scale (VABS). However, their study demonstrated that parental stress was positively associated with greater parent-teacher differences.

These findings indicate that ASDS was good at identifying children who are 'very likely' and 'very unlikely' to have characteristics of AS, but for children who are 'possibly' or 'likely' to have characteristics of AS, it does not seem to be a very accurate form of identification. Therefore, especially for this group of children, more tests or observation should be done to confirm whether they have characteristics of AS or not.

This finding supports that standardised rating scales (ASDS, in this study) should not be used in isolation to identify children with characteristics of AS but rather as a useful source of qualitative information and to provide a convenient way of analysing and comparing a child's behaviour (Freeman et al., 2002). Furthermore, the test authors recommended that their ratings scales be used as part of a larger evaluation when identifying children with characteristics of AS from other possible conditions (Myles et al., 2001). In this study this has been applied by using the different tests and GADS parent interview to support the ASDS findings.

10.3.8 Conclusion for Research Question 2

It was found that children's current language profiles could be used to differentiate children with autism into three different groups. Children with high abilities in current or apparent language profiles scored high in most of the tests and GADS parent interview. Children with moderate abilities in apparent language profiles had mixed scores (scored high, moderate and low) in the tests and GADS parent interview scores, while children with low abilities in apparent language profiles scored low in most of the tests and GADS parent interview scores. This finding supports Prior et al. (1988) and Leekam et al. (2000), who indicated that behavioural groupings are better distinguished on the basis of current verbal and cognitive profiles.

This broadly grouping children into three groups i.e. children with high, moderate and low scores in the tests and GADS parent interview might be useful for the teachers since it indicate more different abilities within the spectrum of autism rather than grouping children into different groups such as AS, HFA and classic autism which indicate different disorders in the PDD. It also suggested that if teachers want to group children with ASDs into different groups to support their needs, children's apparent language profiles could be consider as the basis of the grouping.

The phrases 'current language profiles' that have been used in this study could also describe the social communication aspect of children with autism in the SEUs. It means that in this study, childrens' social communication impairments could be used to differentiate children with autism into children with high, moderate and low scores in the tests and GADS parent interview. This findings strongly support DSM 5 which indicates that social communication impairment could differentiate people with ASD into 3 level of severity i.e. requiring support, requiring substantial support and requiring very substantial support.

It was also found in this study that childrens' restricted, repetitive patterns of behaviour could also differentiate children into 3 groups i.e. children with high, moderate and low scores in the tests and GADS parent interview. This finding once again strongly support the DSM 5 which indicates that people with ASD could be

classified into 3 groups of severity level by their restricted, repetitive patterns of behaviour.

Even though in DSM 5 it was not stated that IQ could be use to differentiate people with ASD into three different groups, it was found in this study that childrens' abilities in IQ (PIQ, VIQ and FSIQ) may also could be use to differentiate children into the same three groups. However, the findings are not as clear as findings from the social communication impairments and restricted, repetitive patterns of behaviour as discussed before. Therefore more research on this area may should be done to confirm whether IQ profiles could also be use to differentiate people with ASD into 3 level of severity as suggested in the DSM 5.

It was also found in this study that children with autism have higher or better abilities in PIQ than VIQ, which supports the findings of most studies in this area. This finding indicated that rote tasks are performed better than tasks that require understanding and interpretation of information in children with autism.

Findings from this study showed that children with autism have very uneven profiles and a very wide range of abilities and needs. It was found that children from the same group differed from each other as well as from children in different groups. Therefore it supports Wing & Gould (1979), who indicated that autism as a spectrum. The very uneven profiles found amongst children with autism in this study indicate the importance of individualised support and focus on each child as unique.

Since several items in the ASDS were identified as having higher agreement between parents and teachers compared to other items, it was also suggested that these items could be used by teachers in Malaysian schools in earlier processes of identifying children with characteristics of AS, or as a screening test before further investigation could be made.

10.4 Additional Question:

- How do parents and teachers draw upon the information obtained from the information pack?

Parents and teachers involved in this study indicated that the information pack was a useful source of information. They found that it was useful, had enough information for them, was practical and clear, had enough information in all sections, did not leave out anything important and did not contain too much information. Moreover, parents and teachers suggested that the pack should be distributed to other parents and teachers, supporting the finding that the pack was very useful as they wanted it to be shared with others. However, there were some differences between parents' and teachers' answers.

The findings suggest that the parents needed more information about autism from the pack than the teachers. In the comment sections, parents indicated several issues about autism that they were interested in, and wanted them added to the information pack, i.e. onset time, causes, early intervention, outcome and approaches or intervention. They also indicated that they wanted more detailed information of what was put in the information pack, e.g. more explanation on the characteristics of autism and strategies on how parents can help children.

An extensive need for information regarding ASDs from parents suggests there is a lack of knowledge about children with these characteristics amongst parents in Malaysia. It also supports the idea that the period following the diagnosis or identification process is principally one of searching for information on the disorder and for appropriate support or treatment, which appears very limited (Smith et al., 1994). The finding also supports the suggestion that broad information sheets or pamphlets provided at the time of diagnosis or identification would be of value to many parents (Huws et al., 2001).

Teachers, even though they also needed more information about autism, just noted it in general; only one teacher noted that he/she needed more specific information, e.g. the differences between AS and autism. Fewer requests for additional information on autism from teachers may suggest that the teachers are more knowledgeable about autism, or they might more easily have access to information resources, e.g. the internet, where they could explore information about autism by themselves. Moreover, special education teachers involved in this study normally had at least basic information about autism through their teaching training programme, whereas

not all parents can easily get access to information about autism, whether through internet, books or training, but they still have to face their autistic children in their everyday life. However, even though teachers may be more knowledgeable about the general characteristics of children with autism, nobody can argue that parents normally know their children's specific characteristics better.

These differences suggested that different information packs should be devised for parents and teachers. This would be comparable to the information provided by the National Autistic Society website, which has different sections for parents, relatives and carers, adults with autism and professionals. Therefore, more specific information relating to parents or teachers could be provided in the pack.

It was suggested that the specific information pack for parents would maintain the previous content, with some additional explanation about autism or ASDs, i.e. onset time, causes, early intervention, outcome and approaches or intervention, as requested. Since the sections 'what teachers can do to support children with ASDs' and 'what parents can do to support children with ASDs' were found useful by both parents and teachers, it was suggested that the strategies for teachers might be not only suitable for use in the classroom but also by parents in home settings. Meanwhile, the strategies for parents might also be better used in combination with the strategies for teachers. Therefore, children with autism or ASDs could be supported with effective strategies found in the literature both at school and at home. Therefore, these strategies might be better combined and refined to be put in the information pack for parents and teachers with a more general title e.g. 'Strategies to support children with ASDs'.

The information pack specifically for parents should also preserve the previous contents since they were found useful by the parents, e.g. the support agencies in Malaysia section. Since two parents identified the contact details of support agencies as most useful, this suggested the possibility that the parents did not know what to do or where to seek information about their child until they read the information pack. This is actually the major aim of the pack, i.e. to give basic information to parents and help suggest the right ways to search for more specific support to help their child.

Since teachers seem to be more knowledgeable about the characteristics of children with autism, they may need more specific teaching and learning strategies suitable for use with children with ASDs. Therefore, the information pack specifically for teachers should focus more on educational support strategies, e.g. strength-based strategies (Bianco et al., 2009), self-management procedures (Callahan & Rademacher, 1999), social stories (Gray, 1998) and comic strip conversations (Gray, 1996). The combination strategies which could be used by parents and teachers, as discussed before, would also be provided in the teachers' pack. The previous contents which were found useful by the teachers should also be maintained, e.g. recommended readings section. Since a few teachers found this section most useful; this suggests that they are interested in getting more specific knowledge on autism for some reasons, e.g. for their own professional development.

In relation to the format of the information pack, only two comments were made by the teachers. Suggestions to put more graphics, e.g. a mind map, and to improve the contents arrangement showed that the teachers were aware of the presentation of the pack. They may want the pack to be more attractive to readers. Therefore, the information pack both specifically for teachers and parents should be more attractive and contain some graphics or a mind map. This would be comparable to other information packs which contain some graphics, e.g. 'Autism spectrum Disorders - Booklet for parents and carers' by Scottish Intercollegiate Guidelines Network (SIGN, 2007). However, the format and size of the pack, i.e. small, handy and not too heavy, would be maintained. More importantly, it should be simple and straightforward but give clear information.

It was also found that within four days of being given the information pack, nearly half the parents and teachers discussed it with each other. Even though they did not mention which section they have discussed, discussion between parents and teachers is important and good for their collaboration. They would explain their concerns to each other and perhaps try to support children with ASDs in more collaborative ways. This is important since the research literature indicated that ongoing parent-teacher collaboration is an essential foundational element in the education of children

on the autism spectrum (Koegel, Koegel & Schreibman, 1991; Myles & Simpson, 2002).

10.4.1 Conclusion for Additional Question 1

This study found that parents and teachers really appreciated the information pack provided. Parents showed that they really need more information about autism. This finding suggests a lack of knowledge about children with autism amongst parents in Malaysia.

However the teachers' response showed that they may have more knowledge about autism than the parents. Therefore, they need more specific knowledge on autism, especially teaching and learning strategies to implement in their practice. These findings suggest that a different information pack may need to be set up for parents and teachers, to fulfil their different needs.

It was also found that the information pack needs to be provided to parents and teacher at or after the disclosure of the identification process; the distribution of the pack also encouraged parents and teachers to initiate some collaboration.

10.5 Additional Question:

- How do teachers draw upon the identification process of children with characteristics of AS and the information and strategies obtained from the information pack?

Teachers indicated that they had different levels of understanding and expectations about children's potential learning and development after reading the information pack and trying the strategies suggested in the pack. Even though they may have basic information about autism from their teaching training programme, they may have less experience with the teaching and learning strategies recommended in the information pack. Moreover, in this study teachers were also told about children's achievements in different tests. With knowledge of the children's abilities in different skills it was not impossible that teachers would have more understanding of

and expectations for children's potential learning and development. This finding supports Howlin (1994), who indicated that understanding each child's specific profile of strengths and difficulties would help teachers foster realistic expectations about them, and enable individualised education planning.

This finding also suggests that before reading the information pack and trying some of the strategies, the teachers may not have really understood or known about children with autism. This supports Helps, et al. (1999), who found that most teaching staff in their study had very little knowledge about autism, did not have current information about it and/or were not clear about autism in general. This might have affected their instructional goals and methods (Padeliadu, Chatzopoulos & Kavvada, 1998; in Mavropoulou & Padeliadu, 2000). This finding once again supports the importance of assessing children's abilities in different skills and using the information pack about ASDs, which contains some teaching and learning strategies for teachers.

It was also found that the most commonly used strategies amongst those suggested in the pack were using visual support, followed by using simple language and instructions. This finding supports the literature that suggested the need for visual support for children with autism to assist them with social interaction, organisation and communication problems (Gray & Garand, 1993; Heflin & Simpson, 1998). It also supports Schuler (1995), who suggested that many individuals with autism have difficulty processing and retaining non-visual information. Since children with autism are visual thinker (Grandin, 1995), teachers should avoid relying only on auditory channels to disseminate information.

Other strategies most used by the teachers included a distraction-free environment, and making clear and consistent rules. This finding shows the importance of creating enabling environments for children on the autism spectrum. Furthermore, potential sensory processing difficulties need to be taken into account, and environments should be adapted accordingly (Bogdashina, 2003). Mesibov and Shea (2001), who have written about a 'culture of autism', suggested that there are characteristics in the thinking and behaviour of children with autism that need to be taken into account when supporting them, and that the role of teachers is to become 'cultural

interpreters'. In other words, it is the teachers' responsibility to support children with autism in making sense of a confusing world (Sainsbury, 2000).

When comparing the three teachers' reports, it was found that teachers gave more positive responses in the last report, e.g. fewer teachers had not changed their practice in report 3 than in report 2, and fewer teachers indicated that the strategies they had tried were not effective in report 3 than in report 2. This finding indicates that teachers may need some time to try or adapt different strategies to support children with autism.

It was also suggested that teachers may need some time to find new strategies effective before children begin attaining higher rates of engagement. Until a child is engaged, he or she is not available for learning (Hurth et al., 1999). Furthermore, engagement has been cited as one of the best predictors of positive children outcomes (Logan, Bakeman & Keefe, 1997; Rogers, 1999b). In order to engage children with ASD, well-planned methods are necessary, such as careful planning of any changes to their physical environment, systematic use of materials and activities, incorporation of preferred materials and activities, and the use of a child's spontaneous interests and initiations (Hurth et al., 1999). Therefore, teachers may need some time to fulfil these requirements before the child shows some positive outcomes.

It was found in this study that children with autism responded in different ways to different strategies used by the teachers. This suggests that some strategies may be effective for some children but not with others. This finding supports the importance of focusing on each child as 'unique' and providing an individual person-centred approach to teaching and learning planning. According to Jones et al. (2008), 'individual strengths and interests' should be the basis for effective intervention. It is therefore imperative that interventions must be child-specific, carried out after the individuals are assessed thoroughly, and reflect their strengths, interests and preferences (Jones, 2002). In addition, assessment should be followed by a remedial approach which helps the children overcome obstacles related to their social deficits (Jordan, 1999).

It was also suggested that more educational support strategies for children with ASDs should be placed in the information pack to ensure that all children with different needs and abilities would be supported by more appropriate strategies. However, since research on intervention found that no single strategy is likely to meet the needs of the population as a whole (Pelios & Lurd, 2001; Prizant & Rubin, 1999), and there are so many available strategies and approaches, some useful guidelines or effective educational practices to consider when implementing educational intervention for children with ASDs should be included in the pack. These would contain some description of structured learning environments, supporting higher rates of engagement, systematic instruction, specialised curriculum and ongoing parent and teacher collaboration.

10.5.1 Conclusion for Additional Question 2

The findings of this study indicate that teachers have more positive understanding and expectations of children's potential learning and development after being told about children's achievements in different tests, being given the information pack and trying the strategies suggested in the pack.

The finding also suggests that before reading the information pack and trying some of the strategies, the teachers may not have really understood or known about children with autism. Therefore, when comparing the three teachers' reports, it was found that teachers gave more positive responses in the last report.

The most commonly used strategies amongst those suggested in the pack were using visual support, followed by using simple language and instructions. Other strategies that were most used by the teachers included a distraction-free environment and giving clear and consistent rules.

It was found in this study that children responded in different ways to different strategies used by the teachers. It suggested that some strategies may be effective for some children but not others. This finding supports the importance of focusing on each child as 'unique' and providing an individual person-centred approach to teaching and learning planning. Therefore the knowledge of the strategies for support

children with ASDs and the differences in their characteristics should be given to the teachers in their training.

10.6 Evaluation of the Methodology

This section discusses the strengths and limitation of the methodology of this study.

10.6.1 Design of the study

- Using both categorical and dimensional model or framework of thinking to understand ASDs

One of the strengths of this study is the use of both the categorical and dimensional framework of thinking in attempts to answer the research questions. The complementariness of these approaches is important since each has advantages. The categorical model was used in the first research question in relation to the analysis of the results, which tried to identify children with characteristics of AS within children with a diagnosis of autism, while the dimensional model was used in the second research question, which tried to see the differences in the characteristics of children with autism. The categorical model was required because the PDD subtypes, including autism and AS, have traditionally been viewed as categorical diagnoses. Therefore, differentiating each of these subtypes requires meeting the specific criteria of the standardised diagnostic classification, i.e. DSM-IV or ICD-10. However, there are some limitations and difficulties associated with the categorical model, particularly in relation to validity of the diagnostic criteria for AS, and the absence of clear-cut criteria that can differentiate AS from autism. Therefore, the dimensional model (which also was suggested in the DSM 5), was used in this study to explain the differences, uneven profiles and very wide range of abilities in children within the autism spectrum. Overall, the complementariness of these approaches was found very useful in describing the findings of this study.

10.6.2 Measures

- **Comprehensive measures**

As indicated in the the design and instruments chapter, this study used standardised questionnaires or rating scales that was specifically designed to identify individuals with AS. The standardised questionnaires or rating scales were chosen because they were more efficient to administrate, inexpensive and relatively short and enabled a larger sample (Norris & Lecavalier, 2010). They are also flexible; the administrator could take into account a wide spectrum of behaviours over a broad time period and across a number of settings (Norris & Lecavalier, 2010). Moreover, the rating scales, which are based on a review of relevant literature and research, including DSM-IV and ICD-10, were specifically designed to identify children with AS characteristics (Freeman, Cronin & Candela, 2002).

Agreement between parents and teachers' (that that has been observed through the score of the rating scales) was also used in this study to identify children with characteristics of AS because results from multiple sources and settings could enrich the quality of information about a child, with parents offering a unique perspective on the needs of their child (Bagnato & Neisworth, 1991). Moreover, there is strong support, empirically and theoretically, on the value of collaboration between parents and professionals for effective and early diagnosis and intervention (Glascoe, 1994; Stone & Hogan, 1993). Professionals and parents may disagree on the presence or level of behavioural delay in children, as shown in some studies (Suen, Logan, Neisworth & Bagnato, 1995). However, Szatmari, Archer, Fisman and Streiner (1994) noted that both parents and teachers provides distinctive information that is not accessible to the other. Therefore, agreement between parents' and teachers' perceptions (through the score of the standardised questionnaires) have been used in this study to see whether the child has the characteristics of AS.

Attwood (1998) indicates that besides parents and teachers completing questionnaires, the identification or diagnosis of children with AS consists of an examination of specific aspects of social, language, cognitive and movement skills, as well as qualitative aspects of the child's interests. Therefore, in this study

standardised play tests, IQ tests and the false belief, or Theory of Mind, test (TOM) have been used. Attwood (1998) also indicates that another invaluable source of information is reports from teachers and speech and occupational therapists. In relation to this, several checklists, i.e. for language and social communication, which are shown in the literature review to be areas of difference between individuals with AS and other individuals on the autism spectrum, have been used in this study. However, since there are no speech and occupational therapists in schools in Malaysia, only teachers were involved in answering the language and social communication checklists.

- **Validity of AS screening tools**

As indicated in the literature review section (3.3 Asperger syndrome), it was not easy to differentiate AS from HFA. Research that have found differences were not strong enough to definitely distinguish AS from HFA for some reasons such as using DSM IV which had received a lot of critics as a diagnostic criteria, using small size samples and cross-sectional design.

The disagreement between several diagnostic systems regarding AS makes it difficult to interpret results from studies of AS's external validity. Results from these studies are difficult to be synthesised since they used different versions of definitions. Therefore Howlin (2000) indicated that these factors are the reason why it was difficult to establish the validity of AS-specific diagnostic instruments. Until the publication of ASDS in 2001, no standardised and nationally-normed instrument existed specifically for diagnosing AS (Boggs et al 2006). There are a few of non-norm and non-standardised instruments available e.g. Australian Scale for Asperger Syndrome (Attwood, 1998) however, it has not demonstrate psychometric properties such as reliability and validity.

Campbell (2005) have reviewed five third party rating scales for detecting and screening AS to see whether each scale's construction and psychometric properties fulfils psychometric criteria established by Bracken (1987). The rating scales are include Asperger Syndrome Diagnostic Scale (ASDS; Myles, Bock, & Simpson, 2001), Gilliam Asperger's Disorder Scale (GADS; Gilliam, 2001), and Krug

Asperger's Disorder Index (KADI; Krug & Arick, 2003), and two research instruments, the Autism Spectrum Screening Questionnaire (ASSQ; Ehlers, Gillberg, & Wing, 1999) and Childhood Asperger's Screening Test (CAST; Scott, Baron-Cohen, Bolton, & Brayne, 2002).

The authors of ASDS, GADS and KADI indicated that the scales could differentiate between AS and autism without reporting the cognitive function of the autism sample. Therefore there is possibilities that the group are different in terms of cognitive and language functions. ASDS, GADS and KADI also have limitation regarding standardisation and norming process e.g. have been normed without confirmation of diagnosis of AS. Furthermore, assuming that an individual was rated as AS, it was not clear which definition of AS have been used to established the diagnosis. It was also found in the review that the KADI showed the strongest psychometric properties while ASDS showed the weakest. ASSQ showing sound reliability and less convincing validity while the CAST showing sound predictive reliability in the absence of published reliability data.

From the review it was found that each rating scales has their own strengths and weaknesses as screening tools for AS. All rating scales above have not fulfil the standard criterion indicated by Bracken (1987). Therefore they should be used with caution to evaluate the presence of AS and to differentiate individuals with AS and HFA.

ASDS has been used in the main study to identify children with characteristics of AS. However it was not used specifically to diagnose children with AS but rather to examine the differences in the characteristics of children with diagnosis of autism in a few schools in Melacca. It was used to see whether there are any of them have the characteristics of AS.

The ASDS is a 50-item questionnaire to identify individuals with AS between age 5 and 18. It consist of five subscales (language, social, maladaptive, cognitive and sensorimotor). Items are summed for the entire scale to yield an Asperger Syndrome Quotient (ASQ) that indicates the probability of AS. Items were based on a review of relevant literature and research including DSM IV and ICD 10. It was normed using

a sample of 115 children and adolescents with previous diagnosis of AS. For the purpose of criterion-predictive validity analyses, a comparison groups were consist of 177 individuals with autism (n=92), behaviour disorders (n=28), ADHD (n=31) and learning disabilities (n=26). Results of the discriminant analysis showed the mean ASQ scores for the AS group was significantly higher than the non-AS group.

Several limitation of the ASDS have been highlighted by several researchers e.g. the independent diagnosis of AS was not determined for the standardised sample. Therefore it could not be confirmed that the standardised sample consists of individuals with diagnosis of AS only. It is possible that that some of them met the criteria for high functioning autism or other condition (Blair, 2003; Campbell, 2005). Therefore it could weakening the credibility of the validity of the instrument.

The ASDS authors also have provide no evidence of cognitive functioning for the sample of individuals with autism in the validation study. Matching on cognitive functioning between AS and autism is important so that these groups are not differentiated because of different in terms of cognitive and related language functioning.

Campbell (2005) indicated that the authors of ASDS have provide evidence for internal consistency reliability and interrater reliability but not for test-retest reliability (temporal stability). Test authors have also provide evidence for content validity, criterion validity and construct validity. However, ASDS subscales score range shows an unacceptable average subtest ceiling and fails to meet Bracken's (1987) subtest item gradient criterion. Therefore the test authors recommend only the interpretation of the ASQ in decision making, not the ASDS subscales. However, the ASQ fails to meet the .90 criterion for internal consistency.

Boggs et al (2006) indicated that sample size was quite small for some of the analysis reported in the manual of ASDS e.g. for the divergent validity, only 16 subjects were used and for the interrater reliability analysis, only 14 subjects have been used. Furthermore, Goldstein (2002) indicated that ASDS need to be used with extreme caution for some reasons e.g. most of the symptoms for AS in the ASDS are actually commonly seen in both autism and AS. The implication is that ASDS may be good at

broadly identifying any higher functioning autism spectrum disorder (e.g. AS, HFA, PDD-NOS) but not good at distinguish among them or specifically to diagnose AS. In relation to the current study, ASDS may be good at differentiate children with higher functioning autism (including HFA and AS) from children with lower functioning autism.

Given the paucity of psychometric data supporting the validity of the ASDS, findings of this study particularly in identifying children with characteristics of AS should be interpreted with caution. Furthermore the aims of this study is not to specifically diagnose children with characteristics of AS but rather to examine the differences in the characteristics of children with diagnosis of autism which have been supported by using other instruments including play tests, IQ tests, ToM tests and language and communication checklists.

- **Cultural transferability**

Research done in Malaysia has found that there is still lack of knowledge, information and exposure regarding autism (including AS) (Dolah, Wan Yahaya, & Chong, 2011; Md Shamsudin & Abdul Rahman, 2014). See (2012) indicated that children with autism usually have behavioural problems such as becoming restless and fidgety, have tendencies to touch and hit people, being noisy, temper tantrum, being inattentive, non-compliance spaced out and stiff body. Most parents of children with autism experienced stigma where other people encountered avoidance, hostile staring and rude comments. Therefore more research need to be done in this area to increase the level of knowledge and tolerance towards children with autism and their family which may reduce the stigma experienced by them (The Star Online, 2012).

In relation to this, the current study is trying to identify children with characteristics of AS among children with diagnosis of autism. This study also aims to gain more knowledge on autism by examining the characteristics of children with autism in a few schools in Malacca.

At the time when the researcher was planning to do the research, there are not many studies that have been done in Malaysia regarding autism. Therefore it was quite

difficult to find any related instrument published in Malaysia which is suitable to be used in the Malaysian culture and environment. Furthermore, at that time, the researcher was studying at the University of Strathclyde UK, therefore instruments from the western countries are more available to be used by the researcher.

At the same time, it was found that there were no standard procedures in identifying children with autism (Ching Mey, 2005). Teachers or parents need to bring their children to see the general medical doctor in government hospitals to confirm that their children have autism or any other learning difficulties. Children usually get diagnosis by doctors in government hospitals through some interview with the parents, or care givers and observation of the child's behaviour by the doctor. However, in non-government or private hospitals, the procedures of diagnosis are more complicated that may involve related professionals such as psychologist, paediatrician and speech therapist. The diagnosis or confirmation from the doctor is important to allow the child to get services provided by the government for children with special needs including special education services in government schools.

The researcher has searched for several instruments to identify children with characteristics of AS and also looked at several other instruments or tests for some skills that were considered relevant to distinguish children with characteristics of AS from children with autism e.g. IQ, social communication, language and play. Finally a few standardised instruments to identify children with characteristics of AS have been chosen (ASDS and KADI) to be implemented in the pilot study. Tests that have been chosen to be used in the pilot study are including IQ tests (WASI), play tests (SPT and TOPP), TOM tests and checklist for language, social and communication skills. Since these instruments are from western countries, some alteration need to be done before they can be used for data collection in Malaysia.

Mason (2005) indicated that many instruments for Social Science research have been established in English speaking cultures and many researchers have adapted these instruments to do research in other cultures rather than developing a new one for the target population to save time, money and effort. Furthermore Humbleton & Kanjee (1993) indicated that the technical expertise for development of a new instruments may not be available in the target culture. However, translation and adaptation of

instruments to be used in another culture is not a simple task (Hambleton, 2005). It is complex and requires a combination of techniques because every culture has unique values, system and environment which may affect how a sample responds to instruments used in a study (Beauford, Nagashima & Wu, 2009).

Borsa, Damasio & Bandeira (2012) indicated that overall literature has suggested the process of translation and adaptation of instruments include six essential stages:

1. Instrument translation from the source language into the target language
2. Synthesis of the translated version
3. A synthesis evaluation by expert judges
4. Instrument evaluation by the target population
5. Back translation
6. A pilot study

The current study has implemented most of the procedures proposed above in the process of adaptation of the instruments but there are also a few procedures that could not be done due to some reasons. In the translation process, it is suggested that independent bilingual translators should be summoned (Gudmundsson, 2009; ITC, 2010). Cassepp-Borges, Balbinotti & Teodoro (2010) suggested at least two bilingual translators should do the translation to minimise the risk of linguistic, psychological, cultural and understanding biases.

In the current study, this process has been done by two bilingual translators i.e. the researcher herself and another Malaysian PhD student who has background as an English language teacher and currently doing her PhD in English Literature in the UK. Both translators are proficient in both languages and familiar with the culture associated with the respective language to ensure a greater cultural fit of the adaptation process (Hambleton, 2005).

In the next process, Borsa et al (2012) suggested that the translated instruments from two different translators need to be summarised to compare their differences in semantic, idiomatic, conceptual, linguistic and contextual aspects with the purpose to create a single version. They suggested that if inappropriate choices are identified, it

should be discussed among the judges or experts in the area. However, in this study there were no big differences were found between the two versions of translations and the discussion was done between the researcher and the second translator to produce a single version of the translated instruments.

In the next process, Borsa et al (2012) suggested that the translated version should be assessed by experts in the area of psychological evaluation or experts in the specific area. These experts will assess important aspects such as the structure, lay out, instructions, the scope and adequacy of expressions contained in the items. They will consider whether the expressions are a good fit for the population for whom the instrument is intended. In the current study this process has been done by a doctorate lecturer who teaches at a teachers training college.

Borsa et al (2012) suggested that the instruments need to be evaluated by the target population. This process aims to see whether the instructions are clear, the items are appropriate, the expressions are suitable to be used for the group and other aspects. However in the current study the translated instruments have not been evaluated by the target population because it will take quite a lot of time since the target population will include parents, teachers and children with autism. The researcher is also of the thought that the instruments will be evaluated by the target population in the pilot study. Furthermore, Borsa et al (2012) indicated that this procedure has not been suggested by many researchers in the literature.

Back translation is a process to translate the revised version of instruments into the target language. It aims to evaluate whether the translated version reflects the original version. Beaton, Bombardier & Guillemin (2000) suggested that it must be performed by at least two translators other than those who performed the first translation. However in the current study, only one translator has done the back translation process. Beaton et al (2000) also suggested that back translation process may also be used for the researcher to communicate with the author of the original instruments. So that the author may confirm whether the items have the same meaning with the original version. However in in this study the researcher has not contacted the author therefore it could not be confirmed that the items have the same meaning as the original version from the view of the original author. However

procedures that have been implemented in the translation and adaptation process may help to confirm that the translated version reflects the original one.

The pilot study is a process to apply the instruments to a small sample that reflects the characteristics of the target population (Gudmundsson, 2009). In this process, the appropriateness of the items and instructions of the instruments will be assessed. Borsa et al (2012) suggested that to avoid bias, the changes suggested by the pilot study should never be done only by the researcher but must be discussed with a committee of experts. In this study, the changes suggested by the pilot study (as described in Chapter 8 (8.4.1) have been done by the researcher after have been reported to the supervisors.

Some researchers suggested that statistical analysis need to be done to assess the validity of the instruments to be used in the new context. However, there is no consensus on how much validity the instruments must possess for it to be considered valid (Urbina, 2007). Since there are a lot of instruments that are going to be used in this study, it will take quite a lot of time and effort to do the statistical analysis. Therefore no statistical analysis have been done to these instruments for the purpose of validation.

In relation to the pretend play, there might be differences in different cultures for example, in Asian culture education is considered more important than play. Therefore children may engage more in education play activities rather than pretend play activities (Farver & Shinn, 1997). Johnston & Wong, (2002) indicated that in Western culture, early choice making is praised and encouraged whereas more traditional collective cultures encourage child to be obedient. In this culture a child is usually given a toy to play rather than being asked to choose. Moreover they may not be encourage to narrate on their actions during play. On the whole, Hwa-Froelich, (2004) indicated that children's play was affected by a number of variables such as cultural values, family relationships, child rearing practices, toy familiarity and developmental expectations.

In the current study, the researcher has considered these issues by discussing them with the teachers about each child to get more information regarding these variables.

Other than that the researcher has also tried to communicate with the children to get more information such as their family relationship. Elleseff (2012) indicated that to ensure the assessment findings to be objectively interpreted, interview with the parents or caregivers should also be done. However in this study this procedure has not been done therefore it could not be confirmed whether the children's difficulties in play are because of e.g. delay/disorder or lack of exposure and task unfamiliarity.

Overall, since the instruments used in this study are translated and adapted from western countries, several procedures have been outlined that need to be done before they could be used for data collection. The researcher has put the best effort to fulfil the procedures but there are still a few that could not be done due to some constrains. Therefore the findings should be interpreted with caution because of these limitations. Moreover, it should be noted that the aim of the current study is not to diagnose the children. It is just to identify children with characteristics of AS and to examine the characteristics of children who have already been diagnosed as autistic.

- **The developmental and chronological ages of children included in the study with regard to choice of tests**

Chronological age refers to the age of a child in years and days from the date of birth whereas developmental age refers to the child's stage of physical, mental, emotional and intellectual maturity. Children from the same chronological age may have different developmental age.

A few tests that have been used in the current study are included play tests (Symbolic Play Test- SPT and Test of Pretend Play – ToPP), Theory of Mind (ToM) tests (Ann and Sally test and Smarties test) and IQ test – (WASI). The tests have been used in this study to examine the characteristics of children with diagnosis of autism in the special education units and also to identify children with characteristics of AS. Children with ASD (including AS) have the 'triad of impairments' i.e. difficulties in social interaction, communication and imagination. These difficulties have some implication to their abilities in ToM and pretend play. However, high functioning autistic children (including AS) are more likely to show higher abilities in these skills

when compared to low functioning autistic children. Therefore these tests have been used in this study.

Many research have indicated that children with ASD show delays and deficits in developing ToM e.g. Baron-Cohen, Leslie & Frith, 1985; Ozonoff & McEvoy, 1994; Tager-Flusberg, 2007). However, some children with autism (15%-55%) could pass the first-order false belief test e.g. Sally-Anne test (Happe & Frith, 1996). Usually these children are older and have higher verbal mental age (Happe & Frith, 1996; Ozonoff & McEvoy, 1994). Furthermore, autistic children who pass the first and second order false-belief test usually are much older than normally developing or non-autistic mentally handicapped children who pass the tests (Baron-Cohen, 1989; Baron-Cohen & Swettenham, 1997). Normally developing children usually pass the first order false-belief tests at age of 4 years old. These findings indicated that children with autism who pass the first-order false belief tests have equivalent abilities in ToM to 4 years old of normally developing children (even though children with autism may have much higher chronological and verbal mental age) (Holroyd & Baron-Cohen, 1993). Therefore in this study, ToM have been used to identify children with characteristics of AS and to examine profiles of children with diagnosis of autism even though the children who involved in this study have chronological age from 6 years 7 months until 11 years 1 month. Since all children have diagnosis of autism, therefore there are possibilities that they have lower abilities in ToM than their chronological age.

Happe (1995) indicated that children with autism who have VMA (verbal mental age) of lower than 5 years 6 months (5:6) failed the first-order false belief tasks while children with VMA higher than 11:9 passed. This findings showed that children with autism need higher VMA than typically developing and mentally handicapped children to pass false-belief tests. In the current study, VMA of the children have not been assessed. However, the IQ test used in this study (WASI) have indicated that only 6 children have verbal IQ (VIQ) over than 60 and most of this children have been tested in the ToM test. The rest of the children have not been tested due to have VIQ scores lower than 60. Furthermore they could not follow or understand the instructions or having no speech or being hyperactive.

Difficulties in social interaction, communication and imagination ('triad of impairments') in children with autism also have affected the abilities of children with autism in their pretend play. Researchers found that children with autism have difficulties in joint attention, imitation and social reciprocity that have affected their abilities in play. Charman, Baron-Cohen & Swettenham (2000) indicated that children with autism do not engage in pretend play or imitation and do not follow the gaze of a speaker. APA (2012) indicated that characteristics of play of children with autism are including restricted, repetitive and stereotyped patterns of behaviour, interests, and activities which often pursue in isolation. Dominguez, Zivizni & Rodger, 2006; Libby et al, 1998 indicated that children with autism show more manipulative play than either functional or symbolic-pretend play when compared to children with similar maturational age.

The manuals of the play tests that have been used in this study (SPT and TOPP) have indicated that they are for children with younger chronological age i.e. SPT (1-3 years) and TOPP (1-6 years). However since children with autism have difficulties in play when compared to typically developing children therefore there are possibilities that they will score low in play tests when compared to their chronological age i.e. (from 6 years 7 months until 11 years 1 month). Therefore these play tests were considered suitable to be used to examine play abilities of children with autism in this study.

- **Information pack**

The information pack used in this study was appreciated and found useful by parents and teachers. The findings indicate that parents lacked information on ASDs, while teachers needed specific information on teaching and learning strategies for children with ASDs. These needs were more or less fulfilled through the information pack. However, more specific and separate information packs for parents and teachers was outlined as an outcome of the findings of this study, to be distributed to more schools in the future.

The parents and teachers feedback form that was used in the study gave an opportunity for them to suggest some ideas on how to improve the information pack.

The teachers feedback form that need to be email by the teachers at three different times are quite difficult to be collected by the researcher. The researcher need to contact them from time to time to make sure they give feedback on the information pack.

Since the teachers give feedback through emails, the answer is not very clear. It is suggested that it would be better if the teachers would be interviewed e.g. using skype. There will be two ways of spontaneous communication between the researcher and the teachers. Thefore the feedback given by the teachers would be more precise and comhensive.

Findings from the detailed qualitative analysis of the audit could be used to enhance the information pack. Some strategies from the pack that the teacher have used gave some positive impact on the child's learning progress. Therefore these strategies i.e. using simple language and gestures, visual aids, coloured cartoon pictures should be explained in more detail in the pack so that teachers can use it in more effective ways. However, a few teachers indicated that strategies that they have used were not effective enough e.g. for child number 1 and 4, the teachers indicated that when using simple language, simple instruction and visual aids, the child showed some improvement in their behaviour but were only able to sustain for a short period of time and this happened only at certain period of time e.g. in the morning. Teachers also indicated that children are easily distracted.

The teachers also indicated that they planned to use the structured approach and place the child in a distraction free environment. Therefore information on how to help children who easily get distracted should be added to the information pack. Since the teacher showed interest in structured approach and distraction free environment, therefore more emphasis on these aspects should be added to the pack.

In report 2, teacher for child number 16 indicated that in sensory perception skills, there remain many challenges which could not be overcome by using the technique suggested in the information pack. Therefore more information should be given on how to help children in their sensory perception skills. The teacher also indicated that the child had difficulties in carrying out living skills activities and the child

depended very much on the teacher in every activity. To teach children who have difficulties in carrying out living skills activities teachers may need to use step by step activities or scaffolding strategies. Therefore more information on these should be added to the information pack. For children who depended very much on the teacher in every activity, more information on how to help them to be more confident and know what they need to do should be added to the information pack. Therefore more schedule, structured activities such as PECS need to be explained in the information pack.

In report 3, teacher for child number 1 indicated that the child still showed very minimal responses toward the strategy adopted by the teacher because of his speech challenge. Therefore teachers should be informed in the information pack that they need to suggest to the parents to bring their children with speech difficulties to a speech therapist. Contact number or email address of speech therapies should be provided in the pack.

Through the detailed qualitative analysis of the audit, a few amendments need to be done to the information pack so that it will be more effective, especially to help children in their learning processes. Two different information packs should be devised for parents and teachers due their different needs. Information pack for teachers need to be added with more information on teaching and learning strategies as suggested in the above.

10.6.3 Procedures

- **Small scale**

Since children with AS are not yet formally recognised in Malaysian schools, this exploratory study attempted to identify this group of children amongst children with a diagnosis of autism in the SEUs and amongst children in the mainstream classes in five schools in Malacca. The small number of participants in this study was due to the comprehensive assessments that need to be done to each child with diagnosis of autism in the SEUs. Furthermore, the researcher have some time and financial limitations for the data collection in Malaysia. Due to the small number of

participants, care must be taken in generalising the findings of this study. The findings of these exploratory study could only present the situation that happen in the few schools that involved in the study and not to represent all schools in Malaysia.

- **Daily schedule**

The researcher's schedule for collecting data in one school within one whole week was found appropriate as it allowed the researcher, teachers and children to become familiar with each other. However, it would be better if the procedur of the data collection to be longer in each schools. Five days to collect a lot of data in one school is quite challenging especially when the researcher need to communicate with a few groups of people e.g. teachers, children and parents.

Even though meeting with mainstream and SEU teachers have been done to explain about the objectives and procedures of the data collection, it is suggested that a meeting with the parents should also be done to give them some information about the data collection. For parents of children in the SEU, the meeting with the parents was held at the last day when the researcher discussed the findings and handed the information pack to them but it is suggested that it could be better if they are also given some explanation before the data collection.

For children in the mainstream classes, their parents are not given any information regarding the data collection therefore it is suggested that a meeting with them should be considered before the data collection to give some information. This may help the parents to be more informed about the tests or screening that will be done to their child and have more knowledge on the characteristics of their child.

In this study, parents of children in the mainsteram classes have not been asked to give their consent. Therefore in this meeting parents could be asked to give their consent for their child to be involved in the study.

10.6.4 Participants

- **Parents**

In this study parents were involved in answering the standardised rating scales and responding to the information pack. Since the questions in the rating scales are very specific, detailed information about the children could not be gathered. For example, in the GADS parent interview, parents could only indicate whether their child had language developmental delays (not using words by age two and phrases by age three) as indicated in the DSM-IV diagnostic criteria for AS. If the parents were interviewed orally they may have been able to describe their child's language development in more depth. Therefore, it was suggested that more in-depth information on children's characteristics could be gathered through this study if parents were interviewed.

- **Childrens' age**

It was found in this study that age did not differentiate children with autism into different groups. Two children from the first group, who scored high in most tests and GADS parent interview, were 10 and 7 years old. However, there are also children who are 10 and 7 years old in the second and third groups. For that reason, no specific age pattern could differentiate children in this study into any different groups.

This finding is not surprising since this is cross-sectional and not longitudinal study. Therefore, only children's scores at that particular time could be examined. Mayes & Calhoun's (2003) findings suggesting that 'age may affect the pattern of abilities in children with autism' could not be confirmed since differences in the children's scores in relation to their age at different times are not known. It was possible that further studies using a longitudinal method might be valuable to see the difference in children's scores in relation to their age.

10.7 Recommendations for Further Research

- **Mainstream Classes**

This study found that no children were identified as having characteristics of AS in the mainstream schools. It was suggested that the characteristics of children with AS and the instruments and procedures used in the study may have some implications for the results. The later onset age and specific strengths often associated with children with characteristics of AS might have obscured their problems in the triad of impairments. Moreover, they could still survive in a primary school environment, since it is more structured in comparison to other places where social demands become heavier, e.g. secondary school. However, they still need to be identified so that teachers can support them with more appropriate teaching and learning strategies that could help enhance their strengths and abilities, and support their needs. They may not need to be placed in special education units but could be given more support and included in the mainstream classes.

Therefore, further research may need to find more rigorous ways to identify children with AS amongst children in the mainstream classes. Since the findings indicate that teachers have to fill out too many forms, i.e. for every child in their class, it is suggested that they only need to fill out forms for children that they think are more likely to have characteristics of AS. Moreover, since the onset age for AS is 11, perhaps only children around this age should be screened.

It is suggested that the screening test (KADI) may need to be supported by more comprehensive assessments like the assessments undertaken in the SEUs. This means that children who score above the cut-off point of the KADI need to be assessed in several different abilities, e.g. cognitive, language, social interaction, play and ToM.

- **Interview with parents**

For procedures used in the units to identify children with characteristics of AS, more detailed information about children's development could possibly be gathered if more depth interviews with parents could be done.

- **Larger scale**

Since this is an exploratory study that attempts to identify children with characteristics of AS in a few Malaysian schools, a larger scale study is still required. The findings may help illustrate the prevalence of children with ASDs and AS in Malaysia.

- **IQ tests**

Findings from this study have supported DSM 5 that people with ASD could be differentiated into three different groups of severity based on their social communication impairments and restricted, repetitive patterns of behaviours. However, in this study it was also found that children's scores in the VIQ, PIQ and FSIQ could also differentiate children into these three different groups as discussed before but with some exceptions (see page 260-262). These findings supported Prior et al. (1998) and Leekam et al. (2000) who indicated that cognitive profile could also be used to distinguish the behavioural groups of children with autism. Therefore it is suggested that more studies in this area should be done.

CHAPTER 11

CONCLUSION AND RECOMMENDATIONS

11.1 Introduction

This chapter comprises five sections. The first section summarises the main findings in relation to each research question. It is followed by an evaluation of the methodology in relation to the design, measures, procedures and participants of the study. The wider implications of the study, particularly in a Malaysian context, are then discussed. This is followed by recommendations for further research. A conclusion of the whole thesis appears in the final section.

11.2 Main Findings Summary

11.2.1 Research Question 1(a)

Would the characteristics reported by the parents and teachers, standardised tests and checklists for any child diagnosed with autism in the special education units and mainstream classes in five schools in Malacca, Malaysia place that child within the range of behaviour characteristics associated with the condition of AS?

It was found that four out of 16 children were identified as ‘most probably having characteristics of AS through the ASDS, tests and GADS parent interview. However, this finding was not entirely straightforward. Even though each of the four children had convincing characteristics that suggested they may have characteristics of AS, they also showed some other characteristics that did not fulfil the criteria for AS. These findings support other research which indicated that it is not easy to differentiate children with AS from autism. These findings also support the concept of autism is a spectrum which indicated that the impairments in children with ASDs are varied within a spectrum including mild and severe and that their abilities are also varied along continua from within the typical range to profoundly impaired

(Wing & Gould, 1979). Furthermore, the findings also comparable to other studies which failed to support the validity of the language delay criterion to differentiate AS from autism.

Overall, findings from this Malaysian context study are comparable to research findings from other countries. Therefore it support the new diagnostic criteria (DSM 5, 2013) which indicates that subtypes of autism are better be merged into one umbrella diagnosis called ASD. They could be classified into three groups based on their severity on social communication impairments and restricted, repetitive patterns of behaviour. This also means that DSM 5 would be suitable to be implemented in Malaysia.

The estimated prevalence of children with characteristics of AS in this study is comparable as what have been indicated in the previous studies. Eventhough it was not the main purpose of this study to see the prevalence of children with characteristic of AS in Malayisa, it may be useful as a guideline of the prevalence of children with characteristics of AS in the SEUs in Malaysian schools. However, it should be noted that the prevalence was just based on the standardised rating scale (ASDS).

Variances were also found amongst the children's scores in the tests (language and social communication, IQ, TOM, play tests) and GADS parent interview. Through all these findings it was suggested that there is a need to look at the individual profile since an identification of autism as being 'classic' autism or AS would not seem to be able to be applied to all the children. Therefore, their different abilities and needs should be address differently and to be given appropriate supports and education that suit their individual needs and abilities.

11.2.2 Research Question 1(b)

Are there any children with characteristics of AS within children in the mainstream classes?

No children in mainstream classes were identified as having characteristics of AS in this study. However, the characteristics of children with AS, the instruments and the procedures used in the study may have some implications for the results.

The later onset age for children with AS compared to autism, and specific strengths often associated with children with characteristics of AS e.g. precocious language, special interest and higher cognitive abilities, may obscure their problems in the triad of impairments (social, communication and imagination), making them go unrecognised by the teachers. It was also suggested that they still could survive in a primary school environment, which is more structured than secondary school, where the demands of social behaviour become heavier. Moreover, some teachers especially in the mainstream classes may also not very familiar with the concept of ASDs or the characteristics of children with AS.

Children with characteristics of AS might also difficult to be identified by teachers in the screening test because class teachers need to answer quite a lot of questions (11 items of the KADI's for all children in their class). Therefore, it was argued that it could not be definitely confirmed that there are no children with characteristics of AS in the five mainstream schools involved in this study.

No children was identified as having characteristics of AS in the mainstream classes may also indicated that it is not easy to differentiate subtypes of ASDs since they are actually not qualitatively unique from each other. Differences between them may only reflecting variations in the severity of impairments in different skills or abilities as indicated in some research in this area.

11.2.3 Research Question 2

What is the range in the profile of children who have been diagnosed with autism in the special education classes in five schools in Malacca Malaysia, as measured by standardised test of language, cognitive and play abilities and by standardised surveys of the parents' and teachers' perceptions.

It was found that children with diagnosis of autism in the SEUs scored differently in different skills. There are differences in the characteristics of children who 'most probably have characteristics of AS' as phrased by the ASDS compared to children with 'low probability of having characteristics of AS'. Moreover, there are also differences in the characteristics amongst children in each of these groups. It was found that children from the same group are different from each other as well as from children in the other groups. This finding indicates that children with autism have very uneven profiles and very large range of abilities and needs. It support Wing & Gould (1979), who introduced the concept that autism as a spectrum. It also indicated the importance of individual support and focus on each child as unique.

It was found in this study that childrens' social communication impairments could be used to differentiate children with autism into children with high, moderate and low scores in the tests and GADS parent interview. This findings strongly support DSM 5 which indicates that social communication impairment could differentiate people with ASD into 3 level of severity.

It was also found in this study that childrens' restricted, repetitive patterns of behaviour could also differentiate children into 3 groups i.e. children with high, moderate and low scores in the tests and GADS parent interview. This finding once again strongly support the DSM 5 which indicates that people with ASD could be classified into 3 groups of severity level by their restricted, repetitive patterns of behaviour.

Another interesting findings from this study are children abilities in IQ (PIQ, VIQ and FSIQ) may also could be use to differentiate children into the same three groups. However, the findings are not very clear as findings from the social communication impairments and restricted, repetitive patterns of behaviour as discussed before. Therefore more research on this area may should be done to confirm whether IQ profiles could also be use to differentiate people with ASD into 3 level of severity as suggested in the DSM 5.

It was also found in this study that children with autism have higher or better abilities in PIQ than VIQ, which supports the findings of most studies in this area. This

finding indicated that rote tasks are performed better than tasks that require understanding and interpretation of information in children with autism.

Since several items in the ASDS were identified as having higher agreement between parents and teachers compared to other items, it was also suggested that these items could be used by teachers in Malaysian schools in earlier processes of identifying children with characteristics of AS, or as a screening test before further investigation could be made.

11.2.4 Additional Question 1

How do parents and teachers draw upon the information obtained from the information pack?

It was found that parents and teachers really appreciated the information pack provided in this study. Parents showed that they really needed more information about autism. This finding confirmed that there is a lack of knowledge about children with autism amongst parents in Malaysia.

However, the teachers' responses showed that they may have more knowledge about autism compared to the parents. Therefore, they need more specific knowledge on autism, especially teaching and learning strategies to implement in their practice. These findings suggest that parents and teachers may need different information packs to fulfil their different needs.

It was also found from the feedback comments that the information pack should be provided for parents and teachers at the disclosure of the identification process or shortly thereafter, and the distribution of the pack encouraged parents and teachers to discuss it within each other.

11.2.5 Additional Question 2

How do teachers draw upon the identification process of children with characteristics of AS and the information and strategies obtained from the information pack?

The findings of this study indicate that teachers have more positive understanding and expectations of children's potential learning and development after being told about children's achievements in different tests, being given the information pack and trying the strategies suggested in the pack. Therefore, it was suggested that other teachers in SEUs in Malaysian schools could gain more understanding and positive expectations regarding children's potential learning and development through this process. They could implement the tests used in this study to gather more information about children's needs and strengths; therefore, they could use the information to enable individualised education planning.

It was found that the most commonly used strategies amongst those suggested in the pack were using visual support, followed by using simple language and instructions. Other strategies that were most used by the teachers included a distraction-free environment and giving clear and consistent rules. It was also found in this study that children responded in different ways to different strategies used by the teachers. It suggested that some strategies may be effective for some children but not others. This finding supports the importance of focusing on each child as 'unique' and providing an individual person-centred approach to teaching and learning planning. Therefore the knowledge of the strategies for support children with ASDs and the differences in their characteristics should be given to the teachers in their training.

11.3 Wider Implications and Recommendations

11.3.1 Diagnostic Criteria for AS

There are many arguments in the literature regarding the validity of the diagnostic criteria for AS, i.e. 'no language and cognitive developmental delays', and the precedence issues between autism and AS (APA, 2000). It was supported in this

study since children who perceived by the ASDS parents and teachers agreement as 'very likely' have the characteristics of AS have not fulfil the criteria 'no language and cognitive developmental delays'. The lack of validation of the diagnostic criteria has been suggested by many researchers as one of the reasons why AS cannot be evidently differentiated from autism, e.g. Campbell (2005), Klin & Volkmar (2003), Sciotto & Cantwell (2005). Therefore, AS was suggested to be placed under autism in the DSM 5 (2013).

Furthermore, findings from this study have strongly support DSM 5 that children with ASD could be classified into 3 different level of severity based on their social communication impairments and restricted, repititive patterns of behaviour. Therefore it was suggested that DSM 5 is suitable to be implemented in Malaysian context regarding the diagnosis and identification of children with ASD.

11.3.2 Recognising the Whole Spectrum of Autism in Education

Since there are some limitations found in the categorical model in this study (no children could be confirm as having the characteristics of AS), it support Wing & Gould (1979) who suggested that ASDs be emphasised as a spectrum. Furthermore, it also supports many researchers who indicated that a dimensional model (as used in the second research question) would be more helpful than a categorical model in understanding the distinction amongst ASDs (Ehlers & Gillberg, 1993; Frith, 1991; Kamp-Becker et al., 2010; Leekam et al., 2000; Macintosh & Dissanayake, 2004; Prior et al., 1998; Wing, 1996).

Therefore, in a Malaysian context, high functioning children with ASDs should be recognised and given appropriate educational support whether they have characteristics of AS or HFA, in the hope that they can become more independent and enjoy better outcomes in their lives. Meanwhile, low functioning children with ASDs should also be provided with some specific and appropriate educational support in the hope that they could maximise their abilities and become less dependent.

11.3.3 More Research, Knowledge and Awareness on ASDs in Malaysia

It was found that there are a lot of similarities in the findings of this study when compared to research from other countries e.g. characteristics of children with ASD, estimated prevalence of children with AS and support for the new diagnostic criteria (DSM 5, 2013). Therefore more research, knowledge and awareness on children with ASD in Malaysian context could be developed from this study.

Since the number of children enrolled in the special education programme are below the level as recommended by the UN, through the process and instrument that have been used in this study could be useful to identify and to determine the characteristics of children with ASD. Furthermore they could also be classified into 3 different groups base on their social communication impairments and restricted, repetitive patterns of behaviour (DSM 5, 2013). Therefore they could be given more specific and suitable support to fulfil their needs.

With more research and knowledge on ASD, more appropriate curriculum and support could be provided for children with ASD as stated in the Malaysian Education Development Plan (MEDP, 2013-2025).

Since inclusive education is the major concern by the MOE, after the children with ASD have been identified and classified into 3 different groups as suggested in DSM 5, children from level 1, 2 and 3 may could be included in the mainstream classes depending on their abilities, facilities and support that could be provided in the mainstream classes. If children from level 2 and 3 are quite difficult to be included, only children from the higher level (level1) could be included in the mainstream classes because they may get more benefit from the inclusive education.

11.3.4 Identifying Children with Characteristics of AS in Malaysia

Even though it was found in this study that children with diagnosis of autism in the SEUs show the spectrum of autism in their features, children with characteristics of AS and or HFA may still need to be identified amongst these children in Malaysian schools because they may need different support than children with lower

functioning, especially to enhance their strengths and potential in certain areas. Furthermore, it was found in this study that these children are always could be grouped in the higher level (level 1) as indicated in the DSM 5. Only their labels i.e. AS and HFA may could be change into children in the higher level (level 1). They may also need more specific support because individuals with AS exhibit difficulties with comorbid mental health needs, such as depression and anxiety, as they get older. Therefore, recognition and early intervention may help reduce these problems.

Assessments used in this study were found useful to identify children with characteristics of AS and to examine the differences in the features of children with a diagnosis of autism. Since there are currently no specific assessment instruments that could be used for these purpose by the teachers, these instruments could be used in Malaysian schools. Since some of the ASDS items used in this study were found to have high agreement between parents and teachers, they might be more suitable for use in a Malaysian context as a screening instrument. However, a few items that were found to have low agreement between parents and teachers might only be used with some additional explanation in order to ensure that they are clearly understood by the parents and teachers. It also must be noted that the identification process should not only rely on the standardised rating scale (ASDS) but should also be supported by other assessments, as in this study.

11.3.5 Specialised Support for Children in Malaysian schools

Since children with ASDs in Malaysian schools are normally placed in the special education units with children with other categories of learning disabilities, no specialised support is provided for them. It is known that children with ASDs are very different from each other as well as from children with other learning disabilities, e.g. Down syndrome. Even though it might be good to place them together with children with Down syndrome, who are more sociable, they still need specific support to overcome their difficulties, especially in the triad of impairments (social, communication and imagination). For example children with diagnosis of autism in the SEUs were found have very broad range of abilities in language i.e. from have 'no speech' to 'can speak clearly'. Therefore, beside special education

teachers who have more general knowledge on children with learning disabilities, more specialised professionals, e.g. speech and language therapists and school psychologists, should be trained and placed in the schools to provide more specialised support for children with ASDs.

11.3.6 Teacher Training On Autism

Teachers' feedback in this study showed that specific strategies are useful to support children with autism. Even though most of the teachers involved in this study showed skill and sensitivity when dealing with children with ASDs, some of them also noted that they needed more training on it. Since training more specialised professionals such as speech and language therapists and school psychologists to work in Malaysian schools may be a very expensive and lengthy process, providing more teachers training on ASDs may be a good alternative. This training may need to be planned for current teachers as well as for new special education teachers. A module on ASDs which contain strategies on how to support these children should be compulsory for special education teacher training; every special education teacher would thus have more specific knowledge of ASDs.

Since there are possibilities that children with broader spectrum of autism were in the mainstream schools, specific training about ASDs for mainstream teachers should also be set up. Therefore, mainstream teachers would be more knowledgeable about ASDs and could offer more support for children within this category in their classes.

Moreover, in the MEDP (2013-2025), a greater emphasis has been given to the implementation of inclusive education (in 2015, 70% of students with special needs should be involved). Therefore more training should be given to the special education and mainstream teachers to ensure the successful implementation of inclusive education.

11.3.7 Environment for ASDs

Since a structured environment as suggested in the information pack was found necessary to support children with ASDs, schools in Malaysia should offer these

facilities. A structured environment, more visual schedules and signboards should be provided not only in the classroom but also in the whole school system. To implement this, not only special education teachers and mainstream teachers should be trained to be more knowledgeable about ASDs; so should school administrators and other school workers. Furthermore, knowledge should also be disseminated to the whole community through brochures, seminars or specific campaigns to ensure support facilities are available for individuals with ASDs. To help this, the information pack for parents and teachers used in this study and the one that has been outlined through the findings of this study need to be distributed to schools and communities in order for more awareness and understanding of ASDs to be gained in the wider social context.

11.4 Conclusion

It was found that there are a lot of similarities in the findings of this study when compared to previous studies from other countries e.g. characteristics of children with ASD, estimated prevalence of children with AS, children with ASD have better abilities in PIQ than VIQ and failed to support the validity of the language criterion to differentiate AS from autism. This study also has strongly support the new diagnostic criteria (DSM 5, 2013) since it was found that the social communication impairments and restricted, repetitive patterns of behaviour could differentiate children into 3 levels. Therefore more research, knowledge and awareness on children with ASD could be developed in Malaysian context from this study.

The findings regarding children with diagnosis of autism in the SEUs indicated that there are some children who 'most probably have characteristics of AS'. However, this finding was not straightforward. The range of assessment used in this study has highlighted the spectrum of abilities even amongst the children who 'most probably have characteristics of AS'.

The findings also indicated that the categorical model used in the study, which tried to differentiate children with characteristics of AS from children with autism, has

some limitations whereas the dimensional model that was applied was found useful in examining the differences in the characteristics of children with a diagnosis of autism in the SEUs. It was found that children with autism have very uneven profiles and a very wide range of abilities and needs. Therefore it emphasised the importance of individualised support for these children and the need to highlight that each child is 'unique'.

It was also found that parents and teachers really appreciated the information pack provided in this study. Parents showed that they really needed more information about autism. This finding confirmed that there is a lack of knowledge about children with autism amongst parents in Malaysia. However, the teachers' responses showed that they may have more knowledge about autism than the parents. Therefore, they need more specific knowledge about autism, especially teaching and learning strategies to implement in their practice. These findings suggest that a different information pack may be needed for parents and teachers, to fulfil their different needs.

The findings of this study also indicate that teachers have more positive understanding and expectations about children's potential learning and development after being told about children's achievements in different tests and being given and trying some more appropriate strategies for children with ASDs, as suggested in the pack. However, children responded in different ways to different strategies used by the teachers. It is suggested that some strategies may be effective with some children but not others. This finding supports the importance of focusing on each child as 'unique' and providing an individual person-centred approach in teaching and learning process.

Overall, findings from this study have many similarities when compared to previous studies from other countries. It also supported the DSM 5 which indicates that subtypes of autism are better merged into one umbrella diagnosis called ASD. Hopefully through these findings more research, knowledge and awareness regarding autism would be disseminated in Malaysia. Therefore the aims of Malaysian Education Development Plan (MEDP, 2013-2025) e.g. identification of children with special needs, inclusive education, specific curriculum for children with special

needs and more specific teachers' training for special education teachers will be implemented successfully.

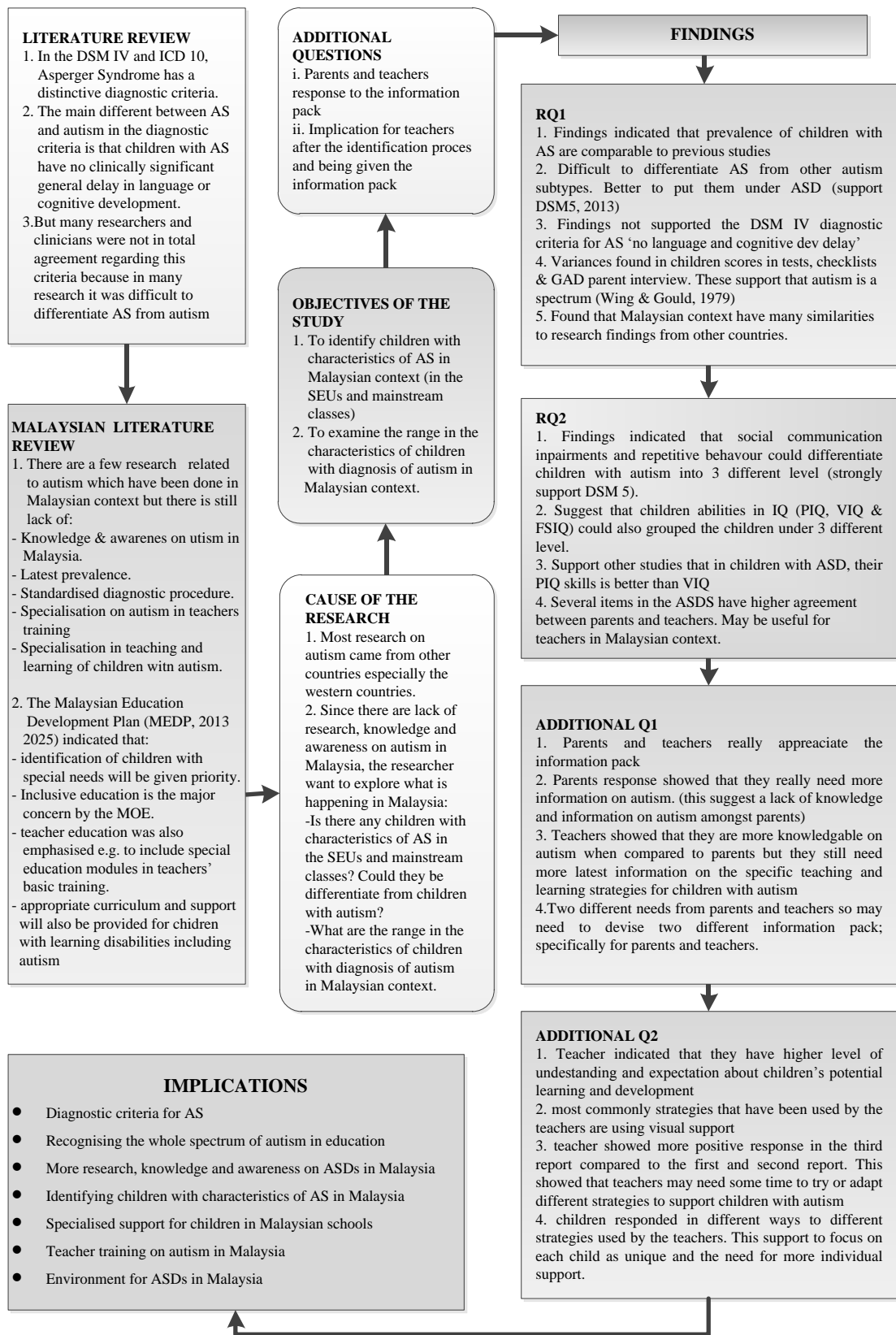


Figure 11.1 : Conceptual Framework

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APPENDIX I

DIAGNOSTIC CRITERIA

Appendix 1.1:

DSM-IV Diagnostic criteria for Autistic disorder (American Psychiatric Association, 1994).

(I) A total of six (or more) items from (A), (B), and (C), with at least two from (A), and one each from (B) and (C)

(A) qualitative impairment in social interaction, as manifested by at least two of the following:

1. marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction.
2. failure to develop peer relationships appropriate to developmental level.
3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people, (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
4. lack of social or emotional reciprocity (note: in the description, it gives the following as examples: not actively participating in simple social play or games, preferring solitary activities, or involving others in activities only as tools or "mechanical" aids)

(B) qualitative impairments in communication as manifested by at least one of the following:

1. delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
2. in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
3. stereotyped and repetitive use of language or idiosyncratic language
4. lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(C) restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:

1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
2. apparently inflexible adherence to specific, nonfunctional routines or rituals
3. stereotyped and repetitive motor mannerisms (e.g hand or finger flapping or twisting, or complex whole-body movements)
4. persistent preoccupation with parts of objects

(II) Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:

- (A) social interaction
- (B) language as used in social communication
- (C) symbolic or imaginative play

(III) The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder

Appendix 1.2:

DSM-IV Diagnostic criteria for Asperger syndrome (American Psychiatric Association, 1994).

(I) Qualitative impairment in social interaction, as manifested by at least two of the following:

(A) marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction

(B) failure to develop peer relationships appropriate to developmental level

(C) a lack of spontaneous seeking to share enjoyment, interest or achievements with other people, (e.g.. by a lack of showing, bringing, or pointing out objects of interest to other people)

(D) lack of social or emotional reciprocity

(II) Restricted repetitive & stereotyped patterns of behavior, interests and activities, as manifested by at least one of the following:

(A) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

(B) apparently inflexible adherence to specific, nonfunctional routines or rituals

(C) stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole-body movements)

(D) persistent preoccupation with parts of objects

(III) The disturbance causes clinically significant impairments in social, occupational, or other important areas of functioning.

(IV) There is no clinically significant general delay in language (E.G. single words used by age 2 years, communicative phrases used by age 3 years)

(V) There is no clinically significant delay in cognitive development or in the development of age-appropriate self help skills, adaptive behavior (other than in social interaction) and curiosity about the environment in childhood.

(VI) Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia."

Appendix 1.3:

ICD-10 Criteria for Childhood Autism (World Health Organization, 1993):

A. Abnormal or impaired development is evident before the age of 3 years in at least one of the following areas:

1. receptive or expressive language as used in social communication;
2. the development of selective social attachments or of reciprocal social interaction;
3. functional or symbolic play.

B. A total of at least six symptoms from (1), (2) and (3) must be present, with at least two from (1) and at least one from each of (2) and (3)

1. Qualitative impairment in social interaction are manifest in at least two of the following areas:

- a. failure adequately to use eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction;
- b. failure to develop (in a manner appropriate to mental age, and despite ample opportunities) peer relationships that involve a mutual sharing of interests, activities and emotions;
- c. lack of socio-emotional reciprocity as shown by an impaired or deviant response to other people's emotions; or lack of modulation of behavior according to social context; or a weak integration of social, emotional, and communicative behaviors;
- d. lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g. a lack of showing, bringing, or pointing out to other people objects of interest to the individual).

2. Qualitative abnormalities in communication as manifest in at least one of the following areas:

- a. delay in or total lack of, development of spoken language that is not accompanied by an attempt to compensate through the use of gestures or mime as an alternative mode of communication (often preceded by a lack of communicative babbling);

- b. relative failure to initiate or sustain conversational interchange (at whatever level of language skill is present), in which there is reciprocal responsiveness to the communications of the other person;
- c. stereotyped and repetitive use of language or idiosyncratic use of words or phrases;
- d. lack of varied spontaneous make-believe play or (when young) social imitative play

3. Restricted, repetitive, and stereotyped patterns of behavior, interests, and activities are manifested in at least one of the following:

- a. An encompassing preoccupation with one or more stereotyped and restricted patterns of interest that are abnormal in content or focus; or one or more interests that are abnormal in their intensity and circumscribed nature though not in their content or focus;
- b. Apparently compulsive adherence to specific, nonfunctional routines or rituals;
- c. Stereotyped and repetitive motor mannerisms that involve either hand or finger flapping or twisting or complex whole body movements;
- d. Preoccupations with part-objects of non-functional elements of play materials (such as their odor, the feel of their surface, or the noise or vibration they generate).

C. The clinical picture is not attributable to the other varieties of pervasive developmental disorders; specific development disorder of receptive language with secondary socio-emotional problems, reactive attachment disorder or disinhibited attachment disorder; mental retardation with some associated emotional or behavioral disorders; schizophrenia of unusually early onset; and Rett's Syndrome.

Appendix 1.4:

ICD-10 Diagnostic criteria for Asperger's Syndrome (World Health Organization, 1993):

- A. There is no clinically significant general delay in spoken or receptive language or cognitive development. Diagnosis requires that single words should have developed by 2 years of age or earlier and that communicative phrases be used by 3 years of age or earlier. Self-help skills, adaptive behaviour and curiosity about the environment during the first 3 years should be at a level consistent with normal intellectual development. However, motor milestones may be somewhat delayed and motor clumsiness is usual (although not a necessary diagnostic feature). Isolated special skills, often related to abnormal pre-occupations, are common, but are not required for the diagnosis.
- B. Qualitative abnormalities in reciprocal social interaction are manifest in at least two of the following areas:
- a. Failure adequately to use eye-to-eye gaze, facial expression, body postures and gestures to regulate social interaction.
 - b. Failure to develop (in a manner appropriate to mental age, and despite ample opportunities) peer relationships that involve a mutual sharing of interests, activities and emotions.
 - c. Lack of social-emotional reciprocity as shown by an impairment or deviant response to other people's emotions, or lack of modulation of behavior according to social context, or lack of a weak integration of social, emotional and communicative behaviors.
 - d. Lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g. lack of showing, bringing or pointing out to other people objects of interest to the individual).
- C. The individual exhibits an unusually intense, circumscribed interest or restricted, repetitive and stereotyped patterns of behavior, interests and activities manifest in at least one of the following areas:
- (1) An encompassing pre-occupation with stereotyped and restricted patterns of interest that are abnormal in content or focus, or one or more interests that are abnormal in their intensity and circumscribed nature though not in the content or focus.
 - (2) Apparently compulsive adherence to specific, non-functional routines or rituals.

- (3) Stereotyped and repetitive motor mannerisms that involve either hand/finger flapping or twisting, or complex whole body movements.
- (4) Pre-occupations with part-objects or non-functional elements of play materials (such as their color, the feel of their surface or the noise/vibration that they generate). However, it would be less usual for these to include either motor mannerisms or pre-occupations with partobjects or non-functional elements of play materials.

D. The disorder is not attributable to the other varieties of pervasive developmental disorder: simple schizophrenia, schizo-typal disorder, obsessive-compulsive disorder, obsessional personality disorder, reactive and dis-inhibited attachment disorders of childhood.

APPENDIX 2

INSTRUMENTS

Appendix 2.1:

The Asperger Syndrome Diagnostic Scale (ASDS)

<h1 style="font-size: 2em; margin: 0;">ASDS</h1> <h2 style="margin: 5px 0;">Asperger Syndrome Diagnostic Scale</h2> <h3 style="margin: 5px 0;">Summary/Response Form</h3>	<p style="text-align: center; border-bottom: 1px solid black; margin: 0;">Section I. Identifying Information</p> <p>Student's Name _____</p> <p>Address _____</p> <p style="text-align: right; margin-right: 20px;">Year Month Day</p> <p>Date Tested _____ _____ _____</p> <p>Date of Birth _____ _____ _____</p> <p>Age _____ _____ _____</p> <p>School _____</p> <p>Parents'/Guardians' Names _____</p> <p>Examiner's Name _____</p> <p>Examiner's Title _____</p> <p>Rater's Name _____</p>																																																																																																																																																																																																			
<p style="text-align: center; border-bottom: 1px solid black; margin: 0;">Section II. 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Directions: The *Asperger Syndrome Diagnostic Scale* contains a series of statements that are rated as observed or not observed. Read each statement and circle 1 when you have observed the behavior that is described in the statement. If you have not observed the behavior described in the statement, circle 0. Remember to rate every behavior based upon your observations. If you are uncertain about how to rate an item, delay the rating and observe the person for a 6-hour period to determine your rating or seek information from a reliable reporter familiar with the individual.

Language Subscale		Observed	Not Observed
1. Speaks like an adult in an academic or "bookish" manner and/or overly uses correct grammar	1	1	0
2. Talks excessively about favorite topics that hold limited interest for others	1	1	0
3. Uses words or phrases repetitively	1	1	0
4. Does not understand subtle jokes (e.g., sarcasm)	1	1	0
5. Interprets conversations literally (i.e., has difficulty understanding metaphors, idioms)	1	1	0
6. Has peculiar voice characteristics (i.e., sing-song, monotone)	1	1	0
7. Acts as though he or she understands more than he or she does	1	1	0
8. Frequently asks inappropriate questions	1	1	0
9. Experiences difficulty in beginning and continuing a conversation	1	1	0
Total Language Raw Score	<input type="text"/>		

Social Subscale		Observed	Not Observed
1. Uses few gestures	1	1	0
2. Avoids or limits eye contact	1	1	0
3. Has difficulty in relating to others that cannot be explained by shyness, attention, or lack of experience	1	1	0
4. Exhibits few or inappropriate facial expressions	1	1	0
5. Shows little or no interest in other children	1	1	0
6. Prefers to be in the company of adults more than peers	1	1	0
7. Has few or no friends in spite of a desire to have them	1	1	0
Has little or no ability to make or keep friends	1	1	0
9. Does not respect others' personal space	1	1	0
10. Displays limited interest in what other people say or what others find interesting	1	1	0
11. Has difficulty understanding the feelings of others	1	1	0
12. Does not understand or use rules governing social behavior	1	1	0
13. Has difficulty understanding social cues (i.e., turn-taking in conversation, politeness)	1	1	0
Total Social Raw Score	<input type="text"/>		

Maladaptive Subscale		Observed	Not Observed
1. Does not change behavior to match the environment (i.e., uses loud outside voice in the library)	1	1	0
2. Engages in inappropriate behavior related to obsessive or favorite interest	1	1	0
3. Displays antisocial behavior	1	1	0
4. Exhibits a strong reaction to a change in his or her routine	1	1	0
5. Frequently becomes anxious or panics when unscheduled events occur	1	1	0
6. Appears depressed or has suicidal tendencies	1	1	0
7. Engages in repeated, obsessive, and/or ritualistic behavior	1	1	0
8. Displays behaviors that are immature and similar to those of a much younger child	1	1	0

9. Frequently loses temper or has tantrums	1	0
10. Frequently feels overwhelmed or bewildered, especially in crowds or demanding situations	1	0
11. Attempts to impose narrow interests, routines, or structures on others	1	0
Total Maladaptive Raw Score		<input type="text"/>

Cognitive Subscale

	Observed	Not Observed
1. Displays superior ability in restricted area of interest, while having average to above average skills in other areas	1	0
2. Displays an extreme or obsessive interest in a narrow subject	1	0
3. Functions best when engaged in familiar and repeated tasks	1	0
4. Has excellent rote memory	1	0
5. Learns best when pictures or written words are present	1	0
6. Has average to above average intelligence	1	0
7. Appears to be aware that he or she is different from others	1	0
8. Is oversensitive to criticism	1	0
9. Lacks organizational skills	1	0
10. Lacks common sense	1	0
Total Cognitive Raw Score		<input type="text"/>

Sensorimotor Subscale

	Observed	Not Observed
1. Displays an unusual reaction to loud, unpredictable noise (e.g., screams, has tantrums, or withdraws)	1	0
2. Frequently stiffens, flinches, or pulls away when hugged	1	0
3. Overreacts to smells that are hardly recognizable to those around him or her	1	0
4. Prefers to wear clothes made of only certain fabrics	1	0
5. Has a restricted diet consisting of the same foods cooked and presented in the same way	1	0
6. Exhibits difficulties with handwriting or other tasks (i.e., buttoning, typing) that require fine motor skills	1	0
7. Appears clumsy or uncoordinated	1	0
Total Sensorimotor Raw Score		<input type="text"/>

Section VI. Key Questions

1. At what age did the unusual behavior first occur? _____
2. Does the unusual behavior occur in all settings? _____
3. Could the unusual behavior be the result of another handicapping condition? _____
4. Who has evaluated the person and what were the results? _____
5. What assessments and evaluations have been conducted? _____
6. Are disturbances noted in the areas of the DSM-IV or ICD-10 definitions? _____
7. What areas are most affected? What are the symptoms? _____
8. How severe are the symptoms? How do the symptoms interfere with everyday functioning? _____
9. What information needs to be collected? _____
Who can supply the information? _____
10. What resources are available for further evaluation? _____

Section VI was adapted from *Gilliam Autism Rating Scale, Summary/Response Form* (p. 6), by J. Gilliam, 1995, Austin, TX: PRO-ED. Copyright 1995 by PRO-ED, Inc. Adapted with permission.

Appendix 2.2:

Krug Asperger's Disorder Index (KADI)

KADI

Profile/Examiner Record Form

Krug Asperger's Disorder Index

Elementary:
Ages 6-11

Section I. Identifying Information

Child's Name _____ Female Male

Parents' Names _____

Date of Rating _____ Year _____ Month _____ School _____

Date of Birth _____ Other Previous Diagnosis _____

Chronological Age _____ Rater's Name _____

Rater's Title _____

Section II. Record of Scores

Column A Total _____
(Items 1-11)

If the Column A total is <18, do not proceed. Scores below 18 do not meet criteria for Asperger's Disorder.

Raw Score _____
(Column B, Items 1-32)

Standard Score
(standard score from Appendix A)

Percentile _____
(from Appendix A)

Section III. Standard Score Analysis

KADI Standard Score	Likelihood for Asperger's Disorder Diagnosis
130	
125	Very High
120	
115	
110	
105	
100	High
95	
90	
85	Somewhat Likely
80	
75	
70	
65	Very Low
60	
55	
50	
45	
40	
35	
30	
25	
20	
15	
10	
5	
0	Extremely Low

Section IV: Record of Item Scores

Instructions: Carefully read each statement. If the statement accurately describes the person, circle the number in Column A. If you circle a number in Column A, circle the corresponding number in Column B. If the statement does not describe the person, do not circle the numbers.

	Column A	Column B
1. Fixates (obsesses) on ideas or activities	4	2
2. Conversationally talks about single subject excessively	3	4
3. Doesn't adjust language to needs of different listeners	4	4
4. Imitates others quite a lot	3	2
5. Makes naive remarks (unaware of reaction produced in others)	3	3
6. Interprets language literally (uses concrete meaning of words)	4	2
7. Says things that may embarrass others	3	3
8. Does things others regard as unconventional	4	1
9. Is surprisingly poor at some things	4	0
10. Is bullied by others	4	4
11. Has limited intellectual interests (e.g., cartoon characters)	3	0

Column A Total

(Sum all circled items in Column A.)

Add Column A scores.

If sum is 0–17, STOP. This score does not meet criteria for Asperger's Disorder.

If sum is 18 or above, CONTINUE.

Instructions: If the total from Column A (above) is 18 or higher, continue to complete Column B by circling the number following only those items that accurately describe this person.

	Column B
12. Expresses opinions to strangers inappropriately	3
13. Acts out or discusses fantasies in unusual ways	3
14. Gives impression that he or she is smarter than others	2
15. Thinks it important that people accept his or her ideas	3
16. Easily becomes impatient with others	1
17. Has very high standards for self and others	4
18. Persists with certain pieces of work for too long (obsessively so)	2
19. "Special ability(ies)" seems to rule out mental retardation	4
20. Good or excellent rote memory	3
21. Is surprisingly good at some things	3
22. Can cooperate in team games	3
23. Not dependent on others for their help and advice	3
24. Verbally fluent with normal vocabulary before age 5 years	4
25. Uses pronouns correctly (you, we, they, etc.)	4
26. Is regarded as an eccentric (odd, peculiar) person by others	2
27. Seems too serious	3
28. Seems possible might someday attend college	4
29. Seems possible might someday hold job independently	4
30. Seems possible might someday live by self, independently	4
31. Seems possible might someday manage own money	4
32. Seems possible might someday drive car	4

Raw Score

(Sum all circled items, from Item 1 to Item 32, in Column B.)

Appendix 2.3:

The Australian Scale for Asperger's Syndrome (ASAS)

The Australian Scale For Asperger's Syndrome (A.S.A.S.) is reprinted on O.A.S.I.S. with the permission of Tony Attwood, PhD. This is an excerpt from his wonderful new book **ASPERGER'S SYNDROME: A GUIDE FOR PARENTS AND PROFESSIONALS**. [Click Here](#) for more information about this **MUST READ** book.

THE AUSTRALIAN SCALE FOR ASPERGER'S SYNDROME
M.S. Garnett and A.J. Attwood

The following questionnaire is designed to identify behaviours and abilities indicative of Asperger's Syndrome in children during their primary school years. This is the age at which the unusual pattern of behaviour and abilities is most conspicuous. Each question or statement has a rating scale with 0 as the ordinary level expected of a child of that age.

A. SOCIAL AND EMOTIONAL ABILITIES

	Rarely						Frequently
	0	1	2	3	4	5	6
1. Does the child lack an understanding of how to play with other children? For example, unaware of the unwritten rules of social play?	0	1	2	3	4	5	6
2. When free to play with other children, such as school lunchtime, does the child avoid social contact with them? For example, finds a secluded place or goes to the library.	0	1	2	3	4	5	6
3. Does the child appear unaware of social conventions or codes of conduct and make inappropriate actions and comments? For example, making a personal comment to someone but the child seems unaware of how the comment could offend.	0	1	2	3	4	5	6
4. Does the child lack empathy, ie. the intuitive understanding of another person's feelings? For example, not realising an apology would help the other person feel better.	0	1	2	3	4	5	6
5. Does the child seem to expect other people to know their thoughts, experiences and opinions? For example, not realising you could not know about something because you were not with the child at the time.	0	1	2	3	4	5	6
6. Does the child need an excessive amount of reassurance, especially if things are changed or go wrong?	0	1	2	3	4	5	6

7. Does the child lack subtlety in their expression of emotion? For example, the child shows distress or affection out of proportion to the situation. 0 1 2 3 4 5 6
8. Does the child lack precision in their expression of emotion? For example, not understanding the levels of emotional expression appropriate for different people. 0 1 2 3 4 5 6
9. Is the child not interested in participating in competitive sports, games and activities. 0 means the child enjoys competitive sports. 0 1 2 3 4 5 6
10. Is the child indifferent to peer pressure? 0 means the child follows crazes. For example, does not follow the latest craze in toys or clothes. 0 1 2 3 4 5 6

B. COMMUNICATION SKILLS

- | | Rarely | | | | | | Frequently |
|--|--------|---|---|---|---|---|------------|
| 11. Does the child take a literal interpretation of comments? For example, is confused by phrases such as "pull your socks up," "looks can kill" or "hop on the scales." | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. Does the child have an unusual tone of voice? For example, the child seems to have a "foreign" accent or monotone that lacks emphasis on key words. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. When talking to the child does he or she appear uninterested in your side of the conversation? For example, not asking about or commenting on your thoughts or opinions on the topic. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. When in a conversation, does the child tend to use less eye contact than you would expect? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Is the child's speech over-precise or pedantic? For example, talks in a formal way or like a walking dictionary. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. Does the child have problems repairing a conversation? For example, when the child is confused, he or she does not ask for clarification but simply switches to a familiar topic, or takes ages to think of a reply. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

C. COGNITIVE SKILLS

	Rarely						Frequently
17. Does the child read books primarily for information, not seeming to be interested in fictional works? For example, being an avid reader of encyclopaedias and science books but not keen on adventure stories.	0	1	2	3	4	5	6
18. Does the child have an exceptional long-term memory for events and facts? For example, remembering the neighbour's car registration of several years ago, or clearly recalling scenes that happened many years ago.	0	1	2	3	4	5	6
19. Does the child lack social imaginative play? For example, other children are not included in the child's imaginary games or the child is confused by the pretend games of other children.	0	1	2	3	4	5	6

D. SPECIFIC INTERESTS

	Rarely						Frequently
20. Is the child fascinated by a particular topic and avidly collects information or statistics on that interest? For example, the child becomes a walking encyclopaedia of knowledge on vehicles, maps or league tables.	0	1	2	3	4	5	6
21. Does the child become unduly upset by changes in routine or expectation? For example, is distressed by going to school by a different route.	0	1	2	3	4	5	6
22. Does the child develop elaborate routines or rituals that must be completed? For example, lining up toys before going to bed.	0	1	2	3	4	5	6

E. MOVEMENT SKILLS

	Rarely						Frequently
23. Does the child have poor motor coordination? For example, is not skilled at catching a ball.	0	1	2	3	4	5	6
24. Does the child have an odd gait when running?	0	1	2	3	4	5	6

F. OTHER CHARACTERISTICS

For this section, tick whether the child has shown any of the following characteristics:

(a) Unusual fear or distress due to:

ordinary sound, e.g. electrical appliances _____

light touch on skin or scalp _____

wearing particular items of clothing _____

unexpected noises _____

seeing certain objects _____

noisy, crowded places, e.g. supermarkets _____

(b) A tendency to flap or rock when excited or distressed _____

(c) A lack of sensitivity to low levels of pain _____

(d) Late in acquiring speech _____

(e) Unusual facial grimaces or tics _____

If the answer is yes to the majority of the questions in the scale, and the rating was between two and six (i.e. conspicuously above the normal range), it does not automatically imply the child has Asperger's Syndrome. However, it is a possibility and a referral for a diagnostic assessment is warranted.

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Appendix 2.4.:

Gilliam Asperger's Disorder Scale (GADS) - Parent Interview

Section VI. Parent Interview Form

DIRECTIONS: This section should be completed by parents or other caregivers who have direct, sustained contact with the child. Parent and caregiver interviews are acceptable. Answer each question by recording either *yes* or *no*. Complete every item.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 33. Was the child diagnosed as having any developmental delays?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. Language Development | | |
| a. Did the child use single words by age 2?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Did the child use communicative phrases by age 3?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the child have a receptive vocabulary appropriate for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Does the child have an expressive vocabulary appropriate for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Does the child appear to have normal hearing?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. Cognitive Development | | |
| a. Does the child demonstrate average memory skills?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the child learn facts and skills like average children?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the child seem to have average intellectual skills (i.e., seems to think, problem-solve, and understand basic concepts like average children)?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Does the child make generalizations like average children?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Does the child try to solve puzzles or figure out tasks or problems?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. Self-Help Skills | | |
| a. Does the child dress him- or herself appropriately for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the child feed him- or herself appropriately for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the child brush his or her teeth independently for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Does the child wash and clean him- or herself independently for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Does the child use appropriate toileting skills for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. Adaptive Behavior | | |
| a. Does the child have average motor skills for his or her age?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the child engage in the usual leisure time activities of other children of the same age and gender?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the child move about the community as independently as other children of the same age and gender?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Does the child know his or her phone number and address?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Does the child take responsibility for things such as completing chores, putting things away, and so on?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. Curiosity About the Environment | | |
| a. Does the child appear curious about things in the environment (e.g., ask "why" questions to determine why things are the way they are)?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the child read to gain information?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the child read for leisure?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Does the child try to figure out (or ask about) how things work?..... | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Does the child ask questions to learn new facts about things in the environment (e.g., ask "what, when, where, how" questions)?..... | <input type="checkbox"/> | <input type="checkbox"/> |

Appendix 2.5:
WASI IQ Test



WECHSLER ABBREVIATED
SCALE OF INTELLIGENCE™

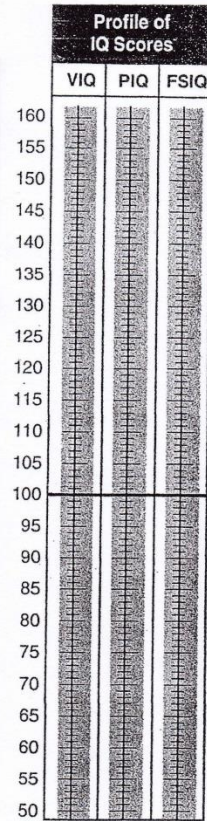
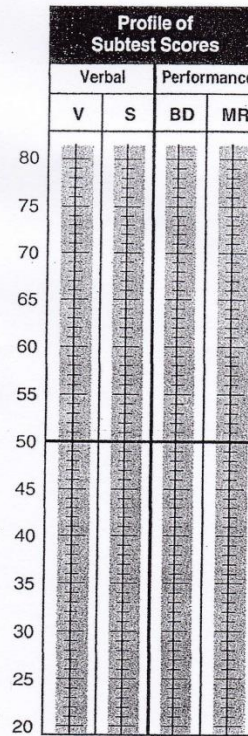
Record Form

Name _____ ID _____
 Address/School _____ Grade/
 Highest Education _____
 Examiner _____






	Year	Month	Day
Date of Testing			
Date of Birth			
Age			

Subtest Scores		
Subtest	Raw Score	T Score
Vocabulary		
Block Design		
Similarities		
Matrix Reasoning		
Sums of T Scores		
		Verbal
		Performance
		4-Subtest
		2-Subtest
		Full Scale

	WASI IQ Scores				Prediction Intervals			
	Sum of T Scores	IQ	Percentile	% Confidence Interval	WISC-III		WAIS-III	
					90%	68%	90%	68%
Verb.								
Perf.								
Full-4								
Full-2								



1. Vocabulary

				
Start Point Ages 6-8: Item 5 Ages 9-89: Item 9	Reverse Rule All Ages: Administer Items 1-4 in forward sequence if score of 0 or 1 on Item 5 or 6. Ages 9-89: Administer Items 5-8 in reverse sequence if score of 0 or 1 on Item 9 or 10.	Discontinue Rule After 5 consecutive scores of 0	Stop Point Ages 6-8: After Item 30 Ages 9-11: After Item 34 Ages 12-16: After Item 38 Ages 17-89: No stop point	Scoring Rule Items 1-4: 0 or 1 Items 5-42: 0, 1, or 2

Item	Response	Score (0 or 1)
1. Fish		
2. Shovel		
3. Map		
4. Shell		(0, 1, 2)
5. Shirt		
6. Shoe		
7. Flashlight		
8. Car		
9. Bird		
10. Calendar		
11. Number		
12. Bell		
13. Lunch		
14. Police		
15. Vacation		
16. Pet		
17. Balloon		
18. Transform		
19. Alligator		

1. Vocabulary (Continued)

Item	Response	Score (0, 1, 2)
20. Cart		
21. Blame		
22. Dance		
23. Purpose		
24. Entertain		
25. Famous		
26. Reveal		
27. Decade		
28. Tradition		
29. Rejoice		
30. Enthusiastic		
31. Improvise		
32. Impulse		
33. Haste		
34. Trend		
35. Intermittent		
36. Devout		
37. Impertinent		
38. Niche		
39. Presumptuous		
40. Formidable		
41. Ruminant		
42. Panacea		

Maximum Raw Score
 Ages 6-8: 56
 Ages 9-11: 64
 Ages 12-16: 72
 Ages 17-89: 80

Total
 Raw Score

2. Block Design



Start Point

Ages 6-8: Design 1
Ages 9-89: Design 3



Reverse Rule

Ages 9-89: Administer Items 1-2 in reverse sequence if score of 0 or 1 on Item 3 or 4.



Discontinue Rule

After 3 consecutive scores of 0



Scoring Rule

Items 1-4: 2 for a correct design on Trial 1
1 for a correct design on Trial 2
0 for incorrect designs on Trials 1 & 2
Items 5-13: 0-7

Examinee

Design	Time Limit	Incorrect Design		Completion Time in Seconds	Correct Design		Score (Circle the appropriate score for each design.)				
		Trial 1	Trial 2		Y	N	0	1	2		
1.	30*	Trial 1 	Trial 2 		Y	N	0	1	2		
2.	60*	Trial 1 	Trial 2 		Y	N	0	1	2		
3.	60*	Trial 1 	Trial 2 		Y	N	0	1	2		
4.	60*	Trial 1 	Trial 2 		Y	N	0	1	2		
5.	60*				Y	N	0	21"-60" 4	16"-20" 5	11"-15" 6	1"-10" 7
6.	60*				Y	N	0	21"-60" 4	16"-20" 5	11"-15" 6	1"-10" 7
7.	60*				Y	N	0	21"-60" 4	16"-20" 5	11"-15" 6	1"-10" 7
8.	60*				Y	N	0	21"-60" 4	16"-20" 5	11"-15" 6	1"-10" 7
9.	60*				Y	N	0	21"-60" 4	16"-20" 5	11"-15" 6	1"-10" 7
10.	120*				Y	N	0	66"-120" 4	46"-65" 5	31"-45" 6	1"-30" 7
11.	120*				Y	N	0	76"-120" 4	56"-75" 5	41"-55" 6	1"-40" 7
12.	120*				Y	N	0	76"-120" 4	56"-75" 5	41"-55" 6	1"-40" 7
13.	120*				Y	N	0	76"-120" 4	56"-75" 5	41"-55" 6	1"-40" 7

Examiner

371

Total Raw Score

Similarities



Start Point

Ages 6-8: Item 1
Ages 9-11: Item 5
Ages 12-89: Item 7



Reverse Rule

Ages 9-89: Administer Items 1-4 in forward sequence if score of 0 or 1 on Item 5 or 6.
Ages 12-89: Administer Items 5 & 6 in reverse sequence if score of 0 or 1 on Item 7 or 8.



Discontinue Rule

After 4 consecutive scores of 0



Stop Point

Ages 6-8: After Item 20
Ages 9-11: After Item 24
Ages 12-89: No stop point



Scoring Rule

Items 1-4: 0 or 1
Items 5-26: 0, 1, or 2

Item	Response					Score (0 or 1, 2)
6-8 → 1. Four-Wheeled	Ship	BUS	Bike	Train		
2. Dining Items	SPOON	Pan	Bowl	Can Opener		
3. Clothing	Jump Rope	Ball	SHOES	Crayons		
4. Fruits	BANANA	Bean	Pumpkin	Potato	(0, 1, 2)	
6-11 → 5. Red-Blue						
6. Circle-Square						
12-89 → 7. Grapes-Strawberries						
8. Cow-Bear						
9. Plane-Bus						
10. Shirt-Jacket						
11. Pen-Pencil						
12. Bowl-Plate						
13. Love-Hate						
14. TV-Newspaper						
15. Smooth-Rough						
16. Shoulder-Ankle						
17. Sit-Run						
18. Child-Adult						
19. Steam-Cloud						
6-8 STOP 20. Bird-Flower						
21. More-Less						
22. Photograph-Song						






3. Similarities (Continued)

Item	Response	Score (0, 1, 2)
23. Peace-War		
24. Capitalism-Socialism		
25. Tradition-Habit		
26. Freedom-Law		

Maximum Raw Score
 Ages 6-8: 36
 Ages 9-11: 44
 Ages 12-89: 48

Total
 Raw Score

4. Matrix Reasoning

 Start Point Administer Sample Items A and B first. Ages 6-8: Item 1 Ages 9-11: Item 5 Ages 12-44: Item 7 Ages 45-79: Item 5 Ages 80-89: Item 1	 Reverse Rule Ages 9-11 and Ages 45-79: Administer Items 1-4 in reverse sequence if score of 0 on Item 5 or 6. Ages 12-44: Administer Items 1-6 in reverse sequence if score of 0 on Item 7 or 8.	 Discontinue Rule After 4 consecutive scores of 0 or after 4 scores of 0 on 5 consecutive items	 Stop Point Ages 6-8: After Item 28 Ages 9-11: After Item 32 Ages 12-44: No stop point Ages 45-79: After Item 32 Ages 80-89: After Item 28	 Scoring Rule Items 1-35: 0 or 1
--	--	---	--	--

Item	Response Options (Circle One)	Score (0 or 1)
A.	1 2 3 4 5 DK	
B.	1 2 3 4 5 DK	
1.	1 2 3 4 5 DK	
2.	1 2 3 4 5 DK	
3.	1 2 3 4 5 DK	
4.	1 2 3 4 5 DK	
5.	1 2 3 4 5 DK	
6.	1 2 3 4 5 DK	
7.	1 2 3 4 5 DK	
8.	1 2 3 4 5 DK	
9.	1 2 3 4 5 DK	
10.	1 2 3 4 5 DK	
11.	1 2 3 4 5 DK	
12.	1 2 3 4 5 DK	
13.	1 2 3 4 5 DK	
14.	1 2 3 4 5 DK	
15.	1 2 3 4 5 DK	
16.	1 2 3 4 5 DK	
17.	1 2 3 4 5 DK	

Item	Response Options (Circle One)	Score (0 or 1)
18.	1 2 3 4 5 DK	
19.	1 2 3 4 5 DK	
20.	1 2 3 4 5 DK	
21.	1 2 3 4 5 DK	
22.	1 2 3 4 5 DK	
23.	1 2 3 4 5 DK	
24.	1 2 3 4 5 DK	
25.	1 2 3 4 5 DK	
26.	1 2 3 4 5 DK	
27.	1 2 3 4 5 DK	
28.	1 2 3 4 5 DK	
29.	1 2 3 4 5 DK	
30.	1 2 3 4 5 DK	
31.	1 2 3 4 5 DK	
32.	1 2 3 4 5 DK	
33.	1 2 3 4 5 DK	
34.	1 2 3 4 5 DK	
35.	1 2 3 4 5 DK	

Maximum Raw Score
 Ages 6-8: 28
 Ages 9-11: 32
 Ages 12-44: 35
 Ages 45-79: 32
 Ages 80-89: 28

Total
 Raw Score

373

**Appendix 2.6:
Symbolic Play Test**

APPENDIX B SCORING SHEET

D M Y

Name of child

D.o.b. _____

D.o.t. _____

Presenting
problem:

Age (completed
months) _____

Relevant information about family:

Parental occupation

Family structure

Languages spoken at home

Illness, separations or other important events in the child's life

Play opportunities:

Home

Nursery Group

Behaviour during symbolic play test:

Play preferences and symbolic play at home:

Play score in relation to other assessments:

Non-verbal intelligence

Receptive language

Expressive language

Play score

Formulation:

Sit.	Item No.	Description	Score	Observations
I	1.	Discrimin. doll	.....
	2.	Rel. spoon to cup or saucer	.....
	3.	Feeds/combs/brushes self or other person	.....
	4.	Feeds/combs/brushes doll	.....
	5.	Places cup on saucer	.....
II	6.	Discrimin. doll	.....
	7.	Rel. doll to bed	.....
	8.	Rel. blanket/pillow to doll	.....
	9.	Puts doll to bed	.....
	10.	Pillow correct	.....
III	11.	Rel. knife/fork to plate	.....
	12.	Rel. fork/knife/plate to table	.....
	13.	Rel. tablecloth to other object	.....
	14.	Places doll on chair	.....
	15.	Rel. fork/knife/plate to doll	.....
	16.	Rel. chair to table	.....
	17.	Rel. doll to table	.....
	18.	Places tablecloth on table	.....
IV	19.	Moves tractor/trailer along	.....
	20.	Rel. log(s) to tractor/trailer/man	.....
	21.	Places man in tractor/trailer	.....
	22.	Places man in driver's seat	
	23.	Lines up tractor-trailer	
	24.	Attaches tractor to trailer	
TOTAL SCORE			

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Appendix 2.7:
Test of Pretend Play Form

TOPP

Name

Where tested

Address

.....

.....

	Day	Month	Year
Date tested			
Date of birth			
Age			

Nonverbal Version
Summary of Scores

Section I Raw Score (max 2)	Section II Raw Score (max 8)	Section III Raw Score (max 12)	Section IV Raw Score (max 12)	Total Raw Score (max 34)	Age equivalent

Verbal Version
Summary of Scores

Section I Raw Score (max 2)	Section II Raw Score (max 8)	Section III Raw Score (max 12)	Section IV Raw Score (max 12)	Total Raw Score (max 34)	Age equivalent

Observation of Free Play
Summary of Scores

Section I Raw Score (max 2)	Section II Raw Score (max 8)	Section III Raw Score (max 12)	Section IV Raw Score (max 12)	Total Raw Score (max 34)	Age equivalent

Item I.1	Reference to an absent object	Max Score	*P/F/NA	Actual Score
	Bowl and spoon			
Elicit	Encourage play with materials	2		
Model	Eating breakfast	1		
Item I.1 Score (max 2)				

Section I Score (max 2)

Section II: Toy and non-representational materials

Item II.1a	One substitution	Max Score	*P/F/NA	Actual Score
	Doll and yellow top			
Elicit 1	Encourage play with doll and yellow top	2		
Model	Doll putting on her hat	1		
Elicit 2	Encourage child to produce another example with doll and yellow top	2		
Item II.1a Score (max 2)				

If child achieves the maximum score on Item II.1a, omit Item II.1b, and proceed to Item II.2.

Item II.1b	One substitution	Max Score	*P/F/NA	Actual Score
	Doll and red cloth			
Elicit 1	Encourage play with doll and cloth	2		
Model	Doll standing on a mat	1		
Elicit 2	Encourage child to produce another example with doll and cloth	2		
Item II.1b Score (max 2)				

Item II.2	Two substitutions	Max Score	*P/F/NA	Actual Score
	Doll, white counter and black box			
Elicit 1	Encourage play with doll and materials in combination	4		
Model	Doll putting a plate on a table	2		
Elicit 2	Encourage child to produce another example with doll and materials in combination	4		
Item II.2 Score (max 4)				

Item II.3	Three substitutions	Max Score	*P/F/NA	Actual Score
	Doll, brown stick, round white tub and blue cloth			
Elicit 1	Encourage play with doll and materials in combination	6		
Model	Doll rowing a boat on the water	3		
Elicit 2	Encourage child to produce another example with doll and materials in combination	6		
Item II.3 Score (max 6)				

Item II.4	Four substitutions	Max Score	*P/F/NA	Actual Score
	Doll, white perspex reel, white board, wooden box and cotton wool			
Elicit 1	Encourage play with doll and materials in combination	8		
Model	Doll going down a hill in a sledge into snow	4		
Elicit 2	Encourage child to produce another example with doll and materials in combination	8		
Item II.4 Score (max 8)				

Section II Score (highest Item Score) (max 8)

* P/F/NA = Passed/Failed/Not Attempted

Section III: Representational toy alone

Item III.1	Reference to an absent object	Max Score	*P/F/NA	Actual Score
	Teddy			
Model 1	Teddy driving a car	1		
Elicit 1	Encourage child to make teddy pretend that another object or person is present	2		
Model 2	Teddy having a drink	1		
Elicit 2	Encourage child to make teddy pretend that another object or person is present	2		
Item III.1 Score (max 2)				

Item III.2	Property attribution	Max Score	*P/F/NA	Actual Score
	Teddy			
Model 1	Teddy feeling poorly	1		
Elicit 1	Encourage child to attribute another pretend property to teddy	2		
Model 2	Teddy feeling sad	1		
Elicit 2	Encourage child to attribute another pretend property to teddy	2		
Item III.2 Score (max 2)				

Item III.3	Substitution	Max Score	*P/F/NA	Actual Score
	Teddy			
Model 1	Teddy being a bridge	1		
Elicit 1	Encourage child to pretend that teddy is something or someone else	2		
Model 2	Teddy being a bird	1		
Elicit 2	Encourage child to pretend that teddy is something or someone else	2		
Item III.3 Score (max 2)				

Item III.4	Scripted play	Max Score	*P/F/NA	Actual Score
	Teddy			
Model 1	Teddy going shopping (3 related actions)	3		
Elicit 1	Encourage child to produce another script with teddy (3 related actions)	6		
Model 2	Teddy getting ready for bed (3 related actions)	3		
Elicit 2	Encourage child to produce another script with teddy (3 related actions)	6		
Item III.4 Score (max 6)				

Section III Score (add Item Scores) (max 12)

Observations

Section IV: Self alone

Item IV.1	Substitution	Max Score	*P/F/NA	Actual Score
Model 1	Being a tree	1		
Elicit 1	Encourage child to pretend to be something or someone else	2		
Model 2	Being a rabbit	1		
Elicit 2	Encourage child to pretend to be something or someone else	2		
Item IV.1 Score (max 2)				

Item IV.2	Reference to an absent object	Max Score	*P/F/NA	Actual Score
Model 1	Eating ice cream	1		
Elicit 1	Encourage child to pretend that another object or person is present	2		
Model 2	Riding a bicycle	1		
Elicit 2	Encourage child to pretend that another object or person is present	2		
Item IV.2 Score (max 2)				

Item IV.3	Property attribution	Max Score	*P/F/NA	Actual Score
Model 1	Feeling cold	1		
Elicit 1	Encourage child to attribute another pretend property to him/herself	2		
Model 2	Feeling happy	1		
Elicit 2	Encourage child to attribute another pretend property to him/herself	2		
Item IV.3 Score (max 2)				

Item IV.4	Scripted play	Max Score	*P/F/NA	Actual Score
Model 1	Bathing baby (3 related actions)	3		
Elicit 1	Encourage child to produce another script (3 related actions)	6		
Model 2	Getting up in the morning (3 related actions)	3		
Elicit 2	Encourage child to produce another script (3 related actions)	6		
Item IV.4 Score (max 6)				

Section IV Score (add Item Scores) (max 12)

Observations

Appendix 2.8:**Theory of Mind/ False Belief Test**

School:.....

Date:.....

Children/ Name	Test	Question	Answer	
1.	Anne and Sally Test	Where will Sally look to find her ball?	Basket	Box
	Smarties Test	What will your friend think that is in the tube?	Smarties	Pencil

Children/ Name	Test	Question	Answer	
2.	Anne and Sally Test	Where will Sally look to find her ball?	Basket	Box
	Smarties Test	What will your friend think that is in the tube?	Smarties	Pencil

**Appendix: 2.9:
Social Communication Checklist**

Name:.....

Section 1:

Give a brief ‘word picture’ of the child within the class, noting positive points as well as difficulties.

.....
.....
.....

Section 2:

Observed behaviours

Rate, using the following key:

- 1 ‘very agree’ (always)
- 2 ‘agree’ (sometime)
- 3 ‘not agree’ (not at all)

Communication	1	2	3	Comments
1. Understand simple verbal and non-verbal approaches				
a. Responds when his name is called				
b. Follows simple instructions given 1:1 e.g. ‘come here’, ‘sit down’				
c. Follows a close point e.g. at picture in a book				
d. Follows a distance point e.g. at object across the room				
e. Follows your gaze to an object				
f. Follows simple instructions in small groups				
g. Follows simple instructions in large groups/class setting e.g. ‘jump’, ‘run’, ‘stand still’				
h. Could bring something on request from another room				

2. Strategies for meeting his need				
a. Meet his needs independently, e.g. gets chair, climbs up to cupboard – rather than seeking help				
b. Stand near object and cries/screams until adult comes to reach it				
c. Request object by taking adult to it or taking adult hand to it				
d. Request object by pointing to it				
e. Request object by pointing and looking back to adult				
f. Request object by use of symbol/picture/photo				
g. Request action by use of gesture				
h. Request action by use of symbol/picture or photo				
i. Request object/action using words				
j. Protests by crying				
k. Protests by using sign/symbol/gesture or word				
3. Engaging in social interaction				
a. Can nod for ‘yes’				
b. Can shake head for ‘no’				
c. Uses greeting/gesture/sounds or words				
d. Waves and says ‘bye-bye’				
e. Calls for attention				
f. Uses names to get attention e.g. ‘mummy’				
g. Will take turns in familiar verbal routines e.g. rhymes				
h. Will indicate desire for ‘more’ in familiar verbal routines				

i. Will fill in gaps in familiar verbal routines				
j. Will initiate familiar verbal routines with sounds/gestures/words				
4. Joint attention strategies				
a. Express interest in something, using sound/gesture				
b. Express interest in something, using words				
c. Will point at something to express interest and shares this by looking at you				
d. Uses expressive gesture e.g. clapping				

Social communication	1	2	3	Comments
a. Ability to respond when called by name				
b. Ability to follow verbal instruction in 1:1 setting				
c. Ability to follow verbal instruction in a small group settings				
d. Ability to follow verbal instruction in a whole class settings				
e. Ability to take turns in conversation				
f. Ability to initiates conversation				
g. Ability to change topic in conversation				
h. Ability to maintain an appropriate conversation				
i. Ability to show awareness of the listener's need				
j. Ability to give appropriate non-verbal signals as a listener				
k. Ability to change the topic or style of conversation to suit the listener				
l. Ability to appropriately change the volume and tone of voice				

m. Ability to recognise and respond to non-verbal cues e.g. a frown				
n. Ability to understand implied meaning				
o. Ability to tell or write an imaginary story				
p. Ability to relate a sequence of event				
q. Ability to give a simple sequence of instructions				
Comments				
Priorities the 3 difficulties which cause you the greatest concern 1. 2. 3.				

Appendix 2.10: Assessment of English Language Acquisition: Stages 1-4

Name of pupil : Year	Stage 1: new to English as found in <i>A Language in Common</i> (ref. QCA/00/584)	Stage 2: becoming familiar with English
---------------------------------------	--	---

<i>This row contains the descriptors which are to be used</i>	PRE STEP 1	STEP 1	STEP 2	LEVEL 1 THRESHOLD	LEVEL 1 SECURE	STAGE 2	ADVANCED STAGE 2 (as shown on next page)
Listening Skills	<p>Pupils respond to familiar people/routines/activities/actions including response to their own names.</p> <p>They show understanding of names of familiar objects e.g. items in a picture.</p>	<p>Pupils listen attentively for short bursts of time.</p> <p>They use non-verbal gestures to respond to greetings & questions about themselves.</p> <p>They follow up simple instructions based on the routines of the classroom.</p>	<p>Pupils understand simple conversational English.</p> <p>They listen & respond to the gist of general explanations by the teacher where the language is supported by non-verbal cues, including illustrations.</p>	<p>With support, pupils understand & respond appropriately to straightforward comments or instructions addressed to them.</p> <p>They listen attentively to a range of speakers, including teacher presentation to the whole class.</p>	<p>In familiar contexts, pupils follow what others say about what they are doing & thinking.</p> <p>They listen with understanding to sequences of instructions & usually respond appropriately in conversations.</p>	<p>Pupils understand more English than they may use.</p> <p>Pupils are beginning to understand a variety of commonly used phrases & expressions.</p>	<p>Pupils demonstrate increasing ability to understand conversation from peer group.</p> <p>They are able to understand stories/speech without visual cues.</p> <p>They are able to understand complex instructions for task set.</p>

<p>Speaking Skills (& non-verbal communication)</p>	<p>Pupils communicate simple needs, wants or feelings with intent, using facial expressions/signs/sounds as appropriate.</p> <p>They attempt to communicate in their home language to peers, where present.</p>	<p>Pupils echo words & expressions drawn from classroom routines & social interactions to communicate meaning.</p> <p>They express some basic needs, using single words or phrases in English.</p>	<p>Pupils copy talk that has been modelled.</p> <p>In their speech, they show some control of English word order & their pronunciation is intelligible.</p>	<p>Pupils speak about matters of immediate interest in familiar settings.</p> <p>They convey meaning through talk & gesture & can extend what they say with support.</p> <p>Their speech is sometimes grammatically incomplete at word & phrase level.</p>	<p>Pupils speak about matters of interest to a range of listeners & begin to develop connected utterances.</p> <p>What they say shows some grammatical complexity in expressing relationships between ideas & sequences of events.</p> <p>Pupils convey meaning sustaining their contributions & the listeners' interest.</p>	<p>Pupils participate in conversation with short appropriate responses.</p>	<p>Pupils are able to hold a conversation spontaneously with peer group/teacher.</p> <p>They are able to report chronological events.</p>
<p>Reading Skills</p>	<p>Pupils enjoy looking at pictures/books/other written material.</p> <p>They show early book-handling skills.</p> <p>They are able to follow sequence in a picture book.</p> <p>They recognise that print conveys meaning.</p>	<p>Pupils participate in reading activities.</p> <p>They know that, in English, print is read from left to right & from top to bottom.</p> <p>They recognise their names & familiar words & identify some letters of the alphabet by shape & sound.</p>	<p>Pupils begin to associate sounds with letters in English & to predict what the text will be about.</p> <p>They read words & phrases that they have learnt in different curriculum areas.</p> <p>With support, they can follow a text read aloud.</p>	<p>Pupils can read a range of familiar words & identify initial & final sounds in unfamiliar words.</p> <p>With support, they can establish meaning when reading aloud phrases or simple sentences & use contextual clues to gain understanding.</p> <p>They respond to events & ideas in poems, stories & non-fiction.</p>	<p>Pupils use their knowledge of letters, sounds & words to establish meaning when reading familiar texts aloud, sometimes with prompting.</p> <p>They comment on events or ideas in poems, stories & non-fiction.</p>	<p>Pupils can select, independently, books for their own use for pleasure & information.</p> <p>They enjoy shared/paired reading.</p> <p>They progress through reading schemes.</p>	<p>Pupils demonstrate knowledge of alphabet using word books & dictionaries.</p> <p>They are able to read accurately & understand signs, labels, notices & high frequency words.</p>

<p>Writing Skills</p>	<p>Pupils make marks drawing on paper.</p> <p>They hold/use pencil/pen/crayon/felt pen.</p> <p>They use pictures to convey meaning.</p>	<p>Pupils use English letters & letter like forms to convey meaning.</p> <p>They copy or write their names & familiar words & write from left to right.</p>	<p>Pupils attempt to express meaning in writing, supported by oral work or pictures.</p> <p>Generally their writing is intelligible to themselves & a familiar reader & shows some knowledge of sound & letter patterns in English spelling.</p> <p>Building on their knowledge of literacy in another language, pupils show knowledge of the function of sentence division.</p>	<p>Pupils produce recognisable letters & words in texts which convey meaning & show some knowledge of English sentence division & word order.</p> <p>Most commonly used letters are correctly shaped but may be inconsistent in their size & orientation.</p>	<p>Pupils use phrases & longer statements which convey ideas to the reader making some use of full-stops & capital letters.</p> <p>Some grammatical patterns are irregular & pupils' grasp of English sounds & how they are written is not secure.</p> <p>Letters are usually clearly shaped & correctly orientated.</p>	<p>Pupils are beginning to write short passages modelled on texts.</p> <p>They occasionally use adjectives & are beginning to be aware of different tenses in sentence structure.</p> <p>They use phonic cues as a strategy in writing.</p>	<p>Pupils are beginning to write independently.</p> <p>They are beginning to write factual chronological events, but with support.</p>
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Assessment of English language acquisition: Stages 3 and 4

Name of pupil	Stage 2: becoming familiar with English	Stage 3: becoming a confident user of English	Stage 4: a fluent user of English in most social & learning contexts
Year			

<i>This row contains the descriptors which are to be used</i>	ADVANCED STAGE 2 (as shown on previous page)	EARLY STAGE 3	INTERMEDIATE STAGE 3	ADVANCED STAGE 3	STAGE 4
Listening Skills	<p>Pupils demonstrate increasing ability to understand conversation from peer group.</p> <p>They are able to understand stories/speech without visual cues.</p> <p>They are able to understand complex instructions for task set.</p>	<p>Pupils are beginning to understand reasoned discussion.</p> <p>They listen attentively to stories, poems, descriptions & narratives.</p> <p>They are able to understand instructions/information in subject-specific context.</p>	<p>Pupils are beginning to understand commentary which contains complex structures & subject-specific language with visual support e.g. television/video/DVD programmes.</p> <p>They listen with a greater span of concentration to more difficult speech/text without visual cues.</p>	<p>Pupils understand reasoned discussion.</p> <p>They are beginning to understand complex explanations from teacher without visual clues.</p> <p>They are beginning to understand metaphors & puns.</p>	<p>Pupils are able to understand discussion, talk, presentation in most complex situations.</p> <p>They are able to take notes.</p> <p>They are confident in participating in peer group discussion.</p>

<p>Speaking Skills (& non-verbal communication)</p>	<p>Pupils are able to hold a conversation spontaneously with peer group/teacher.</p> <p>They are able to report chronological events.</p>	<p>Pupils can talk about texts heard or read.</p> <p>They are beginning to successfully express more complex needs.</p> <p>They are able to convey the gist of message to a third person.</p>	<p>Pupils are beginning to predict outcomes given information.</p> <p>They are beginning to express own opinion appropriately.</p> <p>They are able to relate real or imaginary events e.g. commentary on video/DVD or home experiences.</p>	<p>Pupils have a growing command of syntax in talk.</p> <p>They are developing the ability to tell jokes.</p>	<p>Pupils ask & respond to questions in a range of situations with confidence.</p> <p>They can participate in a presentation e.g. describe the outcome of a group activity/investigation/argument.</p>
<p>Reading Skills</p>	<p>Pupils demonstrate knowledge of alphabet using word books & dictionaries.</p> <p>They are able to read accurately & understand signs, labels, notices & high frequency words.</p>	<p>Pupils make effective use of alphabetical index & contents pages.</p> <p>They are becoming independent readers of English.</p> <p>They are beginning to recognise where to write personal information on forms or questionnaires.</p>	<p>Pupils make effective use of dictionary to check meaning.</p> <p>They are able to extract relevant information from simple diagrams, graphs & maps.</p> <p>They are beginning to acquire widening vocabulary from reading stories, poems & factual texts.</p>	<p>Pupils are beginning to follow written instructions in formal situations.</p> <p>They are willing to take risks as independent English readers, but still need support with unfamiliar texts e.g. Science, History, Geography.</p>	<p>Pupils make effective use of dictionary & texts for a variety of purposes.</p> <p>They are able to follow written instructions from text or diagram but still needing support for subject specific language.</p>

<p>Writing Skills</p>	<p>Pupils are beginning to write independently.</p> <p>They are beginning to write factual chronological events, but with support.</p>	<p>Pupils are beginning to appreciate & use a range of writing genres.</p> <p>They are able to complete simple forms & questionnaires.</p> <p>They are beginning to revise & redraft in discussion with the teacher, other adults or pupils.</p>	<p>Pupils are able to write a simple message/letter from spoken information.</p> <p>They are able to give a written account of an event or experience in chronological order but need support with punctuation, paragraphing etc.</p>	<p>Pupils demonstrate a growing command of syntactic structure & are developing the use of metaphor & pun.</p> <p>They are able to write a clear set of instructions/reports/summaries/hypotheses.</p> <p>They can put into writing a clear set of information from diagrams, graphs & prints.</p>	<p>Pupils are independent writers in most contexts but still need support in using subtle nuances of metaphor & Anglo-centric, cultural content in poems & literature.</p> <p>They are able to write a description related to an event or personal experience.</p>
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Appendix 2.11: Information Pack



A Guide To Autism Spectrum Disorder (Information Pack For Teachers And Parents)

Contents	Pages
❖ What are Autism Spectrum Disorder?	1
❖ Looking At The Core Characteristics In More Detail	2
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b.) Difficulties With Social Understanding	4
c.) Difficulties With Thinking And Behaving Flexible	4
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a.) Motor Co-ordination	5
b.) Sensory Sensitivity	5
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❖ Special Characteristics of Asperger syndrome	6
❖ What Parents Can Do To Support/ Meet The Needs Of Autism/ Asperger Syndrome Children	7-9
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What are Autism Spectrum Disorder?

- Autism Spectrum Disorder is an umbrella term which covers a group of complex developmental disabilities. Individuals with ASD have a triad of impairments which affect their ability to:
 - understand and interpret social behaviour – this, in turn, affects their ability to engage in meaningful communication with people
 - process and use both verbal and non-verbal communication
 - be flexible in the way they think and behave

- The term ASD includes a number of sub-group such as :
 - autism (sometimes called Kanner's or classical autism)
 - Asperger syndrome / High functioning autism

- ASD can occur in people with all levels of ability, ranging from people who suffer from learning disabilities to those who have a high IQ.

- Individuals with ASD perceive light, noise, smell, taste and touch as either hyper (more intense responses than expected) or hypo (less intense responses than expected)

- More boys than girls have been diagnosed with ASD, though it may be under-diagnoses in girls. Although studies have indicated that ASD may have been caused by biological and genetic factors, the single cause of ASD has yet to be clearly identified.

- ASD is not caused by lack of parental warmth or the way parents and carers bring up a child.

- Those with ASD can be diagnosed with ASD alone or also be diagnosed with other conditions including attention deficit hyperactivity disorder (ADHD), dyslexia, epilepsy and learning disability.

The Core Characteristics in More Detail

The diagnosis of ASD is only confirmed when a child display disabilities in the triad of impairments listed below. It should be noted that in some children, some disabilities may be more obvious than others.

a) Difficulties With Communication

The impairment of communication of individuals with ASD may be manifested in some or all of the following ways:

- Delayed or complete lack of development of spoken language with no effort to develop alternative modes of communication to compensate the impairment.
- Impairment in the ability to initiate or sustain a meaningful conversation with others. You can often get the impression that the child is talking at you rather than to you
- Stereotyped and repetitive speech which usually revolves around child's special interest
- Inability to understand that they can use words to convey emotional and social information, though some children are able to ask for their own needs.
- Poor non-verbal conversation skills
- Literal understanding of words, no understanding of irony or sarcasm
- A tendency for pedantic speech
- Confusion in the use of pronoun (for example getting terms such as 'me' 'you' and 'them' confused)
- Irrelevant factual comments to a situation
- Impairment in both expressive and receptive language
- Poor control of pitch, tone and intonation.

b) Difficulties With Social Understanding

The impairment of social interaction may be manifested in some or all of the following ways:

- Disabilities to use and make meaning out of non verbal behaviours, for example eye contact, facial expression and body postures
- Difficulty in developing relationships among peers
- Lack of spontaneity in sharing enjoyment with other people including the lack of pointing out objects of interests
- Deficits in social or emotional reciprocity
- Difficulty relating to others
- Interaction is one-sided in nature

There appears to be three main types of impairment in social interaction in children with autism. These are as follows:

- The 'aloof' child who is generally withdrawn and often does not respond to other people, and may be difficult to comfort when distressed
- The 'passive' child who will respond to communication initiated by other people, not by himself.
- The 'active but odd' child who will often try to initiate contact with other people in an odd or inappropriate manner. Often they may pay little attention to the responses of those they have approached.

The interaction style in children may change as they age.

c) Difficulties With Thinking And Behaving Flexible

The impairment of social imagination may be manifested in some or all of the following ways:

- Lack of imaginative play with objects, toys or other people
- A penchant for detailed aspects of things in the environment instead understanding things as a whole. For example focusing on the wheel of a car instead of the whole vehicle.
- Inability to express empathy to others
- Repetitive and stereotyped activities ranging from a very simple repetitive body movement such as flicking fingers, to an intense attachment to certain objects, to a fascination with certain topics such as 'Star Wars', train timetables, dates and astronomy.
- Rigid in behaviours and the way of thinking. Individuals with autism are not receptive to changes. They may insist on certain things being fixed, for example people sitting in the same places at the dinner table or in the car, or going the same route to places.

Other Associated Difficulties Often Seen In Children With Autism

Motor co-ordination

Some children with autism have difficulties with motor imitation and control. For example, they may have an odd posture or springy tiptoe walk. Some children may appear clumsy and have difficulty differentiating between left and right and up and down.

Page (4)

Sensory sensitivity

Autistic individuals are generally known to experience sensory sensitivity in one or more of the five senses - sight, sound, smell, touch and taste. Their senses are either intensified (hypersensitive) or under-sensitive (hypo-sensitive).

For example, certain background sounds, which normal individuals people ignore or block out, can be unbearably loud or distracting for autistic individuals. This sensory sensitivity has been known to cause anxiety or even physical pain in people with autism.

On the contrary, individuals who are hypo-sensitive may not feel pain or be physically affected by extreme temperature. Some may rock, spin or flap their hands to stimulate sensation, to help with balance and posture or to deal with stress.

People with sensory sensitivity may also find it harder to use their body awareness system. This system tells us where our bodies are, so for those who have problems with their body awareness system, it can be difficult to navigate rooms and avoid obstructions, stand at an appropriate distance from other people and carry out 'fine motor' tasks such as tying shoelaces.

Learning disabilities

Autistic individuals may experience learning disabilities, which results in reduced quality of their lives. They often find it difficult to learn how to carry out everyday activities such as studying, learning how to wash themselves or make a meal. As autistic people have different 'degrees' of learning disability, some will be able to live fairly independently if they receive proper support while others may require lifelong, specialist support. However, with the right sort of support, all autistic individuals have the potentials to learn and develop accordingly.

Special Characteristics of Asperger Syndrome

- good language abilities
- specialised knowledge in a certain area
- high intelligence (Average or above average IQ)
- deficits in gross motor coordination / clumsiness

What Parents Can Do To Support/ Meet The Needs Of Autism/ Asperger Syndrome Children

- Use simplified speech such as simple phrases and key words when interacting with them and try to accompany words with visual clue
- Provide enough time for the child with autism to process a request or question and do not interrupt them when they try to provide answers (this could take as long as 10-20 seconds)
- Be clear, concise and calm. Say what you mean and mean what you say. This is not always easy but it can prevent issues from escalating out of control
- Utilise visual aids in everyday interaction so that the children can understand better. (Pictures and photographs are useful for all ages: calendars and lists can be very helpful to more able young people)
- Recognise the child's difficulties
- Not being offended by rude 'honest'/direct comments

What Teachers Can Do To Support and Meet The Needs Of Autism and Asperger Syndrome Children. Children have individual needs but teachers can try to apply these strategies on some children.

Areas of difficulty	Effects on classroom	Strategies
Communication and language skills.	<ul style="list-style-type: none"> ▪ Difficulty in understanding and following instructions. 	<ul style="list-style-type: none"> ▪ Secure the child's attention before giving instructions. ▪ accompany simple language with visual clues. ▪ Provide time to process the information. ▪ Use activities, demonstrations and pictures.
Communication and language skills.	<ul style="list-style-type: none"> ▪ Difficulty in explaining their needs or answering a question. ▪ Difficulty in retelling an incident. 	<ul style="list-style-type: none"> ▪ Provide visual supports to help them communicate and retell personal experiences. ▪ Use closed questions rather than open-ended questions.
Social skills.	<ul style="list-style-type: none"> ▪ Inability to understand the concept of personal belongings. 	<ul style="list-style-type: none"> ▪ Spend time in developing understanding of the concepts of private and public. ▪ Use visual prompts to explain this concept
Social skills and flexible thinking.	<ul style="list-style-type: none"> ▪ Difficulty in following classroom rules, and socially appropriate behaviour. 	<ul style="list-style-type: none"> ▪ Have consistent, explicit classroom rules. ▪ Use Social Stories™* to explain the social rules and expected behaviour. ▪ Use a structured approach to teach routine

Sensory perception and flexible thinking.	<ul style="list-style-type: none"> ▪ Resistance to certain activities or situations. 	<ul style="list-style-type: none"> ▪ Prepare for the change. ▪ Introduce to sensation gradually. ▪ Provide other options if the student cannot overcome the sensory difficulty. ▪ Introduce new sensory experiences using the child's interests, e.g messy play making space aliens to get used to slimy texture.
Social skills and flexible thinking.	<ul style="list-style-type: none"> ▪ Difficulty in dealing with sudden changes, leading to anxiety. 	<ul style="list-style-type: none"> ▪ Give advance notice of any changes. ▪ Use visual timetables. ▪ Clear rules and consequences ▪ Only introduce one skill at a time
Flexible thinking.	<ul style="list-style-type: none"> ▪ Difficulty in understanding the feelings of other people and the effect of their own behaviours on other people. 	<ul style="list-style-type: none"> ▪ Work on understanding emotions. ▪ Use strategies such as comic strip conversations*, mind-reading, etc.
Flexible thinking.	<ul style="list-style-type: none"> ▪ Difficulty in relating to a story or topic that requires imagination. 	<ul style="list-style-type: none"> ▪ Teach a new concept starting with concrete to abstract. ▪ Relate to the child's experiences.
Flexible thinking.	<ul style="list-style-type: none"> ▪ Difficulty in using a learnt skill out of the learnt situation. 	<ul style="list-style-type: none"> ▪ Use all possible contexts and teach each skill in different ways. ▪ Include generalisation as part of teaching every topic/ concept.

Sensory perception and social skills.	<ul style="list-style-type: none"> ▪ Difficulty in concentrating 	<ul style="list-style-type: none"> ▪ provide a distraction-free learning environment. ▪ Reduce the social demands while learning. ▪ Provide an individual work area ▪ Permit time-out if child is becoming over-stimulated.
Social skills, flexible thinking, and communication.	<ul style="list-style-type: none"> ▪ Difficulty in developing play skills and following game rules. 	<ul style="list-style-type: none"> ▪ Identify and focus on teaching necessary play skills such as turn taking, negotiating, etc. ▪ Simplify the game rules. ▪ Introduce a circle of friends or buddy system to help the child build relationships. ▪ Encourage interaction through play, drama, games and role play ▪ Involve them in a social activity based on their own interests

* Social Stories (Gray, 1995) and comic strip conversations are stories developed to help an individual increase their understanding of a situation, challenge or skill. They are generally written in response to a student's needs and situation, providing missing social information. A social story might help a child prepare for an upcoming transition or change in routine, or help to explain an aspect of a social interaction. www.thegraycenter.org

Support Agencies in Malaysia

<p>Special Education Sector Malaysia Ministry of Education Aras 2, Blok E2 Kompleks Kerajaan Parcel E Pusat Pentadbiran Kerajaan Persekutuan 62604 PUTRAJAYA Tel: 03-88849190 Fax: 03-88886659</p>	<p>Special Education Unit Melacca Education Department Jalan Istana, Bukit Beruang 75902 Melaka Tel: 06-2323777/867 Ext. 608 Fax: 06-2316277</p>	<p>NASOM Headquarters 4 Jalan Chan Chin Mooi Off Jalan Pahang 53200 Kuala Lumpur Tel/Fax: 603-4022 3744 Email: info@nasom.com.my</p>
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Recommended Readings:

Attwood, T. (2007) The Complete Guide To Asperger's Syndrome. London; Jessica Kingsley Publishers.

Cumine, V., Leach, J. and Stevenson, G. (1998) Asperger Syndrome-a practical guide for teachers. London: David Fulton Publishers.

Frith, U. (1991). Autism and Asperger Syndrome, pp.122-46. New York: Cambridge University Press.

Frith, U. (2003) Autism: explaining the enigma, (2nd.edition) Oxford: Blackwell

Sainsbury, C. (2000) Martian in the playground: understanding the schoolchild with Asperger's syndrome, Bristol: Lucky Duck Publishing

Wing, L. (1996) The Autistic Spectrum. London: Constable & Robinson Ltd.

Useful Links:

The National Autistic Society <http://www.autism.org.uk>

Therapies and Intervention <http://www.autism.org.uk/approaches>

NHS Education For Scotland <http://www.nes.scot.nhs.uk/asd/>

Scottish Autism Network <http://www.scottishautismnetwork.org.uk/>

References - Information in this pack has been sourced from the following:

NHS Education for Scotland (2006), Information for Parents and Carers with a child or young person recently diagnosed with an autism spectrum disorder

<http://www.nas.org.uk>

Appendix 2.12:

Feedback/Comment Sheet for the information pack

Please choose and circle the Yes/No answers and give some comments (if applicable)

1. Is the information pack suitable for you? Yes/No

.....
.....

2. Is the information pack informative enough? Yes/No

.....
.....

3. Is the information pack useful/practical for you? Yes/No

.....
.....

4. Is the information pack clear/not ambiguous? Yes/No

.....
.....

5. Is the information pack have enough information
in all sections Yes/No

.....
.....

6. Are there any areas that were not covered? Yes/No

.....
.....

7. Is there too much information in any section? Yes/No

.....
.....

8. Have you discussed the pack with the teachers/parents? Yes/No

.....
.....

9. Which area that you found particularly informative or useful?

.....
.....

10. Suggestions for further improvements

.....
.....

**Appendix 2.13:
Teachers Report Forms**

Teachers Report 1

Child's name.....

Date.....

(First report only) Do you now have different understanding and expectations about the child's potential learning and development? Please comment

.....
.....

In what ways have you changed your practice in relation to any changed understanding and expectations you may have? Please comment

.....
.....

Areas of difficulty	Effects on classroom	Strategies	Please describe which strategies you have tried/used	Teachers comment on the children's progress
Communication and language skills.				
Social skills.				
Cognitive and flexible thinking				
Sensory perception				

Teachers Report 2

Hi,

As I've told you before, this is the second feedback sheet that you, as a SEU teacher have to answer after being given the information booklet and discussion about the child's scores in the test which I've done with the child before. Hopefully you can answer it with following the instruction given. Thank you.

Please tick \surd in the 'yes' or 'no' box and give your comments at the end of the questions.

No.	Questions	Yes	No
1.	Have you read the booklet overall?		
2.	Have you read the 'Suggestions For Teachers To Help' section?		
3.	Do you understand the content of the section?		
4.	Have you found the information to be useful?		
5.	Have you changed your practice in any way because of reading the booklet?		
6.	Do you think the technique suggested in the section are or will be effective?		
7.	Did you try any technique suggested in the section? <i>(If 'no', please continue to answer question 8, 9,10 and 13)</i> <i>(If 'yes', please continue to answer question 11, 12 and 13)</i>		
8.	Did you recognise any technique that you will use?		
9.	Will you try the technique after this?		
10.	You are not interested to try any technique?		
11.	Did you find the technique that you have used was effective to your autism children?		
12.	Do you intend to try this technique to other children?		
13.	Please give comments		

Thank you.

Teachers Report 3

Hi,

As I've told you before, this is the third feedback sheet that you, as a SEU teacher have to answer after being given the information booklet and discussion about the child's scores in the test which I've done with the child before. Hopefully you can answer it with following the instruction given. Thank you.

Please tick \surd in the 'yes' or 'no' box and give your comments at the end of the questions.

No.	Questions	Yes	No
1.	Have you read the booklet overall?		
2.	Have you read the 'Suggestions For Teachers To Help' section?		
3.	Do you understand the content of the section?		
4.	Have you found the information to be useful?		
5.	Have you changed your practice in any way because of reading the booklet?		
6.	Do you think the technique suggested in the section are or will be effective?		
7.	Did you try any technique suggested in the section? <i>(If 'no', please continue to answer question 8, 9,10 and 13)</i> <i>(If 'yes', please continue to answer question 11, 12 and 13)</i>		
8.	Did you recognise any technique that you will use?		
9.	Will you try the technique after this?		
10.	You are not interested to try any technique?		
11.	Did you find the technique that you have used was effective to your autism children?		
12.	Do you intend to try this technique to other children?		
13.	Please give comments		

Thank you.