

Social difficulties in children with Asperger syndrome

How to prevent social deficiencies and enhance social skills

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Summary

Asperger syndrome has received increasing attention during the last decade. Even though individual differences exist, it is generally recognized that children with Asperger syndrome have extensive social deficiencies. Social difficulties are key factors for diagnosing this disorder.

The aims of this study were to discuss social difficulties in children with Asperger syndrome and examine effective strategies to prevent social deficiencies and enhance social abilities. Based on this research, it is discussed how these children's social difficulties arise from a combination of factors, which can be explained as features that directly, as well as indirectly, influence their social functioning. Factors that directly influence social deficiencies involve difficulties interacting with peers, deficiencies in interpreting social cues and socially and emotionally inappropriate behaviours. Further, characteristics that often accompany the condition, involving narrow interest patterns, stereotypic movements, difficulties concerning language, ritualistic routines, and motor clumsiness add to the social deficiencies in a more indirectly manner. These difficulties, combined with a generalized lack of social interaction explain why affected children have so extensive social deficiencies. Further, effective strategies to be used by parents, clinicians and teachers in order to provide these children with the necessary "tools" for successful social interaction are discussed. It is argued that the most successful interventions are found when the individual, family, school and clinic work together and coordinate in order to promote social abilities in the child.

Due to the research field of Asperger syndrome being relatively new, further studies are needed in order to shed more light on social difficulties, as well as on effective methods regarding preventing social deficiencies and enhancing social abilities, in affected children.

List of abbreviations

ADHD: Attention Deficit Hyperactive Disorder

ASD: Autism Spectrum Disorder

CAST: Childhood Asperger Syndrome Test

DAMP: Disorder of Attention, motor control and perception syndrome

DSM-IV: Diagnostic and Statistical Manual of Mental Disorders

HFA: High Functioning Autism

ICD-10: The International Classification of Diseases and Disorders

IEP: Individualized Educational Plan

IRI: a 28-item self-report questionnaire

OCD: Obsessive Compulsive Disorder

ODD: Oppositional Defiant Disorder

RDI: Relationship Development Intervention model

SIA: Special Interests Areas

SOCCSS: The Situation, Options, Consequences, Choices, Strategies, Simulation

SODA: Stop, Observe, Deliberate Act

SSRI: Selective Serotonin Reuptake Inhibitors

Thomas: intervention program to enhance social skills

ToM: Theory of Mind

WAIS-R: Wechsler Adult Intelligence Scale

WCC: Weak central coherence theory

WHO: The World Health Organization

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1. Relevance of topic and associated questions

This chapter presents a brief history regarding acknowledging Asperger syndrome as a developmental disorder, discusses the increasing interest in the diagnosis, as well as claims that social deficits are profoundly associated with individuals who suffers this condition. Further, the aim of the study is presented and the means of reaching the answers to the research questions are discussed. Finally a brief overview regarding the themes discussed in the following chapters is included.

1.1 History

Asperger syndrome is named after the Austrian paediatrician and researcher Hans Asperger, who originally described this developmental disorder in 1944. Hans Asperger described this condition as “autistic psychopathy”, which in today’s terminology would probably be best translated to “autistic personality disorder” (Gillberg, 2002). Asperger’s work, however, received little interest from other specialists within this area until approximately 50 years later. Not until after Hans Asperger’s death, when the English expert Lorna Wing, in 1981, published an extended article on what she considered to be 34 cases of Asperger syndrome, has the interest for this developmental disorder flourished (Wing, 1981). Today Asperger syndrome is one of the most discussed disorders within the psychiatry (Gillberg, 1997).

1.2 Increasing interest in the diagnosis

Asperger syndrome has, to a large extent, recently received scientific attention and is an ever increasing area of research within the educational, psychological and medical fields.

However, as the growing interest has led to more and more people getting involved in the research regarding this condition, debates have flourished about this particular developmental disorder. Diagnostic criteria have been under debate, as well as whether Asperger syndrome is a disorder at all or whether the traits associated with this condition are so close to the Autism diagnosis, that they are part of the same continuum. This debate will be discussed in detail later. Therefore, even though many areas of this disorder have been

uncovered and a vast amount of knowledge has been gained from extensive research, there is still much to learn about this syndrome.

An aspect of the condition that is not debated, however, is that children with Asperger syndrome often experience great difficulties with social interaction, resulting in difficulties regarding constructing and maintaining mutual friendships. Defining social competence and social skills have shown to be difficult and different researchers have proposed various definitions. However, most studies discuss social competence as a multidimensional construct, including different individual parts that all have to be possessed, in order to be socially competent (Vaughn et al, 2004). Vaughn & Hogan (1990) proposed that social competence is made up of four individual components. Social competence is best understood as a combination of these parts. These components consist of a) social skills (e.g., the ability to initiate and respond appropriate to others), b) relationships with others (e.g., friendships and peer acceptance), c) age-appropriate social cognition (e.g., the ability to problem solve and to recognize and monitor social situations) and d) the absence of behaviours associated with social maladjustment (e.g., absence of aggressive behaviour, attention problems, acting out, withdrawal). Children with Asperger syndrome experience difficulties regarding the four components that make up social competence (Gillberg, 1988). In their theory, Vaughn & Hogan (1990) stressed that social skills were part of the higher-order construct social competence and that these two items therefore are impossible to separate (Vaughn & Hogan, 1990). In accordance with their definition, children with Asperger syndrome are therefore social incompetent and are lacking social skills.

1.3 Social deficiencies are strongly related to Asperger syndrome

Difficulties in social competence, more specifically in social interaction, is one of the criteria for the diagnosis of Asperger syndrome today, based on Gillberg & Gillberg's (1988), as well as any of the other diagnostic manuals, as will be discussed later (Gillberg, 2002).

Therefore, social problems due to a deficiency in social competence is a core difficulty, for a child with this condition and can cause great social interaction problems, loneliness as well as depression already in childhood (Attwood, 2000). This loneliness and depression, due to a deficiency in social skills, can continue into adolescence and adulthood, causing a lot of

distress in the young individual. In order to have a more socially rewarding and happy childhood, based on successful social interaction and potential mutual and successful friendships, it is important for a child with this syndrome, to learn appropriate social rules and codes of behaviour, that we take for granted that "normally" developing children learn, possess and exhibit. By teaching the child the necessary tools for successful interaction with others, as well as for developing and maintaining relationships, the child- and adulthood might look brighter and more rewarding for these children. The best would be to prevent social difficulties being developed in these children altogether, but due to social deficiencies being part of the disorder to such a pervasive extent, complete prevention of social difficulties in these children might be impossible. However, in order to limit social deficiencies in these children as much as possible, it is important that parents and professionals are aware of the early signs of this developmental disorder and commence educating the appropriate social tools in form of social leaning and appropriate behaviour from a very early age, to the children at risk of developing this disorder later.

The research questions:

1. *"What social difficulties do children with Asperger syndrome encounter?"*
2. *"How to prevent social deficiencies and enhance social abilities in children with Asperger syndrome?"*

are therefore questions of major importance within the research field of Asperger syndrome today, in order to make life easier and more joyous for these children in the future.

1.4 How to answer these questions of interest – a short introduction to the thesis.

This thesis will be based on research of well-documented and relevant literature, found at the Oslo University Library and trough its associated literature- and databases. Mainly recent literature will be discussed, as knowledge within scientific fields, is never static nor final, but are subject to constant change due to never-ending research and new findings.

The organization of this work will follow a structured pattern with a natural development. The second chapter provides a general introduction into Asperger syndrome, as it gives a

good foundation for understanding the extensive social deficiencies in affected children. First, the four most common diagnostic criteria, as well as their associated limitations will be presented. Then an overview regarding the early symptoms of the developmental disorder will be presented, followed by the three main areas of deficiencies also referred to as “The triad of impairments”, which all contribute in their own unique way to the social difficulties experienced by individuals diagnosed with Asperger syndrome. Further the diagnostic delay that these individuals often receive will be presented, as a late diagnosis often worsens the prognosis and the magnitude of social difficulties. Theories concerning the causes of Asperger syndrome will then be discussed, and an introduction to the heated debate, concerning the very name of this disorder, whether it is appropriate to name this developmental disorder Asperger disorder or whether High-functioning autism is more correct, will be given, followed by a discussion regarding the prevalence of this condition. The second chapter finishes off with a discussion regarding the affective disorder; Depression, which often is a natural consequence of the social difficulties that the individuals with this disorder suffer, due to the rejection and ostracism that these people often experience and the accompanied loneliness that commonly follows.

The third chapter will discuss the social difficulties that the children with this developmental disorder often experience and answers the first of the research questions in this thesis; “*What social difficulties do children with Asperger syndrome encounter?*”

Chapter four answers the second of the research questions as stated above; “*How to prevent social deficiencies and enhance social abilities in children with Asperger syndrome?*”

Various strategies and techniques which have been found to be effective in promoting pro-social behaviour in these individuals will here be discussed. The chapter entails strategies which parents, teachers and clinicians can use in order to facilitate social functioning in children with Asperger syndrome.

Chapter five discusses what this thesis through its literature based research has found as answers to the two research questions of interest and rounds off with a brief conclusion entailing bullet points, regarding the solutions that were found promising.

2. Asperger syndrome

This chapter will give a detailed introduction into Asperger syndrome as it provides a good foundation for understanding the extensive social impairments which generally characterize children with this disorder. At the end of the chapter, a discussion regarding the high prevalence of depression in these individuals will be presented, due to the research supported association between these children's poor social skills and this affective disorder, which further highlights the importance of teaching social skills to these affected individuals.

2.1 Diagnostic criteria and their limitations

Hans Asperger never published any formal diagnostic criteria for "his disorder". Lorna Wing only listed a number of symptoms associated with the condition in her 1981 paper but described, along with Burgome in 1983, the most important characteristics of Asperger syndrome as; a lack in empathy, naïve ways of interacting, little if any ability to establish friendships, pedantic language with many repetitions, deficiency in the ability of non-verbal communication, strong interest in specific themes, clumsy and poor coordinated body movements and strange body postures (Wing, 1981), (Burgome & Wing, 1983). However, definitions of the condition are not scarce today, and seem to increase in number accordingly with the attention and the popularity of the disorder.

2.1.1 Four definitions of the same disorder

Currently, there are at least four recognized definitions of Asperger Syndrome that are frequently cited in the literature. The first scientists to present a diagnostic manual for the condition were Carina Gillberg and Christopher Gillberg at the first international conference on Asperger syndrome in London in 1988. Only Gillberg & Gillberg's (1988) definition will be discussed in detail here, as it has influenced later diagnostic criteria profoundly and because it seems to be the definition associated with the fewest problems. It is important to notify, however, that the diagnostic manuals used to identify and diagnose this disorder

varies between countries and that the ICD-10 manual is currently used by professionals in Norway, in opposition to the DSM-IV manual employed by experts in the USA.

Gillberg & Gillberg's (1988) diagnostic criteria for Asperger syndrome is presented in Table 1.

Table 1: Diagnostic criteria for Asperger syndrome

- | | |
|--|--|
| <p>1. Social impairment (extreme egocentricity) in at least two at the following:</p> <ul style="list-style-type: none"> a) difficulties interacting with peers b) indifference to peer contact c) difficulties interpreting social cues d) socially and emotionally inappropriate behaviour <p>2. Narrow interest (at least one of the following):</p> <ul style="list-style-type: none"> a) exclusion of other activities b) repetitive adherence c) more rote (memory) than meaning <p>3. Compulsive need for introducing routines and interests (at least one of the following):</p> <ul style="list-style-type: none"> a) which effect the individual's every aspect of everyday life b) which affects others | <p>4. Speech and language peculiarities (at least three of the following):</p> <ul style="list-style-type: none"> a) delayed speech development b) superficially perfect expressive language c) formal pedantic language d) odd prosody, peculiar voice characteristics e) impairment in comprehension including misinterpretations of literal/ implied meanings <p>5. Non-verbal communication problems (at least one of the following):</p> <ul style="list-style-type: none"> a) limited use of gestures b) clumsy/gauche body language c) limited facial expression d) inappropriate facial expression e) peculiar, stiff gaze <p>6. Motor clumsiness</p> |
|--|--|

As shown in Table 1, Gillberg & Gillberg's (1988) diagnosis contains six criteria, which are all based on Asperger's description of his first four published cases. They emphasize the importance of extreme egocentricity and major social interaction problems on one hand, and the narrow interest patterns and motor clumsiness as Asperger originally called attention to,

on the other (Gillberg, 2002). According to Asperger's description of "his" cases, they also include peculiarities of speech and language, particular in form of pedantic and formal speech. Moreover, Gillberg & Gillberg (1988) included Compulsive needs for routines as well as Non-verbal communication problems in their definition.

In theory, Gillberg & Gillberg's (1988) six criteria all have to be fulfilled in order to make a definitive diagnosis of the condition. In clinical practice, however, a diagnosis of Asperger syndrome is made if the social interaction dysfunction criterion is met as well as at least four out of the five other criteria (Gillberg, 2002). As mentioned, Gillberg & Gillberg's (1988) diagnostic criteria have had a strong influence on later definitions of this developmental disorder (Gillberg, 2002).

In 1989, Peter Szatmari et al, published four diagnostic criteria for receiving this diagnosis that were very similar to Gillberg & Gillberg (1988). However, his diagnostic criteria stated that if the person met the criteria for autistic disorder, the Asperger diagnosis could not be made (Gillberg, 2002). This ultimatum is highly problematic and can cause confusion and in worst cases a wrongly made diagnosis, because many people who fulfil the Asperger syndrome diagnosis at the same time qualify for the Autistic diagnosis. It is also possible at one stage in the development to have received a diagnosis of autism and either due to biological maturation or socially learning to "improve" into a diagnosis of Asperger syndrome, as will be discussed later. This diagnostic manual does not recognize this possibility, however, and therefore does not allow for a more appropriate diagnosis to be made, in accordance with the child's development.

The International Classification of Diseases and Disorders (ICD-10) included Asperger syndrome as a formal diagnosis for the first time in 1993, which is rather late compared to the attention the disorder already had been given by the researchers just mentioned. In the ICD-10 manual, a normal language- and social development in the first three years of life, is strongly emphasized, as part of the diagnostic criteria. However, in accordance with Szatmari et al's (1989) definition of the disorder, as discussed above, these criteria also stated that the Asperger diagnosis could not be made if the criteria for childhood autism are, or were ever met (Gillberg, 2002). This creates the same diagnostic problems as described above.

Not until 1994 did the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), published by the American Psychiatric Association, mention Asperger syndrome. Their addition to the criteria, as defined by ICD-10, was a significant impairment of social functioning in work, or other important aspects of life (Gillberg, 2002). This is an important addition to the definitions above, even though social deficiencies already had been included in Gillberg & Gillberg's (1988) definition of Asperger syndrome.

These four definitions of this developmental disorder are currently all in use, however none of them, as mentioned, are flawless and can cause confusion and lead to the wrong diagnosis, if any, to be made. For a start, Gillberg & Gillberg's (1988) definition of this disorder, in agreement with Hans Asperger's own descriptions, requires a narrow interest pattern in order to receive the diagnosis. Interestingly, narrow interest patterns, however, might not be present in all individuals with the syndrome. In particular, girls often do not show this type of pattern otherwise characteristically associated with this disorder, as will be discussed later. Should these individuals then not receive the diagnosis of Asperger syndrome, if they show the other associated traits? Other individuals can, as mentioned, already have received a diagnosis of childhood autism, but later develop into what would be considered more appropriate as an Asperger syndrome diagnosis. Other individuals qualify for both categories (Attwood, 2000). Considering these cases, which diagnoses should the child then receive? In clinical practice, a decision for a diagnosis has to be made, if all other equal, on the diagnosis that is readily accepted by the affected child and the associated parents. In this scenario, a diagnosis of Asperger syndrome is then preferred in opposition to a diagnosis of Autism, as the name 'autism' still provokes negative associations (Gillberg, 2002). The ICD-10 and the DSM-IV diagnosis respectively are problematic in the aspect that only three symptoms out of eight listed are required in order to fulfil a diagnosis. The fact that few symptoms are needed in order to receive a diagnosis of Asperger syndrome, based on these manuals, means that children with depression, conduct disorder or selective mutism, just to mention a few therefore wrongly could be diagnosed with Asperger syndrome, as individuals with these disorders have "enough" symptoms in order to be categorized with Asperger syndrome as well. These extensive flaws found in the diagnostic manuals used throughout the world to diagnose individuals with Asperger syndrome causes well-founded controversies (Gillberg, 2002). Revisions might therefore be made in order to prevent misdiagnosing.

2.2 Three main areas of deficiencies

Asperger syndrome is also referred to as a pervasive developmental disorder due to all areas of functioning that develop from infancy to adulthood, being effected to some extent (Martinsen et al, 2006). Due to the characteristics of a developmental disorder, the severity of the behavioural manifestations of the condition varies between different areas of functioning, within the same individual, and the clinical expression changes with age. There are also extensive individual differences with regard to both area specific abilities as well as overall functioning, with a positive association found between level of functioning and IQ (Bogdashina, 2006).

In accordance with Autism, Asperger syndrome is defined on the basis of three main areas of deficits in functioning, as described by Wing (1992), often referred to as “The triad of impairments” (Wing, 1992). This triad of deficiencies consists of difficulties regarding socialization, communication and imagination and are all present at the different stages of development, but to various degrees of severity (Wing, 1992). These three main areas of deficits are so closely interrelated to the child’s development that it is difficult to study them as separate units, as they all influence on one another’s development and degree of functioning (Martinsen et al, 2006). These areas of deficits will be discussed later. However, a short introduction will be given here, as the deficits provide a substantial insight into the social deficiencies that characterize the children with this condition.

2.2.1 Socialization-, communication- and imagination difficulties

Children with Asperger syndrome have pervasive language- and communication deficiencies, not because they have difficulties expressing themselves in sophisticated and formal sentences, but due to the lack of understanding of the social components that underlie the norms and rules of expressed- and social language. Individuals with this condition are often rigid in their way of thinking and do not intuitively appreciate, if not taught explicitly, that a word can have different meanings, depending on the context, and that different voices and intonations can change the very meaning of a sentence (Martinsen et al, 2006). These children often experience troubles understanding gestures and have difficulties reading the body language of people that may express feelings of happiness, anger or irritability. They do not appreciate and seem unaware of social unwritten rules regarding

communication, such as appropriate physical and psychological distance to the person you are speaking to, turn-taking, as well as what is appropriate to say and what might hurt others, due to a deficiency in understanding another person's perspective. Children with Asperger syndrome do not know or acknowledge norms of eye-gaze as important aspects of communication; looking away when speaking and looking at the person when awaiting a response, nor norms of body posture; turning towards the person you are speaking to instead of standing with your back to the person you are having a conversation with. Norms regarding appropriate topics of conversation are also difficult for a child with the disorder, and as a result, the child often engages in long monologues regarding their specific interests, regardless of whom the child might be speaking to (Attwood, 2000).

Many young children with Asperger syndrome do not initiate social contact with peers and seem to be uninterested in socializing with other children and participating in their plays. Others however, wish to be part of the social play that occupies other children, but often only if they can "run the show" completely by their rules (Attwood, 2000). This behaviour may to the inexperienced observer and other children seem extremely egocentric, however can often be explained by the child's needs for structure and predictability in their occupancies. This unsocial behaviour, however, can frustrate other children and as a result they abstain from any further interaction with the affected child (Attwood, 2000).

Further, children with Asperger sustains from imaginative, pretend-play and do not participate in this form of play that normally characterize younger children. Because the child with this developmental disorder is incapable of and do not appreciate this form of play, they often become ostracized from the social community that the rest of the normal developing children participates in and as a result often end up playing alone (Gillberg, 2002). Many young children with Asperger syndrome, however, do not initially mind this loneliness, and actually prefer to play uninterrupted by others, as will be discussed later. However, the abstinence of early social interaction may have serious further implications for these children, due to their social skills not being practised and "polished" as a result of normal social interaction. Thus, social skills and knowledge that young children normally learn by early social interaction therefore often passes these children by. This social aloneness further results in a lack, or at least a delay, in the development of social skills in the child with this pervasive developmental disorder.

These pervasive difficulties can persist well into adulthood. If these children are not taught otherwise, they can cause many confusions and frustrations for everybody involved.

Acknowledging the difficulties with social interaction that these children experience on a daily level, provides us with a deeper understanding of why these children often experience so extensive difficulties regarding social skills that other children learn more or less by themselves. Due to these deficiencies and lack of understanding of social rules and appropriate social behaviour, social isolation of the child with Asperger syndrome is often a predictable consequence, due to other children's perceived "oddness" of the child (Martinsen et al, 2006). Teaching the child these unwritten rules and norms about language, communication and imagination, can therefore be an important step-stone in socializing the child and thereby making social interaction, as well as social life in general, more successful and rewarding for the child with Asperger syndrome.

2.3 Early symptoms in childhood

There are no symptoms that should alert a parent or professional to the possibility of a child having Asperger syndrome in the first years of the infants' life. Not enough is known about the disorder, to make early screening possible. This is supported by the fact that many individuals, who later were diagnosed with this disorder, showed few symptoms in early life that parents suspected as serious (Gillberg, 2002). Other findings, however suggest that parents were concerned about specific abnormalities in their child's behaviour at an early age. However, whether these memories are indeed true or merely effected by the later received diagnosis will be discussed later (Young et al, 2003). The general notion is however, that during the child's first year of development, there are so many individual differences, regarding development of specific abilities associated with timeframes, that it is difficult, with certainty, to separate abnormal from normal development (Attwood, 2000).

One may argue, however, that in order to prevent social difficulties in later childhood and the positive effect that an early diagnosis can have on long-time prognosis, it is especially important to pay attention to early symptoms of this condition. The positive outcome of early identification of the children at risk of developing this disorder later, is that an educational program can be created and commenced early, closing the increasing gap between these children's social abilities and their "normally developing" peers'. It is of

course important not to diagnose young children with a disorder they do not possess. Instead of making an early diagnosis on very young children, one should therefore simply observe children who seem to fall off in the social learning process and teach them the appropriate and necessary social skills that are needed for successful social interaction. Teaching social skills to children who might in fact not need it, who might due to individual differences within the “normal range” merely fall behind the peers for a short period of time, for later to speed up in social development, seems to be harmless. Therefore, it is of great importance to pay attention to any early symptoms, if not for diagnosing, then simply for educational programs to be created to fit the individual needs of the child and to be commenced, sooner rather than later. It is obvious that having the knowledge and appropriate social skills from an early age, can save the child for much confusion, frustration and heartache later in life.

2.3.1 First symptoms are often vague

Symptoms in early childhood are often very vague in children with Asperger syndrome, compared to symptoms manifested in later childhood, early adolescence and adulthood. Children are therefore often a bit older when parents initially notice that their development is peculiar and abnormal compared to the child’s peers (Howlin, 2004). This is one of the reasons why a diagnosis of Asperger syndrome is rarely made with confidence before school age. There are, however, early symptoms, that are overrepresented in children with Asperger syndrome. Among these early symptoms are sleep problems, reluctance to change in routines, attention difficulties, overactivity or extreme passivity, lack of impulse control, unusual development of voice, speech and language, social deficits and “stubbornness” (Gillberg, 2002). Some children are described as unusually good and easy during the first few years of life, with good vocal and language skills, however seem particular happy when left alone. Other children seem “disturbed” during the first years of life; they scream a lot, are difficult to comfort, swing between extremes of hyperactivity and apathy, appear to be “in pain” and might have noticeable sleep problems (Gillberg, 2002). All these symptoms however, might appear in normally developing children as well, albeit to a lesser extent, or in children who later receive other diagnosis of pathology, and it is therefore difficult to distinguish the abnormal from what is considered normal. It is, however, the extent and degree of these associated early symptoms that distinguish children at risk of the disorder from their peers. However, the severity of symptoms is difficult to measure objectively, due

to the subjective value of these concerns, aiding to the complications regarding early diagnosis. However, when the child seem more happy when being left alone, compared to when attended to, this should cause alert, as most children, regardless of temper and later diagnosis of syndromes prefers company to solitude (Attwood, 2000). Not being able to follow other peoples direction of gaze, the ability to share attention referred to as joined attention, as discussed earlier, is another important early characteristic of Asperger syndrome, which should cause alert in parents and professionals if experienced in a young child (Attwood, 2000).

Gillberg (2002) claims that early symptoms of autism have been found in some children that later meet the diagnostic criteria for Asperger syndrome. Among these early symptoms are unusual reactions to sensory stimuli, in form of oversensitivity to smell, touch, light and sound in particular, abnormal gaze-behaviour, seeming less lively, as well as looking “too old and wise”. Pointing is another “clue” of this disorder, as it seems to develop later than normal in children who later receive the Asperger syndrome diagnosis compared to other children (Gillberg, 2002). Later studies have supported Gillberg’s (2002) findings concerning early symptoms, showing that parents of children later diagnosed with Autistic disorders, identified several early behavioural signs of the disorder that caused them concern, in the first years of their child’s life (Young et al, 2003). The studies showed that prior to the child’s first year, the parents primarily concerns were related to their child’s social awareness and understanding, reflected in a lack of shared enjoyment or feeling as well as poor eye contact, little interest in playing with other children and little social referencing. Typically for the parents of these children, who later were diagnosed with Asperger syndrome, were worries concerning gross motor development from a very early age, often postural abnormality in response to social contact in form of being held or cuddled. Concerns regarding the child becoming upset in response to particular sensations were also found in this study, further supporting previous findings (Young et al, 2003).

It is important to notify the obvious limitations of this study, however, when considering these findings. Due to the retrospective nature of the study conducted by Young et al (2003), the results were based solely on the parent’s early memories of their child’s abnormal behaviours. This is a true confounding factor of the very nature of the experiment, due to the general accepted knowledge that memories are not static in nature, but highly influenced by later experiences. Due to the study taking place after diagnosis of their children, the parent’s

memories of their children's early behaviour, might have been influenced by their experience regarding the associated characteristics concerning the disorder as well as they might have been looking for early explanations and signs in retrospect that could have warned them about their child's abnormal development, that however at the time caused them no concerns (Young et al, 2003). Another limitation of the study is that it did not include a control group which the results could have been compared against, in order to check for differences in behaviour between the two groups of children and their associated parents. Therefore, it is difficult to be certain that the reported abnormalities in these children's early behaviour, are typical for the children who later received the diagnosis only, and do not occur in children who later receive another diagnosis or even normally developing children (Young et al, 2003). However, taking these limitations into consideration, this research does provide further evidence, albeit to a limited extent due to the study's subjective nature, of early signs of abnormalities in the behaviour of children who later were diagnosed with Asperger syndrome.

Another early sign of Asperger syndrome is that approximately one in three children do not speak at all or only very little around the age of three years (Gillberg, 2002). Again, parents' retrospective self-reports have supported these studies, reporting early language and communication problems as well as delays in their children's language abilities (Young et al, 2003). During the following one or two years, however, their expressive language commonly develops at an explosive speed (Gillberg, 2002). From having no expressive language the child might suddenly speak in long, sophisticated sentences only a couple of months later, providing another characteristic of these children's development. The child might not understand what he or she is saying, however, and the child's language might only be a result of echoing what they hear, so called "parrot-language". The children's lack of knowledge regarding the content of their own expressive language, might however be overlooked by parents and professionals who are more than happy that the child speaks at last. Boys are more likely than girls to have a "overformal", pedantic expressive language. The reading skills of boys with this condition are from around five years of age often better than their ability to speak, even though they might not actually understand what they are reading (Gillberg, 2002).

Parents are often concerned about their child's lack of empathy (Attwood, 2000). However, as it has been discussed above, studies have shown that it is too generalized to state that

children with Asperger syndrome have difficulties regarding all kinds of empathy, when results show that these children can in fact react emotionally to the affective state of others, showing that they have affective empathy (Rogers et al, 2007).

Further, parents report that their young boys, more than girls, with Asperger syndrome, usually show little, if any interest, in other children, and only encounter with other children in order to gain control over certain objects of interest (Attwood, 2000). These boys might even seem to be unaware of other children around and play solitarily, withdrawn from any other potential disturbances. Boys, especially, seem unconcerned about whether other children want them to be part of their group or not. On the contrary, most girls and some boys with this disorder might at times seem interested in social matters and might be fixated on certain people, even idols, which might turn into romantic feelings and/or obsessive behaviour in form of stalking these individuals (Gillberg, 2002).

Later symptoms, that are typical for boys with Asperger syndrome, aged 7-12, are poor social reciprocity, narrow interest pattern, ritualistic routines, speech and language peculiarities, non-verbal communication problems and motor clumsiness (Gillberg, 2002).

Thus, there are early characteristics of children who later are diagnosed with Asperger syndrome, that if attended to could arise alert and ring some alarms for both parents and professionals, if these possessed the appropriate and necessary knowledge about the early manifestations of this developmental disorder. As mentioned, there are children who display some, if not all of these characteristics who either with age improves and “grows out of the diagnosis” into what is considered within the normal range of behaviours or who was within the ‘normal range’ all along, however a bit “odd”. If these children, however, receive educational training in their deficiencies including social skills and appropriate social behaviours, due to a policy that caused all children considered at risk of having Asperger syndrome due to their manifestations of early symptoms, the amount of children who later benefited from these educational programs would by far outweigh the costs, if any, of these children who unnecessarily went through these programs for a period of time before they were considered “normal”. It is important, however, that these potential educational programs, which aimed at preventing social difficulties among other deficiencies later in life, grouped children on the basis of severity of symptoms and need for training, as well as based the teaching on the children’s individual levels of skills and associated needs of learning, so

that everybody received teaching at their individual levels, regardless of their level of functioning. Grouping individuals together, based merely on the fact that they need education for example in social skills, would result in children with very different needs being put together and teaching at the children's specific level of need would be difficult. The bar of teaching would, in the worst case scenario, either be put too low or too high for most individuals, only benefiting a few lucky pupils. My theory is that as long as accommodations are made considering grouping individuals on the basis of need and level of functioning, as well as individual educational programs being created tailored to the child's specific needs, these training programs could show to be very beneficial for everybody involved.

2.4 Late and often difficult diagnosis

Studies have shown a mean delay of 34 months, almost 3 years, between the parents first reported concerns about their child and the time it took for a diagnosis to be made (Young et al, 2003). These results are comparable with other studies (Gillberg, 2002). This substantial delay between the parents first worries and a formal diagnosis can, however be explained. Even though the child might exhibit and possess the characteristic symptoms associated with the condition from an early age, early diagnosis of a child with Asperger syndrome is often difficult and cannot, in theory be made with confidence before the child has reached the age of five years, due to individual differences in development (Gillberg, 2002). In practice, however, the diagnosis is often not made until the child has been in school for some years due to a variety of reasons, as will be discussed in detail below. From around six years of age, to the late pre-adolescent years however, the clinical picture normally becomes more prominent, and it is during these years that symptoms are so striking that a diagnosis of Asperger syndrome is rarely missed and often made with confidence (Gillberg, 2002). Even though the mean age for receiving a diagnosis of Asperger syndrome is between 8 and 11 years, the age of receiving a diagnosis of this developmental disorder ranges from early childhood and all the way into adulthood (Eisenmajer et al, 1996), (Howlin & Moore, 1997).

One explanation for this is that early symptoms may be confused with other diagnosis, such as autism, ADHD, DAMP and the child may therefore be given an incorrect diagnosis, or a diagnosis which is only partly true, as they only describe some of the characteristics of the

child or comorbid diagnosis that can exist alongside Asperger syndrome (Schnurr in Stoddart, 2005). This is due to the fact that there are few conditions that cannot exist alongside Asperger syndrome. Examples of traits of other conditions or comorbid disorders that can co-exist with Asperger syndrome are Tourette syndrome, ADHD, Obsessive-compulsive disorder (OCD), conduct disorder and oppositional defiant disorder (ODD) (Gillberg, 2002).

Another reason for why a diagnosis of Asperger syndrome is often made after some years of schooling is that the associated symptoms and the various difficulties that often follow are easier to detect when compared to normal developing and functioning children in the classroom and playground. Teachers that know what normal and expected behaviours are at different ages as well as stages of development can discover and help draw attention to peculiar and abnormal behaviour and levels of abilities (Attwood, 1998). They can draw attention to children withdrawing from play and social activities, which do not seem to understand the social codes in the classroom, talk in peculiar manners, behave strangely in pretend-play, show strong interests in specific themes and appear clumsy when drawing, writing or playing with a ball. Concern can also arise when a child interrupts when not suited, becomes aggressive when withdrawal from social activities is impossible or when they have to wait for their turn. At home, the child can exhibit quite the opposite behaviours (Attwood, 2000).

It might also be difficult to make a diagnosis of Asperger syndrome at an early age due to the associated symptoms in childhood not always being stable, making appropriate diagnosing problematic. Some children might show symptoms of ADHD early in life, and later, around the age of 3 to 5 years, there might be concerns regarding language development, balance and motor in-coordination and the former diagnosis of ADHD might then be changed to DAMP (Gillberg, 2002). Around the age of 6-8 years, the most distinct symptoms might again have changed to concern appropriate social interaction and development of social abilities. Not until then might the child be given the correct diagnosis of Asperger syndrome. Another possible scenario involves individuals showing strong autistic features from early life with delay in social and communicative domains, gaze avoidance, discomfort when being held and comforted, poor attention, panic and confusion states (Gillberg, 2002). The child may, based on these symptoms, therefore be given an early diagnosis of autism. However, as the child matures biologically and socially, maybe as a

result of teaching and learning, the diagnosis might change to Asperger syndrome. This however entails difficulties if the diagnostic manuals of DSM-IV or ICD-10 are being used, as discussed previously, due to their restrictions regarding diagnosing Asperger syndrome, if the child has been diagnosed with Autism previously. In early adulthood, the clinical picture might improve further and the adolescent might be considered odd, however “normal”. It is therefore important that clinicians, parents and teachers appreciate the impact that maturation can have on the child’s overall level of functioning and therefore to repeatedly at various stages of development to assess the child, so that any former diagnosis can be corrected to fit the child’s level of functioning, if necessary.

Unfortunately, it is therefore not uncommon for children with Asperger syndrome to go undiagnosed, if not completely undetected, for years after the age-criteria for making the diagnosis has been reached. Early diagnosis is vital for early intervention. The late diagnosis of many children with this developmental disorder can result in early intervention, in form of teaching pro-social behaviour from an early age to these children, becoming difficult. The child may therefore be missing a lot of social skills before finally receiving a formal diagnosis and before any educational intervention programs can be constructed and commenced. Later diagnosis are therefore unfortunate, as the children who receive a late diagnosis have a worse prognosis, compared to those children who receives an early diagnosis, due to the efforts and teaching that can be developed and executed early in order to teach the children the necessary social tools for successful social interactions, limiting the negative social experiences and deficiencies from an earlier age (Gillberg, 2002). Recently, various screening tools for early detection of Asperger syndrome have been tested, and the CAST (Childhood Asperger Syndrome Test) appears promising, differentiating clearly between those children at risk for having Asperger syndrome, however not yet diagnosed and the “normally developing” controls (Scott et al, 2002). The study referred to here, is however ongoing and the final results therefore remains to be published. It is therefore important that parents and teachers are attentive to any extensive and persistent abnormal behaviours in their children and voice any concerns to professionals immediately, in order for potential interventions to be made, early rather than later.

2.5 What causes Asperger syndrome?

As with many different aspects of autism and Asperger syndrome, there have been different theories regarding the causes to these developmental disorders. Today we know that “the refrigerator mother theory”, popular in the 1950’s and 1960’s; *that the condition is the result of psychological withdrawal from a cold and hostile environment and mother*, is obviously wrong (Kaland, 1996). Today, a biological explanation has gained a strong position for why some individuals develop this disorder. Further, there are studies that have shown that differences in cognition distinguish children with Asperger syndrome from their “normally developing” peers.

2.5.1 Biological basis for the condition

Neurobiological research has shown that there is a biological explanation, rather than an environmental reason, for why some individuals develop these disorders (Coleman & Gillberg, 1992). Injury or dysfunction to the central nervous system have been found to cause abnormal brain development, resulting in abnormalities in brain structures and functions. Differences in the brains of most people with this condition have been found in the cerebral cortex, the brainstem, the limbic system and the cerebellum (Coleman & Gillbeg, 1992). Piven et al (1995) found that, on average, total brain tissue and lateral ventricles volumes were greater in the affected people when compared to non-affected (Piven et al, 1995). Based on their results, they hypothesized that a failure of neurons to die off normally during early development in these individuals might be the reason for the increased brain structures found in the people with the disorder. Other studies have added to these findings, showing that abnormalities in brain growth already begin before birth and that babies who later developed autism were found to have a reduced head circumference at birth, compared to non-autistic infants, however experienced a fast growth during the first months and years of life (Courchesne et al, 2003). These brain abnormalities, found already in infants, may be useful when defining children at risk of having this developmental disorder.

Organic brain defects can be caused by one or several biological factors involving genetic predisposition, pre-, peri-, and postnatal central nervous system insult, viral infections, structural and or functional brain abnormalities, abnormal biochemistry of the brain or a

dysfunctional immune system (Bogdashina, 2006). The theory that there is a genetic predisposition to the condition has been supported by twin studies. These studies show that there is a significant increased chance that identical twins will both have the disorder if one has it, compared to fraternal twins, where there is a greater chance that only one of the children will suffer the disorder, leaving the other infant free of diagnosis (Kaland, 1996). These studies therefore yield a strong biological and inheritable basis for the condition. Family studies have further shown that the disorder seems to run in families and that a child with the disorder has 50% more chance of having a sibling with the condition than non-affected families (Smally et al, 1988), and that those siblings who do not develop the condition have a higher incidence of associated symptoms of the syndrome, such as social and cognitive problems (Bolton & Rutter, 1990). These results could reflect a milder variant of the cognitive profile associated with Asperger and autism in first-degree relatives of individuals with Asperger syndrome. Further supporting results of this theory are found in studies showing deficits in ToM skills in these biologically close related relatives, that typically characterize individuals with Asperger syndrome, as will be discussed in greater detail later (Dorris et al, 2004). In addition it has been argued that relatives of children with autism and Asperger syndrome have an overload of similar personality traits, such as strong interests in specific domains, social withdrawal and social deficits, in accordance with people who receive the Asperger diagnosis (Gillberg, 2002). Even though these relatives might not have “enough” symptoms in order to fulfil the diagnosis, it shows that various degrees of symptoms associated with this disorder are possible and that different levels of the disorder might exist. Obviously, the studies show that Asperger syndrome is biologically linked, due to the tendency of the disorder to run in families.

Whether more factors might play a role in the development of the disorder, that a genetic predisposition combined with for example pre-, peri-, and postnatal injuries, such as a mothers illness during pregnancy, lack of oxygen to the baby during delivery and traumas after birth, could cause the development of the condition, has been discussed. However, it has been found that the genetic abnormalities are likely to increase the incidence of pre-, peri-, and postnatal difficulties and that the disorder therefore is a cause, and not a result, of these associated complications (Bogdashina, 2006).

Even though there is much convincing evidence supporting the notion that Asperger syndrome has a biological background, there will always exist a complex interaction

between environmental- and biological factors that can be difficult to uncover and understand the full extent of (Gillberg, 1991). Therefore, environmental factors should not be discarded as having an influence, although yet unknown, on developing this disorder.

2.5.2 Development of cognition

There are four areas of neuropsychological functions that appear to be impaired or atypical in individuals with Asperger syndrome. These four areas are; 1) mentalising or theory of mind (ToM) abilities, also linked to empathy, 2) executive functions, 3) procedural learning and 4) drive for central coherence (Gillberg, 2002). These four types of cognition will be discussed next.

Theory of mind

Theory of mind is an ability to think that other people might have thoughts and knowledge that differs from ones own, and that they therefore act according to their own perspective. In order to understand and even predict how other people might act, it is therefore important to understand that other people might have a perspective that is different from our own and that they therefore perceive the world from a slightly different angle, compared to how we see things. Taken this knowledge into consideration, and trying to see things from other people's perspective, might help us to understand why people act the way they do (Kaland, 1996). Not having this ability to take another person's view, makes communication and social interaction considerably more difficult (Kaland, 1996).

Piaget's theory that children until the age of 6-7 years are egoistical, without the capability to take another persons perspective has been under strong debate (Kaland, 1996). Piaget believed that children gradually, from the age of 2 and onwards to the age of 7 years, learned to decentrate, or developed the ability to take another persons perspective. Recent research, however, has led to a revision of Piaget's theory, and it is now generally accepted that children are born into a social world, that shapes their perception of others thoughts and believes from an earlier age (Kaland, 1996).

The ability to share attention and for a child to be able to participate in pretend-play from an early age, has been found to play an important role in the youngsters development of theory of mind (Kaland, 1996). Joined attention is linked to the ability to look in the direction of

another's, often one of the parents, gaze, as well as the ability to use own gaze in order to catch and direct the parents attention to an object of interest. Pretend play is a form of play, which the child usually develops around the age of two years, and entails using imagination, for example that a brick is a car, or that there is tea in the empty cup (Kaland, 1996). As mentioned, these abilities are important to develop and possess, in order for children to develop a functional ToM.

Joined attention already starts to develop in the "normally" developing infant from the age of 6 months, and is believed to be the very first intentionally form of communication; the child now starts to use gaze, gestures and sounds in order to communicate (Kaland, 1996).

Pretend-play usually develops from when the child is about 12 months old, and at this early stage occurs in solitary play. From the age of 13-14 months, this play will start occurring in play with other children (Kaland, 1996). At the age of 2 years, the child understands that someone is only pretending to do something; for example that the mother is only pretending that the banana is a phone and so on, the child being aware that the mother knows that it really is only a banana. When the "normally developing" child reaches 3 years of age, he or she understands that other people have beliefs, wishes, ideas, thoughts and emotions that might differ from the child's own, in contrast to Piaget's theory (Ferguson & Gopnik, 1988). This has been shown in the famous experiment: "Sally and the marble" also known as "Sally and Anne" as developed by Wimmer & Perner (1983).

"Sally and the Marble"

This experiment was developed in order to estimate when, approximately, young children develop ToM. More precisely, the researchers wanted to find out when children develop the ability to understand that other people act out of a false belief. In short the experiment is carried out like this;

The children are watching two girls, Sally and Anne. Between the girls there is a box and a basket. Sally has a marble, which she puts in her basket. Then she leaves the room. While Sally is out, Anne moves the marble from the basket to the box. Then Anne leaves the room. Then Sally comes back and wants to play with her marble. Now the children are asked the important question: Where will Sally look for her marble?

The right answer to the question is that Sally will look where she left it, in her basket. The reason that this is the correct answer is that Sally is unaware that Anne has moved the marble while she was gone. In order to reach the right answer, the children must be able to use their ToM and take Sally's perspective, realizing that Sally will look where she thinks it is, taking into account her unawareness of the marble having been moved meanwhile she was out, ignoring their own knowledge regarding the marble's whereabouts. Only the "normally developing" children around the age of 3-4 years of age will be able to answer right, taking into account the approximate age of development of ToM. The younger children will answer that Sally will look in the box, merely reflecting their own knowledge about the incident that Anne put it there, not being able to take Sally's perspective and her unawareness of this event, into account. Studies of this experiment have shown that the development of ToM is universal, and that children all around the world learn to take other people's perspective at approximately the same age (Kaland, 1996).

It has been found that the ability to imagine other people's thoughts and feelings, ToM, is limited in children with autism (Baron-Cohen et al, 1986). Baron-Cohen et al (1985) used a modified version of the Winner & Perner's test "Sally and the marble" as described above and tested children with autism on this experiment. Then they compared the results with mentally aged matched controls, in form of "normal" children and children with Downs syndrome. They found that the "normal developing" as well as the children with Downs syndrome did it equally well, and that 85% and 86% respectively managed the task, whereas 80% of the children with autism did not pass the test and answered that Sally would look in the box, reflecting their own knowledge of the marble whereabouts, not being able to take Sally's amount of knowledge and point of view into consideration (Baron-Cohen et al, 1985).

This experiment has been replicated a vast amount of times, and the results have supported Baron-Cohen et al's (1985) findings. However, when Bowler (1992) tested individuals with Asperger syndrome on more complicated forms of the "Sally and the marble" experiment, 73% of the adults with Asperger syndrome, compared to 80% of the control group made up of college students passed the test. No significant statistic difference was therefore reported between the groups. A statistic challenge to this experiment however could be that the study conducted by Bowler (1992) was underpowered and that these results therefore merely is a result of a Type 2 error of statistical significance, rather than reflecting these individuals'

true abilities. However, this study challenges the earlier findings of Baron-Cohen et al's (1985) study in that regard that it shows that individuals with Asperger syndrome are well capable of taking the perspective of other individuals and that they therefore have a "theory of mind" just like other people without the developmental disorder. Supporting Bowler's (1992) findings is the notion that Baron-Cohen's study was conducted on children with Autism and the fact that individuals with Asperger syndrome might generally perform better on ToM tasks, compared to children with Autism, explaining the superior results of the adults with Asperger syndrome (Gillberg, 2002). Further, this difference in performance on ToM-tasks supports the view that these are two separate disorders or at least that the individuals with Asperger are at the better-functioning end of the Autism continuum, compared to individuals diagnosed with Autism. Further, it is important to highlight, that the individuals who participated in this later study by Bowler (1992) had a mean age of 27 years and a general IQ as found by using WAIS-R of approximately 87 (Bowler, 1992). A higher chronological age as well as a higher IQ can therefore help explain these somewhat surprising results as found by Bowler (1992), of why so many of the participants managed the ToM tasks, as these results further could reflect biological maturation. However, these findings suggest that care should be taken when generalizing between individuals on the Autism spectrum as well as between people with the same diagnosis, due to considerable individual levels of functioning. Further, the results show that the higher the chronological age as well as the individuals' overall intelligence can have a positive influence on the ability to consider other peoples' perspectives.

Theory of mind and empathy

The ability to "mentalise" can be understood as a capability to take other people's perspectives and is therefore the step-stone for empathy. A deficiency in this skill will therefore lead to difficulties in taking other people's perspectives as well as putting oneself in other people's shoes. There are different levels of mentalising. At the basic level it can be understood as the ability "to think that you think", the next level being "I think that you think that she thinks", and so on. It has been found that children with Asperger syndrome have difficulties with the first level up to the age of 4-6 years and problems with the second level up to around age 10 (Gillberg, 2002). Their abilities underlying empathy skills are therefore severely delayed and might never reach the level of "normally developing"

individuals before adolescence. It is therefore not surprising that these children find social interaction strenuous.

Impairments in empathy have often been associated with Asperger syndrome as mentioned briefly previously. Empathy refers to our reaction to the observed experiences of others (Davis, 1980). Theorists have earlier distinguished between cognitive empathy which refers to the ability to understand and take another person's perspective (Davis, 1983) and affective empathy, concerning an observer's emotional response to the affective state of others (Hoffman, 1984). In Baron-Cohen et al.'s (1985) experiments, however, no such distinction regarding what kind of empathy they were measuring, was made (Roger, 2007). Cognitive empathy and ToM however, are similar in definition and have therefore been used synonymously (Roger, 2007). It can therefore be implied that Baron-Cohen et al.'s (1985) study concerned cognitive empathy. Due to no clear distinction being made between the different types of empathy, in Baron-Cohen et al.'s (1985) experiments, it might have caused some confusion regarding the ability to empathize in children with Asperger syndrome. Even though it has been found that children with Asperger syndrome score low, compared to controls, on cognitive empathy and ToM tests, they scored no different compared to controls on an affective scale of the IRI (a 28-item self-report questionnaire) regarding empathic concern and scored higher than controls on another scale concerning personal distress (Rogers et al, 2007). It is therefore a generalisation to state that children with Asperger syndrome have difficulties regarding all kinds of empathy, without referring to what type of empathy one is referring to, when in fact results show that they react emotionally to the affective state of others and that they therefore are not cold, unfeeling individuals at all, as one could erroneously imply from earlier theories. Another theory is that the impaired empathy in individuals with Asperger syndrome might be due to difficulties integrating the cognitive- and the affective aspects of other people's mental states, rather than to deficits regarding these facets, when operating with them as separate entities (Shamay-Tsoory et al, 2002).

Supporting this view, are studies that have shown that high-functioning children with autism and children with Asperger syndrome manage some types of "theory of mind" tests (Bowler, 1992). One theory is that they use other compensating strategies, without having an underlying ability for doing so, and that they use these strategies both in the laboratory and in their social lives (Frith et al, 1994). When "normally developing" children interact

reciprocally with peers and thereby practice themselves in social interaction as a consequence, the children with Asperger syndrome do not have the foundation for doing so, due to their withdrawal from and deficiencies in social interaction. Their lack of participation in social activities, therefore results in very little practice in their social skills, resulting in what is often perceived by other people as an “unnatural”, “stiff”, “formal” or “stilted” interaction and form of communication, from the youngsters with this developmental disorder (Gillberg, 2002). Without the proper exercise in social interaction, the children with this condition will not be able to develop their social skills to the same degree as their peers, both because the peers distance themselves from this “odd” and “egoistical” child, with little if any ability to show empathy and take other people’s perspective, but also because the child with Asperger syndrome show little if any interest in interacting with the other children. This can lead to a downward spiral of the development of social interaction skills, as these children without proper training in social skills, will fall further and further behind their peers in knowledge about how to interact with others, until they reach a point where they might give up completely, sustaining themselves from any social interaction, resulting in loneliness and a sense of having failed socially.

2.5.3 Factual memory and procedural learning

Neuropsychological studies have shown that children with Asperger syndrome might have better memory than other people. In particular, they seem to be better at discriminating between true and false memories. In spite of their strengths in factual memory, these people often have great deficiencies in learning procedures (Gillberg, 2002). Doing more than one thing at a time or maintaining a strategy through a sequence of events is particular difficult for these individuals. These difficulties therefore require special attention when educational programs are being constructed in order to accustom the individual plan to the specific needs of the individual.

Normal learning is characterized by material and procedures becoming more and more automatic after training. The learned skill will thereafter be retrieved automatically when needed. The retrieval ability is often impaired in individuals with Asperger syndrome (Gillberg, 2002). It is important to point out, however, that this deficiency is not due to a lack of concentration, which can be excellent in individuals given the right motivation. It is therefore important to find motivational pillars that the educational program can be build

upon, in order to motivate the child to concentrate and put all effort into the tasks provided. It has been found that a great motivational pillar is to use the child's special interest, given the child has any, and to use this interest actively throughout the educational plan (Attwood, 2000).

2.5.4 Executive functions

Executive functions entail the ability to plan in order to attain a goal, the capacity to keep to a strategy in order to achieve the goal and the skill to understand cause and effect (Attwood, 2000). Sense of time is closely related to these abilities as well as working memory, attention abilities and the capacity to control impulses. It has been shown that people with Asperger syndrome have difficulties concerning executive functions, including some aspects of working memory, attention and impulse control (Bowler, 2007). Also their ability to plan ahead, sequencing in order to attain a goal and concepts of time have been found to be poor. Their poor concept of time and the slowness of some of the people with this condition have been shown to have a negative influence with regards to education and psycho-social adjustment (Gillberg, 2002).

2.5.5 Central coherence

Weak central coherence theory (WCC) is another independent approach that seeks to account for some of the behavioural characteristics of individuals with Asperger syndrome (Bowler, 2007). It explains not only the deficits in people with this developmental disorder but also their special abilities. Seeing the "big picture", or the forest for all its' trees, if you could put it that way, can be extremely difficult for many individuals with Asperger syndrome (Bowler, 2007). This is because these individuals have a tendency to attain to details, rather than to the "whole" or the sum of the details and have difficulties putting all these pieces together to form a "whole picture". It can, however be an asset to be able to fixate on visual details that are organized spatially to such a degree, but the other side of the coin is that these people often have difficulties in identifying whole pictures such as peoples' faces, because they are so fixated on the individual details and parts of the face. Being able to recognize peoples' faces is an important basic ability to possess in order to have successful social interaction. These individuals lack of ability to see the "big picture" can

therefore play an important role for why individuals with Asperger syndrome find social interaction strenuous as well as difficult.

2.6 Asperger syndrome or “High-functioning” autism?

Due to numerous similarities in the characteristic features associated both with Autism and Asperger syndrome, debates concerning whether these disorders are part of the same spectrum, or whether they are complete distinct diagnostic entities have been plentiful (Macintosh & Dissanayake, 2006). This question is, however, very important to clarify in order to estimate a legitimate prognosis as well as to be able to develop the appropriate interventions for individuals diagnosed with these conditions.

According to the current classification systems, DSM-IV (APA, 1994) and ICD-10 (WHO, 1993), Asperger syndrome can be distinguished from Autism in the regard that Asperger syndrome only can be diagnosed in the absence of any intellectual disability (Macintosh & Dissanayake, 2006). Whether this is an effective definition however can be discussed, due to studies showing that individuals with Asperger syndrome as well as individuals diagnosed with HFA are impaired on executive functioning tests (Ozonoff et al, 1991). Performing well on these tests entail the ability to plan in order to attain a goal, the capacity to keep to a strategy in order to achieve the goal and the skill to understand cause and effect (Attwood, 2000). Moreover, whether impairments in executive functions are directly linked to intellectual disability can be discussed, however is beyond the scope of this thesis. What is obvious, as previously discussed, is that the diagnostic manuals are far from perfect and do not provide a clear distinction of whom should be diagnosed with Asperger syndrome. Further, these studies show that there are similarities in the disabilities and in the level of functioning between individuals with Asperger syndrome and people with high-functioning Autism, adding to the confusion and discussion concerning whether these are separate disorders or part of the same condition.

It is generally accepted, however, that all individuals meeting the criteria for an autistic disorder also meet the criteria for what is described as an “autism spectrum disorder” (ASD), characterized by marked difficulties in social reciprocity, communication, behaviour and imagination (Howlin, 2004). Autistic disorders as well as Asperger syndrome are both

recognized under this headline, among other conditions. Children with autism can therefore, depending on their level of functioning, be grouped into entities classified as “high-functioning”, “middle-functioning” and “low-functioning”. In particular, it is the high-functioning individuals who have been important to distinguish from individuals with Asperger syndrome, in order to yield for distinct developmental disorders, due to the apparent similarities between the two (Attwood, 2000).

Some experts therefore use the term “autistic continuum” to indicate that there is a continuum of autistic disorders with severe impaired individuals at one end, referred to as having autism and the high-functioning individuals at the other end, more commonly diagnosed as having Asperger syndrome (Attwood, 2000). These researchers and clinicians argue that Asperger syndrome falls at the well-functioning end of that continuum, with an IQ of 70+, whereas more severe cases of autism fall at the opposite end of the continuum; however both diagnosis are perceived as two extremes of the same disorder (Howlin, 2004). Both the individuals described as “high-functioning” autistic as well as the individuals who are diagnosed with Asperger syndrome, however, are so well functioning and may have an IQ to be considered within the normal range (Bogdashina, 2006, p.238). It could therefore be argued that all these individuals should be diagnosed with Asperger syndrome, due to the difference in intellectual abilities in Asperger syndrome as well as those with HFA and those with Autism as defined by the American Diagnostic and Statistical Manual of Mental Disorders (APA, 1994).

A recent study tried to find out whether Asperger syndrome is a distinct disorder from HFA by comparing individuals with these diagnosis on a variety of skills, profiles and core symptoms (Machintosh & Dissanayake, 2004). Even though deficiencies in social interaction are a classical characteristic for individuals in both groups, research based on parent’ – and teacher’ reports indicate that where differences between the groups were found, individuals within the HFA group demonstrated greater social deficits than those with Asperger syndrome. These findings showed that children with Asperger syndrome were better functioning compared to those with HFA and that they were more likely to show social intentions, reciprocity and enjoyment in social interactions as well as to display an interest in peers (Szatmari et al, 1995). However, there were also variables where no differences were found between the groups, such as the use of eye contact during social

situations, the existence of friendships and the degree of regular involvement in social play (Szatmari et al, 1995).

In order to gain a deeper understanding of the similarities and differences in the social behaviour of children with Asperger syndrome and HFA, Machintosh & Dissanayake performed a new study. In general, this study revealed that children with HFA and Asperger syndrome engaged in a very similar range of social behaviours with few quantitative differences were found between the groups (Machintosh & Dissanayake, 2006). On the contrary, substantial degree of overlap regarding many areas of functioning such as deficits in social skills regarding co-operation, assertion, self-control and behaviour problems, compared to controls, were found between HFA and Asperger syndrome, further supporting the theory that these groups belong to the same autism spectrum and that individuals identified under these two categories could be diagnosed with the same disorder due to their similarities in functioning (Macintosh & Dissanayake, 2006). Overall, these findings therefore support the hypothesis that HFA and Asperger syndrome exist along a continuum of autistic disorders, however differences have been found between the two, with individuals with the Asperger syndrome diagnosis functioning better in regard to some social skills and behaviours, compared to the HFA group. Due to these differences, it could therefore be argued that two separate diagnoses are needed, in order to separate the better functioning individuals, those with Asperger syndrome, from those with greater deficiencies qualifying for HFA.

Due to differences found between individuals with HFA and Asperger syndrome, regarding no significant delay in language or cognitive development in individuals with Asperger syndrome, in opposition to those with a diagnosis of HFA or Autism, researchers argue that Asperger syndrome is needed as a separate diagnosis from autism, in order to separate the individuals on the basis of their level of functioning (APA, 1994). Further it is acknowledged that individuals with HFA have deficits in ToM and verbal memory tests, compared to individuals diagnosed with Asperger syndrome (Ozonoff et al, 1991). Different long term outcomes have also been found between children with HFA and Asperger syndrome, with better social and communication skills and fewer autistic symptoms in the latter group, arguing for different prognosis and therefore different disorders (Kim et al, 2000). Due to these fundamental differences, these researchers therefore suggest that a

different term should be used on the latter group, in order not to cause any unnecessary confusion about similarities between the two that might actually not be present.

The last argument for the use of the term Asperger syndrome instead of HFA, that will be argued here, has already been mentioned earlier, that Asperger syndrome still is as a “neutral” term, whereas autism has become a negative loaded word. This last point, however is a merely superficial and emotional loaded matter and do not point to any fundamental differences between the two conditions. Even though this heated debate still has not reached any formal conclusion, Asperger syndrome will be used solitary in the following, in order not to cause any unnecessary confusion.

2.7 Prevalence

Most studies on the prevalence of Asperger syndromes have been carried out in Nordic countries and have only focused on school-aged children. It is therefore difficult to draw any certain conclusions on the prevalence of this condition, especially globally. It is still a mystery whether Asperger syndrome occurs in all countries (Gillberg, 2002). The prevalence depends heavily on the diagnostic criteria used and due to the existence of several diagnostic criteria in today’s research with some having more criteria, which have to be fulfilled, than others; it is not a surprise that different studies yield different estimates concerning the prevalence.

Psychiatric child clinics have reported to have a prevalence of patients with Asperger syndrome in about 5% of all cases (Gillberg, 2002). However, Swedish studies suggest that only about half of cases with classic Asperger syndrome get referred, or apply for help, to child and adolescent psychiatrics (Gillberg, 2002). Therefore the number of individuals with this condition could be much higher than estimated on the basis of the reports from the clinics, also when taken into consideration that some individuals do not seek help until adulthood, when their symptoms may be misunderstood and diagnosis therefore may be inappropriate. In addition, a number of individuals with the condition get misdiagnosed with psychosis, obsessive-compulsive disorder or personality disorders and others may be undiagnosed, even though they do seek help maybe even from an early age (Bogdashina, 2006). So, for a variety of reasons, the prevalence of individuals with Asperger syndrome is

yet far from perfectly estimated, however Gillberg (2002) suggests that about 3-4 in every 10000 children develop the full clinical picture of Asperger syndrome before the age of 10 years.

The gender ratio of individuals with Asperger syndrome, favours so to say, males above females, with studies suggesting as much as three to six males to every female (Gillberg, 2002). However, the gender ratio 10:1 is not uncommonly reported, where males clearly outnumber the females (Bogdashina, 2006). Due to slightly different symptoms and ways of exhibiting the disorder, females might be undiagnosed for longer and some may never get properly diagnosed, as girls often have better developed social and language skills (Bogdashina, 2006). This gender ratio could therefore be misguided by the symptoms that females sometimes manifest, that differ from the “typical” symptoms that males with this condition often display. Some females with Asperger syndrome, and few boys, appear to have no special interest, which is often believed to characterize an individual with this condition; a strong interest in a specific theme that often occupies most of these individuals’ life, until a new interest is found that will receive all the attention for a while. Even more striking, some girls’ interests may sometimes appear, at least superficially, to be more “social”, than the boys’. These different symptoms could result in females with this condition going undiagnosed, and that the number of females with this condition might therefore be higher than reported.

Up to now, overviews regarding the history of the disorder as well as the different diagnostic tools that exist today have been discussed, along with various theories for why some individuals develop Asperger syndrome where other do not. Further, these theories have been related to the social difficulties that often characterize these individuals profoundly. Before commencing on the third chapter, the affective disorder Depression will be discussed in relation to individuals with Asperger syndrome, as these individuals often suffer this affective disorder as a secondary consequence of their deficiencies in social abilities.

2.8 Depression

As the close link between poor social skills and depression in individuals with Asperger syndrome repeatedly is mentioned throughout this thesis, based on results supporting that

depression tends to follow deficiencies in social skills in individuals with Asperger syndrome (Konstantareas, in Stoddart, 2005), a sub-chapter in order to discuss the severity of this comorbid psychiatric disorder have been included. Further, the importance of teaching social skills to children with this condition will be drawn attention to, due to the magnitude of positive effects that teaching the appropriate social “tools” to children with this condition can have.

There is increasing evidence that comorbid psychiatric disorders are higher than expected in individuals with Asperger syndrome, in form of depression and anxiety and that increased rates of affective disorders also are found in their family members (Bolton et al, 1998).

Whether the family members develop these affective disorders due to the stress that follows living with an individual with the disorder (Higgins et al, 2005), or whether the disorders are partly inherited can of course be discussed, but remain out of the scope of this thesis.

However, it can shortly be stated that both genetic vulnerability and contextual factors have been found to play an important role in the development of anxiety and depression in these individuals (Konstantareas, in Stoddart, 2005). Further, it has been shown that the emotional turmoil experienced by the caregivers who have a child with ASD can result in various psychological problems, including anxiety and depression (Bristol & Schopler, 1984), (Hoppes & Harris, 1990).

Studies have found that 17% of a sample of children aged 9-14, diagnosed with Asperger syndrome had “clinically relevant” levels of depression as well as substantial higher levels of anxiety, compared to age-matched controls (Kim et al, 2000). It was found that anxiety and depression were of such a severity that they had a significant impact on not only the children’s overall adaptation and functioning, but also on their parents’ (Kim et al, 2000). Those children with mood and anxiety problems were found to be more aggressive, limited their parents’ social activities and had poorer relationships with peers, family members and teachers, when compared to controls. Further this study revealed that the children with Asperger syndrome were more prone to internalize their problems than externalizing them, which in addition can contribute to the development of depression, as an internalizing attribution style has been linked to affective disorders (Kim et al, 2000).

It has been proposed that depression in individuals with Asperger syndrome is due to a partial insight into own abnormalities and difficulties, when comparing themselves to peers

resulting in distress (Hare, 1997). This notion has supplementary been supported by a study conducted by Hedley & Young (2006), which showed that children with Asperger syndrome who perceived themselves as being more different from others, reported higher depressive symptoms, providing additional support concerning a relationship between psychosocial factors and depression.

Poor social skills and lack of friendships have been found to be a risk-factor for the development of depression in individuals with Asperger syndrome, theorizing that reciprocal friendships could act as a potential buffer for depression (Bolton et al, 1998). Further, studies have revealed that many children with Asperger syndrome experience bullying from peers that cannot accept or tolerate these children's strange interests and behaviours (Little, 2001). It is self explanatory that repeated and consistent bullying can lead to depression, as in other children, as such stigmatizing and humiliation, often resulting in exclusion from social situations, can be very emotionally painful (Little, 2001).

Many children with Asperger syndrome might, as a consequence of the social deficiencies that characterize their condition have experienced a sense of being different from peers and not fitted in various social settings, and as a result have had difficulties making mutual friendships based on mutual respect and understanding. As a result of being perceived as different and maybe even "odd" by other children, many might have experienced being teased, rejected when attempting to contact others and therefore have been withheld from participating in social activities. As a result, they have become socially isolated from social events. Such early negative experiences undoubtedly have a negative influence of how these children perceive themselves and on their general sense of poor self-esteem, aggravated by negative experiences, which in the end can lead to depression and anxiety in social situations (Barnhill, 2001). Teaching social skills for successful social interaction might help reverse this negative development.

Supporting the view that teaching social skills are crucial for the overall functioning of children with Asperger syndrome are results showing that lower level of social skills are associated with a higher level of depression in children with this developmental disorder (Konstantareas, in Stoddart, 2005). These children's often strong desire for reciprocal friendships and social contact on one hand and their inability to function successfully in social settings on the other hand, is proposed by Attwood (2000) to be the most common

cause of anxiety and depression. Continuous negative social experiences can result in low self-esteem and in social withdrawal which further limits these children's opportunities to practice and acquire new social skills (Attwood, 2000).

Even though there are a wide range of possible treatments for depression in individuals with Asperger syndrome, including pharmacological and psychological interventions, it has been found that the main treatment for this affective disorder in these affected individuals is pharmacological (Stewart et al, 2006). This choice of treatment was used in as much as 12 out of 15 cases and they included antidepressants such as selective serotonin reuptake inhibitors (SSRI), mood stabilizers and antipsychotic, where treatment with SSRI's were found to be the most effective (Stewart et al, 2006). It is important to assess psychological, behavioural and educational interventions as well in order to treat depression, as these types of treatment programs might teach these children the necessary tools for successful social interactions, which possibly could have a positive effect on their overall functioning, reducing depression and anxiety (Stewart et al, 2006).

It is therefore important to break this vicious circle of poor social skills and bad self-esteem early in affected individuals, so that these children not are forced in a downward spiral, resulting in depression and anxiety. This is where teaching of appropriate social skills and tools for social interaction come in as highly important means of improving the children's social situation and self-esteem, preventing them from heading onto this negative path. Tools that have been found effective for teaching social skills to children with Asperger syndrome, such as Carol Gray's Social Stories intervention programmes (Gray, 1995) will be presented later.

It is therefore crucial that parents, teachers and clinicians are aware of the social difficulties that children with Asperger syndrome encounter, as described in the aim of this study and further that these caretakers have the appropriate knowledge in order to prevent these social deficiencies from developing in children with this condition as well as how to enhance their social abilities, as entailed by the second aim of the study.

3. Social difficulties in children with Asperger syndrome

In this chapter social deficiencies in children with Asperger syndrome will be presented along with the characteristics of these children that sometimes more indirectly than directly result in the social difficulties associated with these children. The first aim of the study which entails the question; “*What social difficulties do children with Asperger syndrome encounter?*” will thereby be discussed and answered.

3.1 Social impairments -a key factor in diagnosing Asperger syndrome

Even though individual differences exist among children with Asperger syndrome, as with any diagnose in question, social deficits characterizing the syndrome are however in general agreed upon. These social deficits are listed in the diagnostic criteria for diagnosing a child with Asperger syndrome as defined by Gillberg & Gillberg (1988). These impairments, that either directly or indirectly result in social impairments are listed in Table 1. Displaying difficulties in these different areas of functioning can result in successful social interaction with others becoming difficult as they all handicap the child’s social functioning in one way or the other, as will be discussed.

All the diagnostic tools as used today emphasize that Asperger syndrome is strongly associated with impairment in social interaction. Already Hans Asperger described how children with this condition withdrew from and tried to avoid social activities and how they could panic if forced to participate in groups (Attwood, 1998). All of Gillberg & Gillberg’s (1988) six criteria for diagnosing an individual with Asperger syndrome (Table 1), describes difficulties that either directly or indirectly effect social functioning and result in social interaction with other people becoming problematic.

Szatmari et al’s (1989) diagnostic definition described unusual social behaviour in three of his four diagnostic criteria, including social isolation, impaired social interaction and impaired non-verbal communication (Szatmari et al., 1989). The World Health Organization (WHO) published their criteria for Asperger syndrome in 1990 emphasize in their definition,

that the child often in social play has difficulties or a deficiency to get engaged in other children's interests, feelings and activities as well as with accommodating behaviour to the situation (WHO, 1990).

Deficits in social abilities are therefore a fundamental characteristic of a child with Asperger syndrome and can have a negative influence on many aspects of the child's life. When children with this condition seek out and initiate social contact with other children, they frequently encounter rejection due to their lack of social - knowledge, rules and appropriate behaviours. Unsuccessful social encounters and experiences often leads to elevated levels of stress, anxiety, conduct problems, poor self-esteem and low social status. Over time, repeated rejections can result in social withdrawal and depression. (Bledsoe et al, 2003). Due to studies revealing that children with Asperger syndrome are frustrated by their poor social competence and are more vulnerable to comorbid clinical conditions such as depression and anxiety in comparison to other groups of children (Macintosh & Dissanayake, 2006), and that these comorbid psychiatric disturbances, are related to their social information and attribution processing patterns, as well as their self-awareness of lack of social competence (Meyer et al, 2006), it is of major importance that the gravity of these social difficulties are understood and dealt with by professionals. Teaching social-interpersonal problem solving strategies (Bauminger, 2002) in order to make social interactions more successful are important means of improving the social lives and quality of life for individuals with this developmental disorder, as will be discussed later. Before discussing what can be done in order to prevent the social difficulties and enhance social abilities in these individuals, the first aim of the research, regarding what social difficulties children with Asperger syndrome encounter, will be discussed and answered.

3.2 Social impairments (Extreme egocentricity)

The first criteria in Gillberg & Gilberg's (1988) diagnostic manual (Table 1); Social impairments, concerning difficulties in interacting with peers, indifference to peer contact, deficiencies interpreting social cues and socially and emotionally inappropriate behaviours, are factors which can be argued directly results in these children's social difficulties, as these characteristics have a direct negative influence on the child's social functioning, limiting successful social interaction (Gillberg, 1988).

Children with Asperger syndrome lack common sense and seem unaware of unwritten rules for social behaviour that “normal developing” children learn from an early age by interacting with others (Attwood, 2000). In addition extreme egocentricity or reduced capacities for social reciprocity seem to characterize children with Asperger syndrome, due to difficulties, as mentioned earlier, in understanding other people’s cognitive and emotional perspectives (Davis, 1980, 1983). As a result, the child’s behaviour might be seen as either naïve or provocative, resulting in difficulties interacting with peers (Attwood, 2000). Without meaning to hurt anybody, children with this condition might express true, however embarrassing statements, which are considered socially inappropriate and can in the worst scenario hurt or anger peers. Children with Asperger syndrome can therefore be mistaken as spoiled or rude, due to a poor upbringing. It is important that adults know that these children are not a result of a poor upbringing, which they in turn can try to communicate to the child’s peers (Attwood, 2000). The underlying reasons for these unacceptable behaviours is that the children do not understand social rules, are not capable of judging the situation, resulting in them being unable to realize that some things you just do not say (Attwood, 2000). Their inappropriate social interactions therefore relate to an unawareness of the “right ways” of interacting with other people as well as little knowledge of the consequences of their behaviour. These children’s social deficiencies can therefore be argued to often stem from fundamental difficulties concerning ToM. If social codes are explained to a child with this disorder, the rules might be followed to such a degree that these children become the “police” of the class, which is not always socially accepted by the peers either. So, if the child does not have the mental flexibility that enables adjustment of social behaviour to the very situation and the circumstances surrounding it, knowing the “right” social codes might be of little help.

Children with Asperger syndrome often have difficulties with emotional regulation which can result in socially and emotionally inappropriate behaviour (Attwood, 2000). Many students perceive school as a stressful place, presenting many ongoing stressors. These stressors can include unpredictable events due to a changing schedule, trying to understand the teacher’s directions and interacting with peers (Myles & Southwick, 1999). Students will rarely indicate clearly that they are under stress or near a stage of a crisis. Many might not even know that they are close to having an outburst. As a result, they “tune out”, daydream or state in a monotone voice that they do not know what to do. If the teacher fails to read any of these early signs of an upcoming crisis, the child might, without

any noticeable provocation, engage in a verbally or physically aggressive event, referred to by some clinicians as a rage attack or a meltdown (Myles & Southwick, 1999). Other students do not exhibit these outbursts in school and as a result of this postponing of emotions lose control when they come home. These students have used all their self-control in order not to have an outburst at school, but once they find themselves in a safe environment, they let go of the pressure they have built up and as a result let all their frustration out on the people at home (Attwood, 2000). Children that witness these emotional outbursts or meltdowns find them socially unacceptable and might as a result choose to withdraw from the child which displays them. They might therefore avoid the child, who in turn becomes socially isolated and maybe even feared by the peers. In order to avoid the negative impact this behaviour might cause on the child's socially functioning, it is important that caretakers, teachers and clinicians are able to prevent these emotional outbursts from occurring.

These deficiencies in social codes of behaviour that characterize children with Asperger syndrome can result in social unacceptable behaviour and misunderstandings (Attwood, 2000). Their egocentricity makes finding friends difficult, ostracizing the child from further social interactions, due to other people's fear of hurt feelings and further embarrassments. Many young children do not seem to care about their lack of friends, however, as will be discussed later, when the child, with age, becomes aware of being "odd" or "different", being "normal" and having mutual friends might become an obsession (Attwood, 2000). However, this lack of interest in social interactions can further limit these children's social functioning, as social behaviour is learned efficiently through social interaction, as will be discussed later (Odgen, 2003).

The characteristics, which will be presented next, can be argued to influence these children's social functioning to a more indirectly extend.

3.3 Narrow interest patterns

Special interests areas (SIA) have been defined as "those passions that capture the mind, heart, time and attention of individuals with AS, providing the lens through which they view the world" (Winter-Messires, 2007). These SIA's are a dominant characteristic of children

with this disorder, occurring in over 90% of affected individuals. Special interests can range from interests that are considered common such as dinosaurs and video games to the more uncommon such as toilet brushes and water closets (Attwood, 2000).

Narrow interest patterns might develop into a major problem for children with Asperger syndrome. It is often not the content of the interest that is worrying, but the very extent the child gets absorbed into what looks like an obsession, which can result in other activities being excluded. So much time and energy is spent on the interests, that if the interest is not controlled by parents and teachers and limited to a certain amount of time, the child would do nothing else (Attwood, 2000). Multiple interests can occupy the child at any one time, and the interests can come and go. Some children however, stick to their one and only interests throughout life. The interest can be anything, but there seem to be specific “trends” where boys with Asperger syndrome often collect facts about certain aspects of the environment and learn them by heart (Attwood, 2000). Often the interests entail “top charts”, for example the 50 highest mountains in the world, the 20 newest trains etc. However, these “obsessive” interests can take any direction as well as form and entail everything from bus timetables, computers, prime numbers and so on (Attwood, 2000). At a first glance, it can be quite interesting to listen to the child’s vast knowledge about a theme. However, as this monologue often continues, it can become tedious for even the most patient listener to have to pay attention to information such as the 70 biggest cities in the world being listed. Peers can admire this child’s knowledge about a theme, however the opposite is more common and the child is perceived as weird, leading to bullying and in the worst scenario depression and suicide attempts as a result (Gillberg, 2002).

Girls with this condition, often differ from boys in the respect that their interests seem to be more social orientated, in that they can be very interested in social affairs or even other people (Attwood, 2000). It is not uncommon that girls with this condition have a huge crush on somebody, often a celebrity, leading to an obsession reading this “chosen” person for a period of time. However, some girls and a limited number of boys with Asperger syndrome differ from this typical clinical picture and have no such obsessive interest (Attwood, 2000). These narrow interests patterns that characterize many children with Asperger syndrome adds to the social difficulties experiences by children with this developmental disorder in that regard that their absorption into a theme can take up all their time and efforts if not controlled by adults, leaving little spare time for other activities and friends. Also the very

content of these special occupations may seem strange and sometimes ridiculous to other children, resulting in withdrawal from the child, often followed by teasing and humiliation. So even though having a special interest, regardless of what the theme might be, in itself might not seem as a social difficulty, the consequences of having such a time consuming obsession that is often very strange in content and of such an intensity that social interaction and participation in social activities with peers will become a problem, resulting in ostracization and isolation. If however, the interest and the associated motivation the child experience when engaging in the special interest is actively used as a motivational factor in the academic setting as well as in any training the child might undergo, positive results have been found, as will be discussed later.

3.4 Ritualistic routines

Many children with Asperger syndrome introduce routines and rituals of different kinds, and have difficulties with any change, even minor, in these routines. These rituals are often linked to their special interest, however, they may expand to other activities which can affect the child's aspect of everyday life, such as dressing, eating and personal hygiene, as well (Gillberg, 2002). They can also entail routines that have to be met, before carrying out activities. Other members of the family are commonly forced to "play along" and have to obey rules of how and when to perform activities, in order to prevent their child from becoming frustrated. These obsessions can be of such a severity that the criteria for obsessive-compulsive disorder are met. In these cases, the obsessions might therefore have to be treated as a separate problem, alongside the other symptoms of Asperger syndrome (Gillberg, 2002).

The routines can have a negative impact on the child's social functioning as they can prevent the child from engaging in normal social behaviour, due to the ritualistic needs of behaviour that have to be met at any time. In addition, other children may respond negatively to this type of behaviour and might even be frightened by the child's obsession with ritualistic behaviours and the associated tantrums that often follow interruption and prevention of such behaviour. As a result other children might choose to withdraw from the child engaging in this odd and eccentric behaviour. Learning to sustain themselves from performing these ritualistic behaviours in public and maybe restricting themselves to perform these activities

when they are alone, only, might improve the social functioning of the children with Asperger syndrome. At least, these accommodations in behaviours might prevent other children from withdrawing from these children, as their behaviour might seem more “normal”. So even though ritualistic behaviour and routines do not directly lead to social difficulties, routines contribute to social deficiencies indirectly by making the child with Asperger syndrome appear “odd” and scary to other children, resulting in their peers’ withdrawal.

3.5 Speech and language peculiarities

Language and speech are often affected in children with this disorder, even though the ICD-10 and DSM-IV do not include these features in their diagnostic criteria. Most researchers, however, are aware of language- and speech peculiarities in children with Asperger syndrome. Early language delays are common, as discussed previously, however these delays often disappear as the child develops and is commonly not noticeable when the child reaches school age (Attwood, 2000). However, there might still be a “childish ring” to these children’s speech even when their language is highly sophisticated. Often, children with Asperger syndrome might be excellent speakers, however experience trouble understanding language in content and the underlying associated meanings which are often “hidden” between the lines. It is therefore not uncommon for these children to misunderstand utterances like “can you shut the window please?”, implying “shut the window!”. Children with this condition will often answer “yes”, however not doing it, indicating that they are capable of shutting the window, however not intending on doing so (Attwood, 2000).

Carrying on a conversation can be difficult for children with this disorder as open-ended questions with many possible answers, may be extremely difficult for these children. Most children with Asperger syndrome will prefer more concrete questions where there is only one right answer (Gillberg, 2002). Due to their preference of these questions themselves, their conversations are often run by and characterized by these types of questions, resulting in their conversation appearing stilted and unnatural (Gillberg, 2002). In addition, children with Asperger syndrome appear to be unaware that the social surrounding situation can influence the meaning of an utterance, and that a sentence therefore can change its’ very meaning due to a change in the social setting. They also have difficulties in understanding

that prosody can change a meaning of an utterance. As a result, many children with Asperger syndrome speak in a monotonous voice, and either speak too fast, too slow, too loud or too low, for what is considered socially appropriate. Another characteristic of the language of many boys with the condition is that their speech often is over-formally and old-fashioned, as if they were reading out loud from a lexicon or a book containing facts (Gillberg, 2002).

Taking another person's perspective and knowing what the person needs to know in order to understand what is being said is difficult for children with Asperger syndrome, as mentioned earlier, and seems not to be of their concern. However, possessing this ability is important when carrying on a meaningful conversation, in order to know exactly what needs to be said in order for the other person to understand the meaning of the utterances. Children with Asperger syndrome seem unaware of this importance and do not have the ability to access how much information is needed in order for the conversational partner to understand the message the child wishes to convey. Even if the other person explains to the child that they do not understand what was just said, the affected child will merely repeat what was just said, over and over again, instead of adding any additional information to the utterance that could aid understanding (Attwood, 2000).

There are therefore many deficiencies concerning the language of a child with Asperger syndrome that can lead to social difficulties, as communication is one of the most important means of successful social interaction. In order to interact in a successful social manner, it is therefore important that the affected child learns the norms and rules associated with expressed language and successful communication. If the child does not learn these written as well as unwritten rules of communication, much confusion may occur as a consequence, that could otherwise have been prevented, not only causing immediate frustration both for the child and the people the child is interacting with, but also resulting in possible further social isolation. Deficiencies in expressive language as well as the associated rules of communication therefore contribute directly to the social deficiencies that the children with Asperger syndrome experience, as these deficiencies make social interaction through the use of language difficult, due to the child not having the appropriate tools for appropriate communication and the knowledge regarding the associated rules of language.

3.6 Non-verbal communication problems

Non-verbal communication skills, like gestures and facial mimicry, are often poor in children with Asperger syndrome. Some children with this syndrome are therefore described as “poker-faced” (Gillberg, 2002). Unwritten rules about how far or how close you stand away from people when you talk to them seem to be unknown by children with this condition, and often they will stand either too close or too far away from the person they are talking to, for what is being perceived as “normal” and comfortable for other people (Bogdashina, 2006). The child with this disorder might also stare at the conversational partners’ mouth, instead of looking at the eyes, gestures and overall body posture. Abnormal body postures might also be exhibited by the child with this condition. For example their whole body might be turned away from the person they are having a conversation with, making conversation difficult for the other part, due to the “normal” cues missing, such as turn-taking as cued by eye-gaze and looking at the person you are having a conversation with so they know that the conversational partner is listening and interested in what is being said (Attwood, 2000).

Often the body language of affected children is restricted and perceived as clumsy. They might place themselves behind the person they are talking to, or walk away in the middle of the conversation. Characteristic is the depressed or “stone-face” look, followed by a big smile or laughter when the conversation comes to an end, as if the child is relieved that the conversation is finally over (Gillberg, 2002).

These non-verbal conversation deficits further add to these children’s social deficiencies, as they make communication and successful social interaction difficult. “Normal” children who are having a conversation with the child with Asperger syndrome, might give up any further interaction, because the child with the condition do not follow the expected “rules” of conversation, making the child stand out as “odd” or incapable of carrying on a meaningful conversation. This can result in other children withdrawing from any further interaction with this “weird” child, resulting in loneliness for the child with Asperger syndrome.

3.7 Motor clumsiness

Children with Asperger syndrome can often be spotted due to their characteristically odd motor performance. Their walk, for example, might be unnatural stiff without accompanied arm swing. Both fine and gross motor performance might be clumsy and ill coordinated, resulting in difficulties learning how to ride a bike, swim, catch or kick a ball (Gillberg, 2002). Difficulties in performing these activities can isolate these children from group activities such as ball games in the recess or physical activity classes, or in social clubs after school. Motor clumsiness therefore contributes uniquely to the social difficulties, that children with Asperger syndrome encounter. Teaching the child to coordinate movements and training on basic skills such as catching and throwing a ball, might improve social interaction for children with this developmental disorder, as will be discussed later.

Many affected children have marked stereotypic movements, such as hand-flapping, overstretched fingers close to the mouth and tightly held, shivering fists, early in childhood when excited (Gillberg, 2002). Most of these symptoms will be gone by late childhood, however might still persist to a small extent in later childhood as well. These behaviours might occur during any excitement, whether negative or positive. Many children with Asperger syndrome develop tics around school age. Even though tics are not part of the syndrome, they co-occur so often that they can, as mentioned earlier, make proper diagnosis harder, due to similarities with the condition obsessive-compulsive disorder (Gillberg, 2002). Because other children dislike these stereotypic and strange behaviours, the child with Asperger syndrome might try to hide these behaviours, in order to try to be perceived as more “normal” (Attwood, 2000). These stereotypic movements and tics contribute further to the social difficulties that children with Asperger syndrome experience, because they make these children appear strange which can lead to bullying and isolation. Trying to limit these stereotypic behaviours, as will be discussed later, can make the child appear less scary, increasing the likelihood of social interaction with other children.

3.8 Social skills –“Don’t want to, or don’t know how to?”

It seems like the youngest children with Asperger syndrome are either not motivated to or do not know how to play and interact with their peers. They seem happy with their own

company (Attwood, 2000). It is not uncommon that affected children like to watch other children play from a distance, without attempting to or wishing to join in. Some prefer to play with younger children, where others want to play with peers, however only if they are in charge of the situation and if the peers agree to play completely by their rules.

Children with Asperger syndrome do not like to explain to others what they are doing. It seems like they are playing within their own bubble and strongly dislike when somebody tries to enter their space. These children seem to prefer to play by themselves so that they can continue their activity alone (Attwood, 2000). It is therefore not strange that these children often do not have many, if any, reciprocal friends. The youngest of the children with Asperger syndrome seem not to mind not having any reciprocal friendships and are either happy playing alone or find friends in their sisters and brothers. Older children, however, often become aware of their solitude and develop a strong motivation for interaction with others and creating friendships (Attwood, 2000). When attempting social interactions, it immediately becomes clear that these children are missing the social knowledge and the tools for successful social interaction and their attempts, are therefore, quickly rejected by other children.

3.9 Summary

Children with Asperger syndrome therefore have extensive social deficiencies. Factors that influence their social abilities to a negative extent can be divided into characteristics which directly, as well as factors which more indirectly, lead to deficiencies regarding their social functioning. The characteristic features that directly result in the children's social deficiencies are difficulties interacting with peers, indifference to peer contact, difficulties interpreting social cues and socially and emotionally inappropriate behaviours (Gillberg, 1988). These social deficiencies can be explained due to difficulties concerning ToM, also referred to as extreme egocentricity, which commonly characterize children with Asperger syndrome (Attwood, 2000). Further, the characteristics that often accompany affected children, involving narrow interest patterns, ritualistic routines, language peculiarities, non-verbal communication problems and motor clumsiness, add to these individuals' social deficiencies in a more indirectly manner, as they often increases the chances of social

rejection and thereby further limiting the chances of developing social skills by social interaction (Attwood, 2000).

The social difficulties, combined with these children's generalized lack of interest in peers, help explain why children with Asperger syndrome have so extensive social deficiencies, as they have not learned the appropriate "tools" for social interaction by social interaction (Ogden, 2003). When the children later in development become obsessed with being normal and develop a need for reciprocal friendships, based on mutual understanding and respect, it becomes difficult for them to obtain these relationships, due to their lack of social "tools". In turn, they may develop a poor self-esteem, a strong self-awareness of loneliness, anxiety in social situations due to previous rejection and depression (Konstantareas, in Stoddart, 2005). In order to break this negative, downward spiral of social abilities, it is important to identify the children early and commence teaching programs for social skills, sooner rather than later, so when the desire for friendships develops, these children have the appropriate "social tools" for successful social interaction. How to teach these vital social skills entails the second aim of the study and will therefore be discussed in detail next.

4. Teaching social skills

In this chapter the second aim; “*How to prevent social deficiencies and enhance social abilities in children with Asperger syndrome?*” will be discussed and answered, considering various research and techniques in order to promote social skills in children with Asperger syndrome. Before presenting various approaches for teaching basic social acceptable behaviour to these affected individuals, the importance of building a positive self-esteem prior to any commencement of training will be emphasized. A discussion concerning a method of teaching social codes; through the use of group approaches will further be discussed, due to the positive effects found when using this method and the fact it can be used to teach most social skills.

4.1 Low self-esteem in children with Asperger syndrome

Most people learn social skills more or less automatically, by observing and copying those they live and interact with, so-called role models (Muskat, in Stoddart, 2005). Individuals with Asperger syndrome do not seem to learn these skills automatically from their family and peers. These marked impairments in the ability to understand and engage in normal social interactions with others have huge consequences for later social functioning of these individuals. Among these consequences are rejections from peers, leaving these youngsters feeling misunderstood and isolated (Broderick et al, 2002). Such early, negative social experiences can leave the child with this developmental disorder at risk of low self-esteem, especially if experienced repeatedly (Mishna & Muskat, 1998) and increases the child’s risk of developing a depression as he or she grows older (Attwood, 2000).

Children with Asperger syndrome are often uncertain about when to apply the learned social behaviours and are worried about making mistakes that might make them look foolish. A child that does not possess the basic social skills for successful social interaction is likely to be insecure about interacting socially, decreasing the likelihood that the child will engage socially, which further will hinder development regarding social skills (Sloman & Leef, in Stoddart, 2005). In order to disrupt this self-destroying circle, it is necessary to increase the child’s confidence and then to teach and improve the child’s social skills, following that

sequence, in order for the interventions to be as successful as possible. It is therefore important that the individuals who teach these social skills as well as the surrounding environment in which the children are taught are supportive and positive, so the children can learn without investing too much energy in trying to “fit in” or worrying about failure, making success more likely, which in turn will improve their self-esteem (Attwood, 2000).

4.2 Building self-esteem

The child with Asperger syndrome is often very aware of being different from other children and this awareness of not being like anyone else might result in sadness and poor self-esteem, especially as the child grows older and “fitting in” becomes part of the child’s concern (Attwood, 2000). As for any child, building a positive self-esteem is important, however even more so, due to these children’s higher risk of developing a low self-worth due to their “speciality” and to the severe risk of bringing a low self-esteem into adolescence and adulthood. It has been documented that adults with Asperger syndrome who suffers from low self-esteem show a higher level of depression, suicide and other affective disorders, than the general population (Baron-Cohen, 1988). Parents as well as teachers therefore need to cooperate in making the child understand that all people are special and that everybody has tasks they find easy and others which they struggle with. It is important to point out that having Asperger syndrome does not define who you are, it is only a little part of what it entails to be that child and that there are so many other unique qualities the child possess that need to be celebrated (Myles & Southwick, 1999).

It is important that the child is assisted in building a positive self-image. A positive self-image is built, partly, by feeling and experiencing success, combined with how other people perceive you (Martinsen et al, 2006). The child’s special abilities and areas of competence should therefore be focused upon, and opportunities where the child can demonstrate his or hers competence should be presented often, in order to feel successful and for the other children to discover the unique qualities of the child as well. The importance of positive feedback from teachers and parents, in order to build a positive self-image, can not be stressed enough and should be giving whenever the possibility arises (Martinsen et al, 2006).

A great way of building self-esteem is by helping others. Giving the child the role and responsibility of being a helper or a tutor for other, even if younger children, creates a sense of competence, importance, success and self-worth, and should therefore be attempted whenever possible (Ogden, 2003). Children with Asperger syndrome can assist other children in the classroom, regardless of whether they have the condition or not, in tasks that they themselves master. Being able to help others, provides the child with a sense of being good at something that others might find difficult and can result in acceptance and admiration as well as being an important way of building a good self-esteem in the child with Asperger syndrome.

Another important way of creating and building a positive self-esteem, is to make sure they feel that they are being heard and understood and that their thoughts and feelings matter to other people. It is therefore important that parents and teachers provide environments that are tolerant; accepting personal differences on one hand, but at the same time provide structure, support, guidance and consistency in order to make a predictable environment that provides security, on the other. This is due to the fact that children with Asperger syndrome are highly dependent on structure and foreseeable environments in order to work at their most optimal (Muskat, in Stoddart, 2005).

Everybody needs to feel that they are good at something and can master the tasks they are assigned. It is therefore important that the children's individual abilities and amount of effort are taken into consideration when their work is assigned and evaluated. It is also important to build tasks around the child's special strengths and abilities in order to provide motivation, while practising on areas where the child needs to strengthen his or hers skills. The level of difficultness should be fitted to the child's specific level of ability, so that the tasks are challenging, however not so difficult that the child gives up. Providing the right degree of challenge, as well as the right level of support, in form of positive and meaningful corrections and feedback, will make success more likely than failure, building and strengthening a positive self-esteem, while the child stretches towards his or hers upper limits of potential (Muskat, in Stoddart, 2005).

4.3 Group approaches

Social skills cannot be learned successfully in isolation, and must be learned and practiced with other individuals. Because small, controlled groups offer security and a calmer environment, social skills should therefore optimally be learned and practised in such a setting, due to the higher chances of success (Attwood, 2000). Grouping individuals with the same level of functioning and the same interest and talents, provides a basis for friendships, acceptance and belonging. This way of grouping should therefore be aimed wherever possible when teaching and training these children on social abilities. Another positive aspect of teaching social skills in groups is that group members can practice their newly learned skills on each other through the use of play. In this way social skills such as emotional regulation, appropriate language, expressing affect, taking turns, sharing, and initiating activities as well as conflict solving can be practiced (Muskat, in Stoddart, 2005).

Acting classes are another social arena that provides a great arena of enhancing and practicing social skills, because it can provide an organized and controlled setting where children with Asperger syndrome can learn and practice their social skills in specific situations. These classes can for example help the children to learn to identify and interpret other people's emotions and non-verbal cues and are a good way of practicing newly learned skills as corrective feedback can be giving by peers and the teacher throughout the lesson. Practice in these skills is important because it can help these children's social behaviours becoming more natural and less stilted and by that, may result in their social interaction becoming more successful (Myles & Southwick, 1999).

Broderick et al (2002), conducted a study on social skills training in groups for children aged 12-15 years diagnosed with Asperger syndrome, which revealed positive and encouraging results. Their intervention program focused on training various social skills such as conversational skills, eye-contact, body-posture, expressing and recognizing non-verbal signals, conflict resolution skills, rescue comments and relaxation techniques. They were also practising social skills trough the use of Carol Gray's (1995) "Social Stories". The results of the study showed that most of the children (90%) maintained attendance in their social skills groups and that many of the children gained confidence in their social skills and increased their self-esteem as a result of the training. As a result of their positive outcome, Broderick et al (2002), developed a guided pack containing the most successful elements for

community youth group leaders, teachers, social workers and clinicians, as well as a guided pack for parents, to use.

4.4 Relationship development in young children – Strategies for teaching social skills

As discussed, individuals with Asperger syndrome do not learn social skills through normal interaction with other people, as “normally” developing children do. They seem to be missing a social “radar”, resulting in a loss of important information, either due to misinterpretation of social cues, or simply because they did not detect the social cues at all (Attwood, 2000). This deficit, combined with their social aloneness, whether willingly or due to peer rejection, results in little practice in social skills and codes of behaviour. It is highly important, as mentioned that these children learn and practice social skills, so they have the “tools” for successful interaction, when the desire and need for friends and being part of social events, arises.

Many parents of children with this condition however, seem to believe that everything would be so much better if their child just had a friend; a peer that would accept, respect and play with their child (Gutstein & Sheely, 2006). The sad thing is that good, understanding and mutual friends cannot be easily acquired, whether you possess the appropriate social skills or not. Even harder is it if you don't have the appropriate social skills for successful social interaction, that mutual understanding and friendships can be based upon. Just placing a child with severe social deficits in the presence of peers or in a normal social setting and assume that the child will learn the skills required to be a friend, is unrealistic (Gutstein & Sheely, 2006). It is therefore important that parents, teachers and clinicians acknowledge the importance of teaching social skills for successful social interaction to these children, so they can learn to possess the required “tools” for developing good friendships.

In order to be able to interact in a socially acceptable and productive manner, children with Asperger syndrome need to be taught these social skills explicitly, because they do not develop these skills as a natural part of their learning process. Because these children might be socially isolated, their opportunities to practice and “polish” these skills are often limited, resulting in the taught skills being performed in a “stiff” and scripted manner (Muskat, in Stoddart, 2005). Also, it has been shown that social skills training in itself is often not

sufficient as the young child with Asperger syndrome has difficulties generalizing the learned skills to other, similar situations as well as to the “real world” (Mishna & Muskat, 1998).

In order for social training to be most efficient, affected children should not only be told when they are acting appropriate but also when their behaviour is unacceptable. Teachers, more competent peers and parents should therefore, as well as stating that behaviour is neither appropriate nor acceptable, also explain why the action is not appropriate, by using simple and clear language, leaving no room for misinterpretation, as well as offering alternatives of behaviour for the future (Muskat, in Stoddart, 2005). This way of coaching the child in social abilities, helps the child understand not only which behaviours are inappropriate and unacceptable, but also explain the underlying reasons for why the social behaviours are intolerable, providing the child with a deeper understanding of social rules.

4.4.1 Theory of mind

Because of their difficulties with ToM, individuals with Asperger syndrome need help to understand why it is important to consider the needs and feelings of other people and how to do just that (Muskat, in Stoddart, 2005). Garcia-Winner (2002) designed a program to help individuals with Asperger syndrome to develop the necessary skills for taking other peoples perspectives. The program begins with teaching the children why it is important to care about the views of other people and further explain the components that constitutes being social, including knowing that a persons behaviour has an impact on other people, that individuals have different perspectives and that appropriate behaviours take the surrounding situation into consideration (Muskat, in Stoddart, 2005).

When the child understands the importance of considering the views and needs of other people, effort should be put into teaching the child how to make a positive impression of oneself on others (Muskat, in Stoddart, 2005). This includes teaching the child about personal hygiene, how to dress, what to say and when to say it, adjusting the tone of voice and body language, as well as monitoring facial expressions. Learning to show an interest in what other people are saying, regardless on how one might be feeling about what is being said, as well as appropriate social distance to the conversational partner, might also be important to include in the program (Attwood, 2000).

In order to make these skills more fluent and accurate, practice is needed. Parents can provide their child with such practice by arranging play dates with other children with similar interests, which can work as positive social role models. Such organized play with peers can as well as allow for practice, reinforce successful performance of skills in a safe, supervised environment, providing the child with motivation for further pro-social interaction (Attwood, 2000). Groups of children with Asperger syndrome can also allow for important practice of these social skills as mentioned previously.

4.4.2 Emotional regulation

As mentioned, children with Asperger syndrome often have difficulties with emotional regulation (Attwood, 2000). Due to the negative impact these difficulties in regulating emotions can have on the social functioning of these children, it is important that teachers and clinicians are able to prevent these emotional outbursts, if possible. It might seem like these outbursts come out of the clear, blue sky. However, the children do in fact display a pattern of behaviours that are noticeable and recognisable precursors, to the experienced eye, of an upcoming behavioural outburst. Because early intervention can prevent later rage attacks, it is important for people involved with the child to be able to read these precursors in order to prevent emotional outbursts from occurring. There are typically three stages in a rage attack. These stages entail 1) the rumbling stage, 2) the rage stage and 3) the recovery stage (Albert, 1989).

The rumbling stage

During the rumbling stage the students may exhibit behaviours such as biting nails or lips, lower their voices, tense their muscles, tap their foot, grimace or otherwise indicate general dissatisfaction, that might not seem directly related to an emotional outburst, but is in fact indicating an impending crisis. Students might also claim to not be feeling well, withdraw themselves from others either emotional or physical, or lash out at or threaten either the teacher or other students, verbally or physically. At this point it is important that the teacher intervene with the student without becoming part of a struggle (Myles & Southwick, 1999).

There is a variety of strategies that the teacher may use in order to stop future behaviour problems. These strategies involve removing the student from the situation that is causing stress, in a discrete manner, by for example sending the child to the office with a note. This

will give the child time to calm down and when the child returns to the classroom the situation will have quietened down and the teacher will be on top of the situation (Myles & Southwick, 1999). Another strategy can be that the teacher moves close to the child who is about to have an outburst. Mere proximity to the teacher might have a calming effect on the student, however as individual differences exist among children with Asperger syndrome as with any child, it is important to know the student well, in order to know which strategy the child is most responsive to. An advantage with this last method is that it can be used without interrupting the lesson for the child in question (Myles & Southwick, 1999).

Using a secret non-verbal signal, like flicking a light switch or looking away, can be another way of signalling to the child that the teacher is aware that the situation is bothering the child. This way of signalling to the child that the teacher is attentive to the situation, can prevent problem behaviour from occurring because the student realises that the teacher is monitoring the situation, resulting in stress relief (Attwood, 2000). Sometimes, a touch, showing an interest in the students' hobbies, or displaying a chart of visual expectations can provide enough security for the student, preventing an outburst from occurring, without calling undue attention to the student. Other times it might help that the child, in assistance with the teacher, cartoons the event, in order to find a solution to the problem (Gray, 1995). Creating a safe home base for students with Asperger syndrome, a "haven", where students can go to if they feel a need to regain control, can also provide a sense of security, preventing emotional outbursts and possible problem behaviours from occurring (Myles & Southwick, 1999).

When the student is in the middle of a rumbling stage, a short, clear and firm statement of the rules made within proximity of the student, without direct face-to-face contact, should be made by the teacher. The teacher might want to reinforce the verbal message with an icon and should not move in a manner that might be perceived as threatening to the student (Myles & Southwick, 1999). Restating the rules to the child may provide a sense of security to the student as rules and routines have a calming effect on children with Asperger syndrome.

When deciding on a technique during the rumbling stage, it is important to know the student well, as already briefly mentioned, as selecting the wrong technique might only escalate the emotional outburst, rather than prevent it from occurring (Myles & Southwick, 1999). For

example it might not be useful to use the touch technique on a student that is oversensitive to touch and might perceive the action as painful, only adding to his or hers discomfort and frustration. It is important to acknowledge, however, that these interventions are only keeping the situation under control and are not solving the underlying issues or teaching the students to recognize their own frustration or self-control (Myles & Southwick, 1999).

The rage stage

If the student is not calmed down, by using one of the techniques as described above in the rumbling stage, a rage attack may occur. At this stage the student will act emotionally impulsive and sometimes explosive (Myles & Southwick, 1999). These outburst might entail kicking, screaming, biting, destroying property or self-injury. Internal rage might on the contrary evolve, causing the student to withdraw, unable to verbalize or act in a rational manner. The best way to act, as proposed by Myles & Southwick (1999), is to get the child to a safe room, while preserving the child's dignity, which is equipped with objects that have a calming effect on the student, relaxing the child, until self-control is regained. These rooms can be designed specifically for the child, containing favourite objects or toys, including their special interest if the child has any. It is important however, that the child does not gain access to this room if not absolutely necessary, so that the child does not learn to misbehave in order to get to play with his or hers favourite toys. The child should therefore never learn to associate the room as a form of reward for acting unacceptable, as this could have the opposite effect and escalate the incidences of inappropriate behaviours.

The recovery stage

The crisis ends with a recovery stage. After the rage attack the child may be unable to fully remember the emotional outburst, and might become sullen, withdrawn or even deny that inappropriate behaviour has occurred at all. Some children are so emotionally- and physically drained after an outburst that they need to sleep. After a rest, it is important that the teacher helps the student to become part of the classroom routine again. A highly motivating task, that is easily accomplished and therefore provides the child with a feeling of success and heightened self-esteem, might be the key to an easy incorporation into the routine again (Myles & Southwick, 1999).

It is important to remember that every individual is different and may react to various situations in different manners. When parents and professionals acknowledge that there are underlying reasons to these emotional outbursts, and that they can be prevented from occurring all together or at least lowered in intensity, by merely paying attention to and learning to read the child's precursors, these disruptive behaviours can be limited. It is also important, as mentioned above, to find the method that is most effective in calming the individual student, based on the knowledge the parents or professionals have of the specific child. After all, these children are trying to communicate that something is upsetting them, however unable to do so in other ways than displaying these socially unacceptable types of behaviours. When teachers and parents have learned to read these cues efficiently, and the right way of handling the child in the rumbling stage has been found, maybe with the help of professionals, emotional outbursts can be prevented from occurring. This can result in the student spending more time on on-task behaviours. Then positive interactions with other children may be more likely to occur, as the child does not exhibit these antisocial and unaccepted behaviours, which might frighten other students and potential friends. It is therefore important that teachers and parents are aware of these rage stages and ways of preventing them from occurring altogether.

4.4.3 Strategies for promoting self-control

Children with Asperger syndrome do not want to display unacceptable behaviours, in the form of emotional outbursts and rage attacks. As explained, these children do not know the socially appropriate ways of conveying their message of stress and frustration. If they are taught, however many are willing to learn strategies in order to raise self-awareness of their emotions and different skills to calm themselves down and manage their behaviours into what is considered more socially appropriate (Myles & Southwick, 1999).

The best intervention for rage attacks is prevention (Myles & Southwick, 1999). In order to prevent disruptive behaviour to occur, three steps are found to be effective. These are 1) instruction, 2) interpretation and 3) restructuring.

Instruction

The first step includes identifying skills that the child might be deficient in and provide direct assistance in teaching the child those skills. If the child does not have the required

prerequisite skill, teaching a more advanced skill will result in mere rote learning of that skill, rather than a deeper understanding of why that skill is important (Myles & Southwick, 1999). For example if a child does not understand that prosody can change the message of what is being communicated, teaching prosody will be of little value to the child. The child will have to memorize the correct prosody in order to communicate the right message, but will not be able to transfer this knowledge to similar situations.

Due to the reality that children with Asperger syndrome do not initially develop the social and behavioural skills necessary to be successful in school, at home or in the community, teachers must provide an environment that facilitates the development of these skills.

Programs have been developed for these purposes and entail sub-categories referred to as 1) rationale, 2) presentation, 3) modelling, 4) verification, 5) evaluation and 6) generalization.

“Rationale” has to do with explaining to the child why mastery of these tasks is relevant. In order for the teaching to be meaningful, the student must understand the rationale behind a skill, before the teaching commences. “Rationale” is therefore the logical starting-point for these teaching programs (Myles & Southwick, 1999).

“Presentation” entails the teacher explaining exactly what the student needs to learn. By using visual and auditory information, often presented in smaller units the content is taught. The instruction is active in the aspect that the teacher asks questions and provide corrective feedback if needed (Myles & Southwick, 1999).

“Modelling” involves obtaining the students attention and showing what the child is required to do, by modelling the behaviour. Every little direction must be spelled out explicitly, preferably with a visual component to aid understanding, as nothing can be inferred, regardless of how many times something has been presented before. It is important here to explain to the student what is right and expected behaviour instead of telling the child what is not to be done (Myles & Southwick, 1999).

“Verification” requires monitoring the students’ emotional state throughout the lesson, as not understanding a task, or finding it difficult can lead to stress, which in turn can provoke a rage attack (Myles & Southwick, 1999). Here the knowledge about how the individual student shows distress, as mentioned, is extremely important as these small signs, indicating that an outburst is on its way, can easily be overlooked by a novice teacher or a teacher that

does not know the student well. If stress is occurring, the student's needs must be met, either through additional instruction, modelling or an individual work session (Myles & Southwick, 1999).

“Evaluation” from both the teacher and the student is important. The teacher should evaluate the students understanding by using a variety of techniques, such as questions testing the student's deeper understanding. The student on the other hand should self-evaluate their performance of their newly acquired skill and should set up goals for generalization as well as maintenance of the skill (Myles & Southwick, 1999).

“Generalization” of the learned skill to a different setting is an important part of the learning process, especially as noted earlier that children with Asperger syndrome have difficulties generalizing newly acquired skills to real life situations. The student should therefore be given the possibility to practice the newly learned skill in a variety of settings for a better and broader understanding. Parents can here play an important role in their child's learning process by setting up for and observing the newly learned skill in a home setting (Myles & Southwick, 1999).

Social Stories

Carol Gray (1995) developed Social Stories, an effective method of providing guidance and strategies for responding to a variety of social situations, promoting self-awareness, self-calming and self-management (Gray, 1995). Because Social Stories can improve social interaction if used efficiently, they can be an effective tool in increasing successful social interaction and thereby improve these children's social status, decreasing their chances of social rejection as well as their associated feelings of anxiety, stress and poor self-esteem (Barnhill, 2001). It is important to acknowledge the fact that due to individual differences in Asperger syndrome, Social Stories might not be a universal effective means of teaching social skills to children with this condition. However, due to the extensive positive impact that this technique can have on social lives, which in turn can improve the overall wellbeing and happiness as a result of more mutual and rewarding social interactions and even possible friendships for the child with Asperger syndrome, Social Stories will be discussed in great detail next.

Social Stories are brief, individualized short stories that describe a social situation that characterize an individual under specific circumstances and provide specific appropriate

response cues (Gray, 1995). They are developed in order to deal with a problem that a person with Asperger experiences. The Social Story describes the situation in which the student has problems handling in a socially appropriate manner and provides the student with appropriate social responses within that specific context (Gray, 1995). A Social Story therefore provides the student with direct instruction regarding the who, what, when, where and why of a social situation and provides information concerning “how to” initiate, respond to and maintain appropriate social interactions. All areas of social functioning can be altered through the use of Social Stories, and it is therefore considered an effective and flexible tool in teaching and promoting social competence in form of social acceptable behaviour in children with Asperger syndrome (Attwood, 2000).

Research regarding the effectiveness of the use of the Social Stories intervention method on children with Asperger has to date been scarce, however promising. Social Stories have shown to be successful in improving socially acceptable and appropriate behaviour in children and youths with ASD regarding greeting people appropriately and sharing toys (Swaggart, et al, 1995), reducing tantrum behaviours (Kuttler et al, 1998), improving social interactions during mealtimes at school (Bledsoe et al, 2003), sportsmanship (treating teammates, opponents and coaches with respect), maintaining conversation (Sansosti & Powell-Smith 2006), decreasing disruptive classroom behaviours (Scattne et al, 2002), increasing on-task behaviour (Hagiwara & Myles, 1999) and increasing appropriate play (Barry & Burlew, 2004). Most of these studies, however, were performed on individuals with a diagnosis of Autism, not Asperger syndrome. Only the studies by Bledsoe et al’s (2003) and Sansosti & Powell-Smith (2006) were performed on children with Asperger syndrome. This is important to bear in mind, when discussing the positive effects of this intervention strategy in relation to students with Asperger syndrome, due to the differences between these disorders. It is also important to note that Bledsoe et al’s (2003) study was based on one participant only with the Asperger syndrome diagnosis and that Sansosti & Powell-Smith’s (2006) study showed positive results on two out of three participants respectively, and that generalizations are difficult to make based on such a small sample and therefore should be made cautiously. However, due to the documented positive effects of Social Stories in children with Autism, as well as the two minor studies referred to, it seems as a promising intervention program for teaching social skills to children with Asperger syndrome as well, due to the many similarities that children on the autistic spectrum continuum possess.

A reason for why Social Stories might work particular well on children with Asperger syndrome is their often rigid thinking styles and their appreciation and obedience to rules and routines. Social Stories apply a format that can readily be used to create rules or routines for specific social situations (Sansosti & Powell-Smith, 2006). Social Stories have therefore received much attention as a means of managing behavioural and social difficulties in children with Asperger syndrome (Bledsoe et al, 2003). Even though the use of Social Stories has been found to produce immediate improvements in social behaviour in both the studies entailing autistic participants as well as the studies based on children with Asperger syndrome, it is important to appreciate that studies made on the Social Stories in themselves have shown that the longer the stories are being used and trained upon, the more effective and longer lasting the results (Bledsoe et al, 2003). All these features of previous research as well as the very unique qualities of the Social Stories in themselves are important aspects to bear in mind when considering this approach for teaching socially appropriate and acceptable behaviours to children with Asperger syndrome.

Hidden knowledge

Every society, community and therefore also school has norms and values, inexplicit rules and common knowledge, which entail what is accepted and expected behaviour and what is not. Among the students unaware of this common knowledge are students with Asperger syndrome (Attwood, 2000). Somehow other children learn this hidden knowledge, and somehow it goes by the children with this condition. Students with Asperger syndrome are at a disadvantage because they do not acknowledge and understand these norms of appropriate behaviour and therefore unintentionally break the rules, resulting in them getting into trouble and possibly become further ostracised and humiliated by their peers (Attwood, 2000). They therefore need direct teaching and training in these hidden norms and values, in order to follow them in a socially appropriate manner. Some of these unwritten rules entail knowledge about teacher expectations, which students to interact with and those to stay away from and behaviour that attracts positive and negative attention, such as dress code and personal hygiene. Understanding and mastering these unwritten codes of behaviour, can make all the difference in the social life of a child with Asperger syndrome because it can help them becoming accepted by their peers and make friends (Attwood, 2000).

Interpretation

Social situations may cause confusion and in return result in misunderstandings due to the child's lack of social knowledge. Even when the child receives instruction in social and behavioural skills and domains, situations will arise that require interpretation. The second step of the program, in order to prevent disruptive and inappropriate behaviour from occurring, therefore involves the recognition that no matter how well developed the skills of the child are, there will always arise situations that the child does not understand. An interpreter is needed for those times, in order to help the child understand the situation. By using a variety of techniques such as 1) Sensory awareness, 2) Cartooning, 3) Social autopsies, 4) The Situation, Options, Consequences, Choices, Strategies, Simulation (SOCCSS) strategy and 5) Video detective, social interaction which caused confusion for the child with Asperger syndrome can be turned into more meaningful and rewarding social interactions (Myles & Southwick, 1999).

Sensory awareness

All the information the child receives from the surrounding environment comes through their sensory system and gives the child knowledge regarding taste, smell, sight, sound, touch, movement and so forth. Children with Asperger syndrome have a dysfunction regarding sensory integration of information, due to neurological differences, which in turn can result in erroneous processing of sensory information, making appropriate social behaviour and interaction difficult (Bogdashina, 2006). It is therefore important to be aware of these deficiencies as sensory integration programs have been developed, which can help identify the children's sensory needs (For an example of such as program, see Williams & Shellenberger, 1996). When the individual needs have been identified, the child can learn strategies in order to work around the deficiencies, making social interaction easier.

Cartooning

Visual symbols, such as cartooning and schedules, have been found to enhance children with Asperger syndrome's understanding of their environment and have shown effective in teaching social skills (Kuttler et al, 1998). Cartooning is a type of visual support that helps illustrate the meaning of idioms as well as interpreting social situations (Gray, 1995). Cartooning plays an integral role in the techniques "Mind reading" and "Comic strip conversations". Comic strip interventions were created by Carol Gray (1995) to illustrate

and help students with Asperger syndrome interpret social situations and comprehend quick exchanges of information occurring in conversations. Speech, colours and thought bubbles are used in this intervention method, helping the child to identify aspects of the conversation, making 'hidden information' more explicit, which in turn aids the child's understanding of the social interaction.

Social autopsies

LaVoie (in Myles & Southwick, 1999) developed this strategy to help students with social difficulties to interpret social and behavioural situations. This technique is used to direct social behaviour when mistakes occur. The student meets with a teacher, parent or counsellor to identify the mistake and to learn from it. Then the student develops a plan to ensure that the mistake does not reoccur (Myles & Southwick, 1999). Due to the common visual strength in children with Asperger syndrome, social autopsies might be enhanced by using pictorial representations to help illustrate the social skills being taught. LaVoie found this technique to be efficient in teaching social skills and understanding in these children (LaVoie, in Myles & Southwick, 1999).

SOCCSS

The Situation, Options, Consequences, Choices, Strategies and Simulation (SOCCSS) strategy was developed in order to help students with social interaction problems put social and behavioural issues into a sequence for better understanding that the choices they make in a given situation can result in different consequences (Martinsen et al, 2006). Due to affected children's social interaction difficulties, this strategy has been suggested useful for teaching these students social skills. The first step in this technique is to identify the situation. The student, with help from a teacher, defines a problem and a goal. The next step is to identify the different options of social behaviour the student has. This is a critical stage because having the ability to consider different options can diminish frustration and can help the student in seeing different perspectives, which is important for successful social interaction (Attwood, 2000). The third stage is where these generated options are evaluated as well as their potential consequences. An important aspect of this procedure is to identify whether the strategy is efficient and whether it is feasible. These aspects play an important role in the decision making of which strategy to choose (Myles & Southwick, 1999). In the fourth stage, the student decides on a solution from the generated lists of options, based on which

option has the most desirable consequences. In the fifth stage the student, with the help of a teacher, develops a plan for action. The last stage provides the student with the possibility to practice what has just been generated in theory, either through role-play or by talking to peers about the chosen strategy (Myles & Southwick, 1999).

Video detective

Videos can be used in a variety of ways to teach appropriate social behaviours, by modelling socially acceptable behaviour that the student can try to learn by copying. Care should be taken, however, due to these students' often strong visual skills, so that they do not merely copy behaviour that is depicted on the screen, meant as a form of comedy or joke, due to the fact that children with Asperger syndrome might not be able to understand the irony of the content and may try to copy the behaviour as seen on the video, resulting in them getting them into trouble (Myles & Southwick, 1999). Other ways of using videos as a means of teaching social skills is by taping the specific student's behaviour, before playing it for the student, while discussing how the behaviour might be modified in order to become more socially acceptable. Videos can also be used in order to identify other people's emotions, intent and point of view by observing their behaviours (Myles & Southwick, 1999).

Similarities can be drawn between what is being observed on the tapes and real life situations in order to practice newly learned skills and to transfer knowledge to real situations. A study conducted by Bernad-Ripoll (2007) found videotaped segments of emotions combined with Social Stories effective in teaching a child with Asperger syndrome to recognize his own emotions and to generalize them to other situations. Care should be taken, however, in order to readily generalize these findings to other children with the condition due to the clear limitations of the study, considering only one participant (n=1) (Bernad-Ripoll, 2007).

Thus, there are therefore a number of strategies that can help children with Asperger syndrome's understanding of other peoples' direct and intent. By using these strategies, either separate or in a combination, the chance for successful social interaction will become more likely for these children.

Restructuring

Restructuring is the recognition that the child with Asperger Syndrome has unique characteristics which requires adjustments. These adjustments should aim at modifying the environment to fit the child's level of skills and learning styles. As the child develops new skills or matures with age, these modifications need to be readjusted to fit the child's level of competence. Restructuring entails various techniques such as social scripts, visual supports, circle of friends and crafting the environment and will be presented next (Myles & Southwick, 1999).

Social scripts

Social scripts provide scripts of "ready-to-use" language for specific events. They might be conversational starters, scripted responses or ways of changing topics (Myles & Southwick, 1999). These techniques are useful in everyday social situations. A child that for example, does not know how to approach peers in an social appropriate manner and therefore gets rejected every time he attempts an interact, can trough social scripts learn simple techniques, such as good words for starting a conversation or introducing oneself, for improving social interaction. Acquiring these skills can result in peer acceptance and maybe even possible friendships, due to more successful social interaction.

Visual supports

As mentioned, many students with Asperger syndrome benefit from getting information presented visually due to their unique ability to focus on spatial details presented this way (Bowler, 2007). Visual schedules, is a means of presenting events visually, depicting information regarding upcoming events as well as linking these events to a timetable. Visual schedules are effective to use in the respect that they might increase on-task behaviour as well as make transition between activities easier, as the student who is otherwise reluctant to change has had time to prepare for the upcoming event, due to this schedule (Myles & Southwick, 1999). If the student is worried about "sticking out" in the classroom, due to the use of these schedules, effort should be made in order to make sure that both the schedule, as well as any references made to it, is done in a discrete manner. This can be done by for example limiting the schedule to the size of a bookmark, so it still provides structure, however does not attract unwanted attention (Myles & Southwick, 1999).

Circle of friends

Helping students to develop friendships is an important factor in teaching and developing social skills in children with Asperger syndrome, both due to the fact that these children often experience increasing loneliness with age and that their social abilities improve with social interaction (Attwood, 2000). Because social skills are learned and practiced most optimal among peers, a method to enhance social skills is to choose some of the child's peers to make up what is termed "A circle of friends" (Odgen, 2003). A "circle of friends" is chosen by the teacher and the task for these peers is to spend some time with the child with Asperger syndrome outside the class (Attwood, 2000). It is important, however that those children which are chosen to make up the "circle of friends" both value and respect the person with Asperger syndrome, for this type of social interaction to be positive and lead to social integration, rather than further social ostracism. The circle of friends can for example play games in the recesses or sit and eat together in the school dining hall. A good idea is for the child with Asperger syndrome to bring a card with conversational starters in order to remember how to start a successful conversation and to get a good start on the time spent with the "circle of friends" (Myles & Southwick, 1999).

Crafting the environment

Accommodations in the affected student's environment can enhance the chance for success and optimal functioning both in the social and in the academic sense. In much the same way as the curriculum should be tailored to meet the student's specific needs, so should the surrounding environment (Myles & Southwick, 1999). An example being that a child who has difficulties remembering what is for homework, having a homework buddy who reminds the child of what has to be done in preparation for the next day. Or a child who has problems finding the correct way back to the classroom after a recess has an agreement with a classmate who meets the child after each break and walks back to the classroom with him or her (Myles & Southwick, 1999). These small arrangements can make a school-day much easier for a child with Asperger syndrome, improving the child's overall function in school.

In summary, there is therefore a variety of simple techniques and accommodations that can be made in order to help make the social life of a child with Asperger syndrome easier. By using techniques which the child can benefit from, the child's overall social functioning can improve remarkably.

4.4.4 Cognitive-Behavioural intervention programs

Positive results have been found regarding a 7 months cognitive behavioural intervention treatment program targeting social-interpersonal problem solving among a group of children with HFA, aimed at improving social-emotional understanding and social interaction, facilitating social interaction with peers (Bauminger, 2002). Without going too much into detail regarding the very structure of the study, it is important to notice that the 15 children who participated in this study were between 8 and 17 years old, and that the program focused on three areas of intervention; 1) teaching inter-personal problem solving, 2) social interaction and 3) affective knowledge. The study showed that the children were more likely to initiate positive social interaction with peers after treatment, improving eye-contact and their ability to share experiences with peers as well as showing a general interest in their peers. They also provided more relevant solutions and less non-social solutions to different social situations, showed greater emotional knowledge and exhibited better social skills in regard to cooperation after treatment, compared to prior to the intervention program (Bauminger, 2002).

It is important to acknowledge, however, that the study had a rather limited number of participants (n=15) and that it therefore can be difficult to generalize to all individuals with HFA based on these results. Taken this limitation of the study into consideration, however, it can be argued, based on the effective and positive outcome of this treatment program, that individuals with HFA and maybe also Asperger syndrome could benefit greatly from undergoing such a social skills treatment program early in life, in order to learn positive interaction with peers, that later could provide the step-stone for positive social interaction. This could in turn lead to a more positive sense of self-worth and less chance of developing anxiety and depression later in life, due to a higher competence in social skills and possible mutual friendships. Later studies have supported these findings, confirming the effectiveness that cognitive-behavioural approaches have on teaching social skills to children with Asperger syndrome (Lopata et al, 2006).

4.4.5 Social-Behavioural learning strategy intervention (SODA)

SODA is a social-behavioural learning strategy that has been found effective in teaching social skills to children and adolescents with Asperger syndrome (Bock, 2007). It provides

these individuals with a set of rules that enables them to attend to and process relevant social cues and to decide on specific social skills they will use as they participate in a social activity. SODA teaches children with Asperger syndrome to stop (S), observe (O), deliberate (D) and act (A), (Bock, 2007). The first three stages involves self-questioning in order to guide information processing, while the last stage involves developing a list of actions the children intend to do or things they plan to say.

The SODA program has shown positive results in children with Asperger syndrome, regarding increased percentage of time spent on participating in cooperative learning activities, playing organized sports during recess and visiting peers during lunch (Bock, 2007). Positive long-term effects have also been found, showing that when SODA training discontinued, the students maintained their increased performance levels as attained, due to their earlier participation in the SODA program (Bock, 2007). It is important to acknowledge, however that the study referred to here was based on a small number of subjects (n=4) and that caution therefore should be taken when generalizing these positive results to other children with Asperger syndrome. It can however be suggested, based on these results, that SODA is an effective means of increasing positive social interaction among children with Asperger syndrome and their peers, but that additional studies are required in order to generalize more efficiently based on these results. Parents, teachers and professionals should however recognize the positive effects associated with SODA, due to the positive effects this program might have on their child. Thus, SODA seems to be a promising program in order to teach and facilitate appropriate social interaction in affected children, which in turn can result in positive experiences and successful social interaction.

4.4.6 Relationship Development Intervention model (RDI)

Gutstein & Sheely (2006) have made a collection of exercises based on the Relationship Development Intervention model (RDI), in order to provide a program for developing relationships skills in children with Asperger syndrome. The program was designed for young children between two and up to eight or nine years old and emphasizes the development of basic social skills such as regulating behaviour, conversational reciprocity and social referencing (Gutstein & Sheely, 2006). The authors make the important point that any age-group can use this program, however, as with any skill; a good foundation is required before more complex skills are developed.

The program focuses on ten areas of skills, based on extensive research done in developmental psychology during the last 25 years, which encompass the qualities of children and adolescents who are successful in finding and maintaining mutual friendships. These skills build upon one another and consist of; enjoyment, referencing, reciprocity, repair, co-operation, we-go, social memories, maintenance, alliance and acceptance (Gutstein & Sheely, 2006). The program will not be detailed here, however it is based on qualities and skills that these children need to learn in order to be able to develop successful friendships. As the RDI is a developmental program, it is important to commence work at the correct level; fitted to the child's individual abilities. If unsure of which level will be best fitted to the child's abilities, it is better to start low and gradually work up in complexity, rather than starting at too high a level (Gutstein & Sheely, 2006).

Parents, teachers and therapists can benefit from using these manuals. Due to the program design, the child's progress can easily be evaluated, making an Individualized Educational Plan (IEP) simpler to form based on the results of these tasks. Also, the program provides clear objectives which are connected to specific exercises and activities, which should make the IEP more readily to design regarding specific tasks that can help improve specific abilities (Gutstein & Sheely, 2006). The RDI program could therefore prove to be very useful for educators, as constructing an IEP sometimes can be difficult, especially when reaching the point of what can be done in practical terms in order to improve the child's functioning.

The results of using the RDI program are extensive and claimed to be positive with the child making true friends who genuinely appreciate the child, their communication becoming less scripted and more creative, they will be more valued as a team member, and their actions will be governed more by the needs and feelings of those around them, rather than just rules that need to be followed. The child's thinking will become more flexible as well and the child will become more acceptable of change, considering more than one solution to a problem, seeking out and valuing other people's perspectives and opinions and becoming more aware of their unique identity (Gutstein & Sheely, 2006).

As discussed above, positive results have been found in children with Autism by using the RDI program, however the long-time effects remains to be seen in children with Asperger syndrome in order to estimate the efficacy of this promising intervention program for

developing relationship skills in these children as well. One could hypothesize, however, that when the more severely affected children with Autism can benefit from this intervention program to such a positive extent, promising results are likely to be found in better functioning children with Asperger syndrome as well.

4.5 Using special interest areas to teach a variety of skills

Even though narrow interests can limit successful social interaction in children with Asperger syndrome, due to the extent the child often gets absorbed into the interest, leaving little time for anything else, as well as making the child appear “strange” to others, the special interest can also be turned into a method of increasing social interaction, if used optimally. A study conducted by Winter-Messiers (2007) found promising results when using children’s special interest areas (SIA) as motivational factors in order to teach a variety of skills. The study consisted of 23 individuals with Asperger syndrome, 2 girls and 21 boys, aged between 7 and 21 years. The researcher found that by using the SIA’s, improvements could be found in areas that are typically seen as deficits in individuals with this developmental disorder, including communication, social functioning, emotional regulation, executive functioning, motor-clumsiness and academic skills (Winter-Messiers, 2007).

This study had several strengths, including a relatively large sample from various school districts. Among the limitations, however, were few female participants (n=2). It is important to notify that by including more female participants, the results might have been effected, also due to the fact, as stated earlier, that females with Asperger syndrome often do not show strong special interest areas as the boys characteristically do, and if they do the special interests are often more socially orientated, which might entail more practical difficulties in using these areas of interests, in order to promote social skills (Attwood, 2000). However, Winter-Messiers (2007) concluded, based on the otherwise strong and positive results found on the basis of the study, that SIAs are powerful tools that can be incorporated into the child’s school curriculum and home activities, resulting in positive and effective changes involving attitude, increased motivation, acquiring of social and academic skills, increasing individual progress and thereby improving the general well-being, as well as the quality of life of children with Asperger syndrome.

4.5.1 Using the special interest in school

Teachers can therefore improve classroom behaviour in the child with Asperger syndrome by using the special interest as a motivational factor, teaching everything from academic material to social skills (Winter-Messiers, 2007). The challenge is, however, how to use and incorporate the special interest into the curriculum in the best possible way. Based on their study, Winter-Messiers (2007) developed a vast amount of ideas about how to integrate the special interest into the daily practice and the curriculum of the students with Asperger syndrome.

The first step is for the teacher to interview the child, in order to make sure what the special interest involves (Winter-Messiers, 2007). The interest may not be as obvious as it might seem at a first glance. For example a child that might seem interested in soccer might actually be more interested in the game statistics than in going to soccer matches. When the teacher is sure about what the special interest involves, the next step is to apply the interest into practice, concerning academic and behavioural learning methods (Winter-Messiers, 2007).

Academic learning approach

It is important that the teacher considers the primary goal of the curriculum (Winter-Messiers, 2007). If the goal is to learn how to write a well structured essay, then maybe it is of less importance what theme the student is writing about and might as well be the special area of interest, rather than the general theme the peers are writing about. These small changes do, however, involve extra involvement and fantasy from the teacher, however should not be so challenging or time-consuming that they are hard to overcome.

Behavioural learning approach

One method is for the teacher to imply a strategy that involves the student working on a set of behavioural tasks and when doing so, earns time that he or she can spend on the special interest. The special interest is therefore used as a positive reinforcement, becoming a “reward” that the student can earn if completing a set of required tasks. Another method is for the teacher to reward appropriate behaviour by allowing the child access to his or hers

special interest, making the appropriate behaviour the key to the special interest (Winter-Messiers, 2007).

4.5.2 Using the special interest at home

There are a variety of ways of which the special interest can be used to increase harmony at home and manage behaviour. Allowing the child to engage in the special interest after stressful events can reduce anxiety, decreasing the likelihood of tantrums and rage attacks, increasing the likelihood of getting the child to participate in stressful and anxiety provoking events, they child might otherwise be reluctant to take part in (Winter-Messiers, 2007). The special interest can thereby be used as a positive reinforcer in order to get the child to participate in household chores. Positive social interaction between the child and the other household members can also be facilitated by using the special interest, by for example as a family outing, going to visit the train station if the child's interest involves trains or the planetarium if the interest entails planets or solar systems (Winter-Messiers, 2007).

4.5.3 Using the special interest in the community

Social involvement might be strenuous for children with Asperger syndrome and they might as a consequence choose to withdraw from such involvement. If however, the social interaction involves the child's special interest, the child might be motivated to participate in social communities that are based on their interest, providing a means for practicing social skills and forming possible friendships (Winter-Messiers, 2007). It is possible to find groups and clubs for most interests. If there are no groups involving the child's special interest, parents can play an active role in creating such groups, which might gather children who share the same interest, providing possible friendships.

This method of using the child's special interest as a motivational factor in order to teach a variety of skills, involving work completion and appropriate behaviour both at home and at school, which further can facilitate and stimulate social interaction and friendships among these otherwise often isolated individuals, appear promising. The implications of using the child's special interest are therefore immense and can have a positive impact on every aspect of the child's life, from home, school, community, identity and future careers (Winter-Messiers, 2007). It is therefore important that professionals and parents acknowledge the

positive effects that incorporating the child's interest into various fields of education and training can have on the child's involvement and motivation.

4.6 Making routines more functional

As mentioned, many children with Asperger syndrome introduce routines of different kinds and are reluctant to any changes in these routines. The routines often involve activities which effect the child's everyday life and functioning. Further, these obsessions with routines of various kinds, as well as the tantrums which often follow a termination of a routine, might make the child appear odd and maybe even scary to peers, which as a result chose to withdraw themselves from the child. By making these routines more functional and teaching the child how to cope with any possible changes, the child's overall- as well as social functioning, might improve.

4.6.1 Break tasks into smaller steps

Due to children with Asperger syndrome's difficulties with central coherence, resulting in problems regarding assembling parts into whole entities, as well as their need to follow routines, (Bowler, 2007), breaking tasks into smaller steps, which can be rehearsed until they become part of the child's daily routine, can be helpful for these affected individuals (Muskat, in Stoddart, 2005). For example, getting ready to go to bed can be broken into: 1) Tidy up any activities you have been doing. 2) Have a shower or a bath, wash body, hair and face. 3) Dry yourself. 4) Put on pyjamas. 5) Comb hair. 6) Brush teeth. 7) Get into the bed. Longer lists can be written down and then rehearsed for easier recall of the right sequence of the tasks. This method is a very simple way of making life easier for the child with Asperger syndrome, as well as for everybody else involved with the struggles that even small routines in personal hygiene can cause for these children, due to their reluctance to even small changes in routines (Gillberg, 2002). Following the same sequence of behaviour in order to meet a goal, will allow these children to reach their goal, without having to break any routine unnecessarily.

4.6.2 Adjust to change

Due to children with Asperger syndrome's need for routines and their reluctance to change, even a minor change to the ordinary routine can cause tremendous frustration (Gillberg, 2002). It is therefore important that both parents and teachers work with the child on a daily basis, teaching strategies to assist in adapting to change. These strategies might involve planning events down to even the smallest detail, so the child knows exactly what is going to happen and in what sequence events will take place and is therefore able to prepare mentally on any upcoming events. It is important to underpin any possible changes in routine, so nothing comes as a surprise to the child. This might involve discussing what might happen in a new setting, planning appropriate responses to potential dilemmas or concerns, giving the child the possibility to ask any questions that might cause concerns and potential anxiety. Role play might be useful in preparing the child for new situations, giving the child a chance to practice the appropriate social responses for the setting ahead and making any change in the situation less frightening for the child with Asperger syndrome (Muskat, in Stoddart, 2005).

4.7 Improving language skills

Failing to modify language accordingly to whom they speak to, as well as to specific situations, is part of the clinical picture of the disorder and require explicit, direct teaching and training (Muskat, in Stoddart, 2005). As mentioned, individuals with Asperger syndrome often use direct, honest and inappropriate language, which might be suitable among peers, however unacceptable and considered rude when conversing with an adult. Individuals with this condition therefore need direct guidance in what is considered appropriate language depending on the setting and to whom they are speaking to. Further, teaching prosody can help them convey their intended meanings more easily as well as teaching them that words can have different meanings depending on the context they are presented in, can help them understand implied and intended meanings of other people. Carol Gray's (1995) Social Stories are an effective way of teaching these rules of language, as mentioned earlier. Improving the language skills of children with this developmental disorder can have an extensive positive impact on improving social interaction, as good language skills, are very important for social interaction to be possible and successful.

4.8 Improving non-verbal communication skills

Children with Asperger syndrome have a strength in receiving and understanding information verbally, compared to non-verbal information. Thus, it can be useful to translate non-verbal information into words, in order to make this information more accessible (Muskat, in Stoddart, 2005). Affected individuals can benefit from learning how to use an internal dialogue, referred to as “self-talk”, as a way of guiding themselves through different activities. This self-talk can also be explicit, similar to what characterize very young “normally” developing children, where the child talks out loud, in order to guide him- or her-self through a difficult situation which relies on non-verbal cues. Self-talk” can thereby aid these children with memorizing routines and detecting errors as they occur, directing them back on the right ‘track” of behaviour (Muskat, in Stoddart, 2005). Social Stories and Comic strip conversations have shown to be effective in teaching children with Asperger syndrome the meaning of different gestures, body language as well as facial expressions (Gray, 1995). Through the use of speech bubbles, associated colours, videos and mirrors, the child can learn to identify non-verbal cues in others, which is an important skill to master, in order to ensure successful social interaction (Gray, 1995).

4.9 Improving motor skills

In order to participate in social plays and activities, it is important to teach the often poor motor-coordinated child with Asperger syndrome good motor skills. By practicing and improving basic skills such as catching and throwing a ball and how to limit the use of stereotypic behaviours that often is part of the clinical picture of Asperger syndrome, the child can participate in more social activities, decreasing the chance of rejection and social isolation, as a result of poor motor skills (Attwood, 2000). Teaching the child simple techniques in how to participate in these activities, can therefore have a positive impact on the social life and overall functioning of the affected child.

4.10 Teaching social codes by the use of parent training

As mentioned earlier, it is very important to teach parents of children with Asperger syndrome good strategies, in order to promote social learning and development of social skills in their children. Parents play an important role in this teaching, due to the reality that they are the adults that spend the most time with the children and therefore can assist them at various times and across different settings in reinforcing and practicing these skills.

The first step, as proposed by Attwood (2000), is to observe play and interaction, that peers at their children's chronological age are participating in and to play the same games, while using the same rules with their own child. If the most popular games involve balls in various types of ballgames, the parents should therefore practice throwing and catching balls with their child, in order to teach him skills that can come in use when participating in play involving peers. It is also important to teach the child to include other children in their play, and to teach the child to let others decide as well and not to be dominating in the interaction with others (Attwood, 2000). Therefore, the parents need to practice the social rules regarding play, with their children, as well as the practical techniques when participating in various activities.

The next step involves the parents observing their child in interaction with others, and making a list of the skills their child needs to practice and develop in order for social interaction to be more successful (Attwood, 2000). The most common skills the child could benefit from learning involve;

4.10.1 “To commence a play”

Maybe all the child needs to learn is a good start-off phrase, involving asking if it is all right for him or her to join the play, rather than just joining in, taking full control over the whole play, wanting to decide everything and leaving the other children dissatisfied (Attwood, 2000).

4.10.2 “Flexibility, cooperation and the ability to share”

Linked to the skills just mentioned, it is important that the child learns to share toys as well as control with the other children and learns to be flexible regarding which shape the play

should take. It is important for the child to learn that nobody can “run the whole show”, that everybody must be included to the same extent and should be involved in deciding what the game should be about and how it should be run (Attwood, 2000).

4.10.3 “How to avoid social play”

In teaching the child social skills and how to better interact with others in a more appropriate social manner, it may seem puzzling to include a topic of how to avoid social play. However, it is just as important for the child to learn how to withdraw from others in a social appropriate manner, as it is to know how to initiate social contact and remain in a social setting. How to avoid social play can be as simple as to teach the child an appropriate phrase explaining that he or she now wishes to play alone for a while, followed by physical withdrawal from the other children. This is an important skill to learn and master in order to avoid the child with Asperger syndrome becoming frustrated and behaving in what might seem to others as an aggressive manner, scaring the other children (Attwood, 2000).

4.10.4 “Explain how they should have acted”

Inappropriate social behaviour should always be met with the appropriate and acceptable social behaviour being explained to the child. Children with Asperger syndrome are often rigid in their way of thinking and alternative strategies therefore need to be explained explicitly to them. Due to their difficulties of understanding the feelings their behaviour might evoke in others, it is important to explain the consequences their behaviours have for other people’s feelings (Attwood, 2000).

4.10.5 “Invite a friend home”

Parents can suggest that their child invite a friend home to play in order to practice social skills and develop possible friendships. It is important, however, that the visit becomes a success for both parties, so that the friend might want to come again another time. In order to ensure that the visit is successful, the parents can suggest games and maybe even participate in them, in order to compensate for their child’s poor social skills (Attwood, 2000). If the friend has a good time, it is more likely that he or she wants to redo the visit, compared to if it all ends in tears.

4.10.6 “Enrol the child in clubs”

The child might need to be pushed when it comes to take part in social situations. By enrolling the child into clubs, the child can learn and practice social skills by interacting with others and might even make friends (Steindal, 1994). There might be clubs which entails the child’s special interests. If such clubs exists, they would be ideal to enrol the child into, as the child would be competent in the theme, and would get a chance to meet and interact with other children with the same interests. Often clubs are run or supervised by adults, providing a safe and structured environment for the children (Steindal, 1994).

4.10.7 “Thomas”

The “Thomas” course (The Hampshire Outline for Meeting the needs of under fives on the Autistic Spectrum) is a four-day program, building upon the “triad of impairments” as described by Wing (1992), that seeks to enhance learning of social understanding, communication and play in children with an ASD, as well as the notion that training over time is more beneficial as opposed to one-day training courses (Medhurst & Beresford, 2007). The “Thomas” course is different from other training programs described earlier, in that it is the parents and the teachers of affected children that undergo the training here, due to the view that parent support appears very important, due to the reality that they spend more time with their children than anyone else, and therefore are in a strong position to maintain good progress in their children’s development of social skills (Medhurst & Beresford, 2007). The program is spread out over the period of a month, giving parents and teachers the possibility to go home and try out and practice what they have learned on their children, before the next work shop, where feedback will be given on homework tasks (Medhurst & Beresford, 2007). The effects of this program has been highly positive, with results showing improved social skills a year after training ended, as well as an increase in confidence in the children, due to their improved social abilities. Further, this program has led to greater independence in these children, enabling them to generate their own solutions to problems as their skills and knowledge become more internalized with time (Medhurst & Beresford, 2007).

Further, it can be effective for parents of children with Asperger syndrome to enrol in a short-term parent management training program, training parents in the use of Comic Strip

Conversations and Social Stories, both techniques developed by Carol Gray (1995), in order to decrease problem-behaviours and increase pro-social behaviours in their children, as studies suggests that this intervention method (training parents as co-therapists), is an effective method for decreasing the number of problem behaviours as well as their intensity, increasing social behaviour in these children (Sofronoff et al, 2004).

4.11 How can the teacher and school help promote social learning? Pedagogic reflections.

The school and the classroom provide a good arena for teaching, learning and practicing social skills, when the child's unique needs are taken into consideration, due to the vast amount of different social situations and interactions that takes place every day. Further, peers provide the best partners for practicing newly-learned social skills on (Attwood, 2000). Different methods which the teachers can draw upon, in order to practice and develop the child's social skills, as well as ease the school-day and improve the child's general functioning in school, will be discussed next.

4.11.1 "General pedagogical principles"

It is difficult to estimate, based on the diagnosis only, how extensive the pedagogical accommodations need to be. In order to get a good estimation of the degree of support the child needs, it is important to take the child's unique characteristics into account, when planning and adjusting the IEP as well as the school environment, in order to ensure that the child's specific needs are met (Steindal, 1994). The child's needs often conflict with the so-called "modern way" of teaching and organizing school-activities, which are characterized by flexibility, group-work and to a large extent emphasizes students own responsibility for organizing and learning. Due to the child's difficulties which often conflict with this form of teaching, the child with Asperger syndrome therefore provides a challenge for the school. It is important to acknowledge, however, that it is the school that needs to readjust to meet the child's specific needs, and not the other way around (Steindal, 1994).

Pedagogical principles have therefore been developed in order to meet these children's unique characteristics most efficiently (Martinsen et al, 2006, p.324-329). The pedagogical

principles will not be described in detail, however it can be noticed that they focus on common difficulties in these children, such as their deficiencies with regard to implied meanings, taking context into consideration and understanding social “rules” of behaviour, which are linked to strategies in how to meet and manage these challenges. An example is the children’s difficulties with organization where schemes and checklists, telling them what to do and in what order, can help the children with organization. The most important accommodations which the affected child can benefit from being surrounded by, involves structure, predictability, having an overview of what is going to happen and that information is presented in clear language, free of irony, leaving no room for interpretation. By using simple strategies like this, the teacher can ease the school-day of the affected child and at the same time help prevent that these challenges inhibit the child’s educational growth and overall wellbeing (Martinsen et al, 2006, p.324-329).

4.11.2 “Use other children as models”

When the child’s behaviour becomes too different from their peers, the teacher can ask the child with Asperger syndrome to look at how their peers are behaving and to copy their behaviour. It is crucial, however, that the peers are displaying appropriate and acceptable social behaviour, so the child does not get into trouble for copying unwanted behaviour (Attwood, 2000).

4.11.3 “Promote cooperation”

There are many classroom activities that rely on cooperation, an example being working in groups. The child with Asperger syndrome, however might need to learn how to wait for turn, and that everybody should have equal opportunities regarding participating in the group and making the decisions (Attwood, 2000).

4.11.4 “Be a role model”

It is also important that the teacher is aware that the other pupils watch his or hers behaviour in how to behave towards the child with Asperger syndrome and that teachers therefore have an important job in modelling the appropriate behaviour of how to treat the child with the condition, to the other children in the classroom. It is therefore important that teachers are

aware that they convey acceptable behaviour to the other students and that they therefore are aware of their responsibility and display patience, acceptance and tolerance, as well as good pro-social behaviour at all times, because the pupils will copy their behaviours accordingly (Attwood, 2000).

4.11.5 “Explain alternative ways of receiving help”

In order for the child with Asperger syndrome not to use all the teachers time, but also leaving time to the rest of the students in the class, it is important to teach the child that peers can be good resources of help as well (Attwood, 2000). An idea could be to assign a couple of the patient pupils in the class, who do well themselves, roles as mentors for the child with Asperger syndrome, so the child knows which peers they can ask for help and that these mentors are willing to help in a patient manner, when the child requires their assistance.

4.11.6 “Stimulate possible friendships”

Pupils have different personalities and naturally there are therefore peers that would be better potential friends than others. It is important that the teacher promote positive contact between these tolerant and supportive peers and the child with Asperger syndrome, as they can be important “teachers” in social skills and pro-social behaviour, as well as potential friends. A good idea for doing so would be for a few of the most patient and supportive pupils to be assigned a role to look after the child in the recess and to incorporate them in their play (Attwood, 2000). Also, as mentioned earlier, using recess in order to support and promote social competence and possible friendships with peers, are important means of social accommodations that do not take a lot of effort or time to organization and which may have extensive positive effects on the students’ experiences of the overall school-day as well, as can increase their social skills (Rayner in Stoddart, 2005).

4.11.7 “Use rules in order to promote social behaviour”

Teachers may find that by introducing rules and “working contracts” in agreement with the affected child is an effective strategy in regard to both preventing antisocial behaviour from occurring and to promote social behaviour (Martinsen et al, 2006). Often these rules entail

“punishments”, involving limiting the child’s “rights”, for example by limiting the time the child can use on the special interest etc. When using these rules of behaviour, the special interest becomes a privilege the child can earn, by exhibiting acceptable social behaviour, thereby promoting social behaviour in the affected child (Martinsen et al, 2006). It is important, however, to remember to teach the child the underlying reasons for why this behaviour is socially acceptable and desired, thereby increasing the child’s basic knowledge in regard to social skills.

4.11.8 “Assistant teacher”

Children with Asperger syndrome can benefit from having an assistant teacher, teaching them social skills and pro-social behaviours, either individually or in small groups. It is important that the teachers that work with the child with Asperger syndrome are competent, as well as in how to teach and promote social skills to these children. The teacher’s age do not play an important indication, of whether they are suitable teachers for children with Asperger syndrome or not. It is more important that the teachers that surround the child with Asperger syndrome are motivated to work with children with this syndrome and that they are patient, accepting, have a good sense of humour, as well as a calm temperament. The teacher should provide a predictable, well structured environment, with allowance for being different from the norm (Attwood, 2000).

Further, it is important that the teacher has assistance and guidance from specialists in Asperger syndrome, that the teacher is open to help from others involved in the disorder and is willing to cooperate with different instances, in order to keep the child’s interests in focus. It is also important that there is a continuity in the child’s school- and classrooms surroundings and that the child only has to rely on a few, stable teachers, throughout the schooling. In order to assure the best possible functioning for the child with Asperger syndrome, the people that represent the school must try to be flexible in their way of thinking, as special accommodations might have to be made for this specific student, that otherwise would have been out of the norm. It is important to acknowledge, however, that an “out of the norm” student requires “out of the norm” accommodations and that these arrangements, which would ease the school-day immensely for a child with Asperger syndrome, often come free of expenses, requiring only a bit of thoughts out of the ordinary, as well as the goodwill of those involved (Rayner in Stoddart, 2005).

The size of the classroom plays an important role for whether or not it is suitable for a child with this diagnosis. A big, noisy class environment will not promote the best learning for a child with Asperger syndrome. These children function at their most optimal in a calm, well organized, predictable and safe environment and classroom, with a learning environment that can be characterized as positive and stimulating. It is further important that the rules of the classroom are clear and predictable and that, if broken their associated consequences, are likewise (Rayner in Stoddart, 2005).

4.12 Summary

A variety of techniques, designed specifically for parents, teachers and clinicians to use, have showed promising, positive results, in promoting social skills in children with Asperger syndrome. It is important to note, however, that the most successful interventions have been found when the individual, family, school and clinic are working together in order to promote the same social abilities for the affected child. It is therefore important that these instances have close contact and cooperate in order to ensure the best possible outcome for the child. Goals and ways of achieving them, as well as progress, should be monitored and discussed with everybody involved, including the key player: The child (Muskat, in Stoddart, 2005). As mentioned earlier, it is highly important that goals are kept positive, however realistic in order to maximise and give room for growth and development, but at the same time ensure that the chances for success are more likely than the chances for failure, in order to keep the child motivated. It is vital that the child is surrounded by a positive, tolerant and growth-enhancing environment, so that the child is stimulated and motivated to learn, without fearing humiliation. Only if these values are met, the child will have the best possibilities of learning and practising social skills, which as discussed, can have so profound outcomes for the child's overall functioning and happiness.

5. Summary of discussion

The present study showed that social impairments are key factors in diagnosing children with Asperger syndrome and that these impairments in successful social interaction are so extensive that they have an impact on most aspects of the child's life and general functioning.

Further, a variety of promising techniques concerning how to promote and teach social skills and behaviour in these children were discussed and found effective.

5.1 “What social difficulties do children with Asperger syndrome encounter?”

Children with Asperger syndrome have extensive social deficiencies. Among the most fundamental deficiencies are difficulties interacting with peers, indifference to peer contact, deficiencies regarding interpreting social cues and socially and emotionally inappropriate behaviours (Gillberg & Gillberg, 1988). These social deficiencies often arise from fundamental difficulties concerning ToM, also referred to as extreme egocentricity, which result in difficulties in understanding other individuals' perspectives. Further, the characteristics which often accompany Asperger syndrome, involving narrow interest patterns, ritualistic routines, language peculiarities, non-verbal communication problems and motor clumsiness, add to these individuals' social difficulties, as they often lead to social rejection, resulting in social isolation and thereby further limiting their chances of developing social skills (Attwood, 2000).

These extensive social deficiencies, combined with the generalized lack of interest in peers and social interactions, help explain why children with Asperger syndrome have so severe social difficulties. As a result of their withdrawal from- and inexperience with social situations, they have not learned the appropriate tools for social interaction and therefore do not know how to act socially appropriate and successful (Ogden, 2003). Due to the possibility of discriminating between factors that directly- and more indirectly influence and have a negative impact on these children's social difficulties and functioning, it can be argued that the social difficulties stem from deficiencies linked directly to the disorder, as

well as difficulties which arise as a secondary consequence of having the disorder. The social deficiencies can therefore be explained as a consequence of biology and environmental factors as well as the complex interaction between the two.

When affected children later in the development become preoccupied with being normal and develop a need for reciprocal friendships, based on mutual understanding and respect, it becomes difficult for them to obtain these relationships due to their lack of social skills (Attwood, 2000). In turn, they may develop a poor self-esteem, a strong self-awareness of loneliness, anxiety in social situations due to previous rejection and depression (Konstantareas, in Stoddart, 2005). In order to break this negative, downward spiral of social abilities, leading to loneliness and possibly an affective comorbid disorder, and increase their social functioning and overall wellbeing, it is important to identify these children early and teach them the appropriate social skills for developing friendships when the desire for that develops.

5.2 “How to prevent social deficiencies and enhance social abilities in children with Asperger syndrome?”

A variety of techniques, designed specifically for parents, teachers and clinicians to use, have showed promising, positive results, in promoting social skills in children with Asperger syndrome. Due to the notification stated above that these children’s social difficulties arise from factors that either directly or indirectly influence social skills, it is important that strategies for promoting social abilities, learning and growth in these individuals take all these factors into account when attempting to teach social skills to these children.

Among the most popular and influential social skills programs are Gray’s (1995) Social Stories and Comic strip conversations which have shown immediate positive results in regard to these children’s social functioning and understanding, as these strategies provide guidance and ways of responding to a variety of social situations. However, due to individual differences in Asperger syndrome, Social Stories might not be an effective method in teaching social skills to all children with this condition. More research regarding the overall effectiveness of these strategies is therefore needed as it has been relatively scarce until now.

Further, “circle of friends” have been found effective in order to promote social skills and learning in affected children, as “friends” provide opportunities for social interaction which is highly important in order to learn and practice social skills in “real life” rather than just theoretically (Myles & Southwick, 1999). It is important, however, that the “friends” tolerate and accept the child in order for the social interaction to be positive, promoting pro-social behaviours in the children.

Using the child’s special interest areas (SIA’s) have also shown to be an efficient strategy for enhancing pro-social behaviour in children with this developmental disorder, as the SIA’s provoke substantial motivation in the child with regard to effectiveness and increased on-task behaviours, resulting in better learning (Winter-Messiers, 2007). The challenge is, however, to find natural ways of incorporating the child’s special interest areas into the curriculum. The strength of this strategy is the multi-functionality with regard to teaching a variety of skills, ranging from academic knowledge to social abilities.

As discussed, studies have shown that parents can promote social abilities and behaviour in their children with Asperger syndrome by teaching them a variety of basic social skills (Attwood, 2000). Further, the school and classroom have been found to provide an excellent arena for teaching, training and promoting social abilities, as social skills are best learned through social interaction (Ogden, 2003). A vast amount of pedagogical principles have therefore been developed in order to meet these children’s unique needs and characteristics most efficiently, which can readily be put into practice by the child’s teachers, as they provide simple, however, excellent strategies for meeting the child’s specific social challenges (Martinsen et al, 2006).

It is important that clinicians, teachers and parents have the latest knowledge regarding various effective strategies in order to promote social skills in children with Asperger syndrome. Based on the knowledge regarding the individual child’s specific strengths, weaknesses and SIA’s, informed choices can be made regarding choice of strategies in order to promote social skills most efficiently in the specific child. Further, it is important to notify, that the most successful interventions have been found when the individual, family, school and clinic are working together in order to promote the same social abilities in the child (Muskat, in Stoddart, 2005). It is therefore important that these instances have intimate contact and cooperate in order to ensure the best possible outcome for the child. Goals, ways

of achieving them, as well as progress, should therefore be monitored and discussed with everybody involved including the child (Muskat, in Stoddart, 2005).

As mentioned, it is highly important that goals are kept positive, however realistic in order to maximise and give room for growth and development. At the same time, the chances for success must be more likely than the chance for failure, in order to keep the child motivated and increase self-esteem (Attwood, 2000). These aspects must therefore be taken into consideration when an IEP is being developed in order to ensure that the child's needs are being met regarding all levels of development, taken strengths, weaknesses and motivational factors into account in order to assure the best chances of progress. Further, it is vital that the child is surrounded by a positive, tolerant and growth-enhancing environment, so the child is stimulated and motivated to learn, without fearing humiliation (Attwood, 2000). Only if these values are met, the child will have the best possibilities of learning and practising social skills, which as discussed, can have so profound outcomes for overall functioning and happiness. Even though the child might never learn social skills and reach a level of social competence which is comparable to peers, the reality that even small social improvements can have profound outcomes for general functioning, highlights the importance of knowing the child's social difficulties as well as the social training programs that can enhance social skills in these areas of functioning.

Due to the reality that the research field of Asperger syndrome is relatively new, further studies are warranted in order to cast more light on social difficulties in children with this developmental disorder, as well as on methods for how to efficiently prevent social deficiencies and enhance social abilities. Even though the syndrome has received increasing attention during the last decade, more studies, especially long-term studies regarding various techniques for promoting social skills, as well as their associated long-term outcomes, are needed. By increasing the knowledge regarding how to prevent social deficiencies and further how to enhance social abilities in children with Asperger syndrome, through the work of science and research, these children can look forward to a socially easier, brighter and more joyous future.

5.3 Conclusions and further perspectives

- Theories and studies regarding Asperger syndrome have flourished in recent years. Debates concerning most aspects of the condition have therefore coloured this field of research.
- The different diagnostic manuals agree that marked impairments in social abilities are characteristic of children with Asperger syndrome and influence their overall functioning.
- Among the core social deficiencies are difficulties interacting with peers, indifference to peer contact, difficulties interpreting social cues, socially and emotionally inappropriate behaviour and deficiencies regarding ToM.
- Other characteristic difficulties that might influence and limit these children's social function are narrow interest patterns, compulsive need for routines, speech and language peculiarities, non-verbal communication difficulties and motor clumsiness.
- A vast amount of promising and effective techniques and strategies, which parents, teachers and clinicians can use, in order to promote and increase social skills in children with Asperger syndrome have been developed during the last decade.
- Due to the field of Asperger syndrome being a rather new area of interest, more studies are therefore needed in order to uncover more aspects concerning the social deficits associated with this developmental disorder, and how to best prevent social difficulties and enhance social abilities in these children.

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