Saskatchewan
Education

Special Education
Unit

Teaching Students with Autism

A Guide for Educators

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INTRODUCTION

The information in this manual is intended to serve as an introduction for educators who are working with students with autism, Asperger syndrome and other pervasive developmental disorders.

The primary focus is to provide a definition of autism, to describe the characteristics and implications for instruction, to outline suggested strategies for instruction and classroom management, and to direct you to additional resources. A summary of educational strategies for teaching students with Asperger syndrome is also provided.

The information is written for educators, but may be of interest to parents and others who live or work with individuals with autism, Asperger syndrome and other pervasive developmental disorders.

$\mathcal{A}$UTISM - DEFINITION

Autism is a pervasive developmental disorder which is characterized by impairments in communication and social interaction, and restricted, repetitive and stereotypic patterns of behaviour, interests, and activities (American Psychiatric Association (APA), 1994). It is a complex neurological disorder that affects the functioning of the brain.

Autism is a complex neurological disorder.

Autism is referred to as a spectrum disorder, which means that the symptoms can be present in a variety of combinations, and can range from mild to severe. Multiple abilities can be affected, while others are not (Bristol et al., 1996; Minshew, Sheeney, and Bauman, 1997). For example:

- Some individuals may have a severe intellectual disability, while others have normal levels of intelligence.

- There may be a range of difficulties in expressive and receptive language and communication. It is estimated that up to 50% of individuals with autism do not develop functional speech. For those who do, speech may have unusual qualities and be limited in terms of communicative functions.

- There are problems with attention and resistance to change.

- All individuals with autism have difficulties with social interaction, but the extent and type of difficulty may vary. Some may be very withdrawn, while others may be overly active and approach others in peculiar ways.

- Individuals with autism may respond differently to sensory stimuli and may exhibit odd behaviours such as hand flapping, spinning, or rocking. They may also demonstrate unusual use of objects and attachments to objects.

Although individuals with autism share some common features, no two individuals are the same. In addition, the pattern and extent of difficulties may change with development. The common characteristics help us to understand general needs associated with autism, but there is a need to combine this information with knowledge of the specific interests, abilities, and personality of each student.

Prevalence

Prevalence has been commonly cited as 4-5 in every 10,000 births. However, recent estimates of the prevalence of autism indicate a frequency of 10 in 10,000 (Bristol et al, 1996; Bryson, Clark & Smith, 1988), and a higher incidence when the broader spectrum of pervasive developmental disorders is included.

There is a higher incidence among males. The ratio varies depending on the definition, but studies reveal a ratio of 3:1 to 4:1 males to females (Bryson, 1997).

Etiology

Considerable research has been, and is being, conducted around the question of what causes autism. There is now a consensus among scientists that autism/PDD is a genetic disorder (Bristol et al, 1996). The mode of genetic transmission appears complex. For at least a significant subgroup of persons with autism, there appears to be a genetic susceptibility that most likely involves more than one gene and may differ across families (i.e., different genes may be responsible in different families) (Szatmari, Jones, Zwaigenbaum and MacLean, 1998). There is also evidence to suggest that there may be a higher prevalence of a variety of problems in pregnancy, at birth, or even after birth in children with autism than is the case for comparable, non-autistic children. In other words, maternal effects and/or environmental factors might be important in interaction with genetic susceptibility in the child with autism.

Recently, various types of investigations, including imaging studies, electroencephalographic studies, tissue studies on autopsy material, and neurochemical studies have provided evidence of a biological basis for autism. The brain regions implicated most often include the amygdala, hippocampus,

septum, mamillary bodies, and the cerebellum (Bristol et al, 1996). Autistic brains are also slightly larger and heavier than normal and differences have been observed in the size and number of certain cells within the central nervous system. In other words, not only are there structural and functional abnormalities in several brain regions in persons with autism, but the neural connections between these and other regions of the brain may also be affected.

$\mathcal{D}$*IAGNOSIS*

The diagnosis of autism is made by a physician or clinical psychologist with expertise in the area of autism. Assessment and diagnosis typically involve a multidisciplinary team comprised of a pediatrician or psychiatrist, a psychologist, and a speech and language pathologist (SLP). The psychologist administers assessments to gather information on developmental level and behaviour, and the SLP assesses speech, language, and communicative behaviours. The medical assessment is conducted to rule out other possible causes for the symptoms, as many of the characteristics associated with autism are also present in other disorders. In addition, a medical and developmental history is taken through discussion with the parents. This information is combined with the assessments to provide the overall picture, and to rule out other contributing factors.

Parents who are seeking additional information regarding diagnosis should contact health professionals in their community.

Autism is diagnosed by the presence or absence of certain behaviours, characteristic symptoms, and developmental delays. The criteria for autism and other Pervasive Developmental Disorders are outlined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (American Psychiatric Association, 1994) and the *International Classification of Diseases* (ICD-10) (World Health Organization, 1993).

The DSM-IV, which is most commonly used in North America, classifies autism within the category of Pervasive Developmental Disorders (PDD). PDD is an umbrella term for disorders which involve impairments in reciprocal social interaction skills, communication skills, and the presence of stereotyped behaviours, interests, and activities. The onset of the symptoms occurs before the age of three years. The conditions classified as PDD are:

- Autism
- Childhood Disintegrative Disorder (CDD)

- Rett's Disorder
- Asperger's Disorder
- Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS)

The DSM-IV uses the terms *Autistic Disorder* and *Asperger's Disorder*. In this document, we use the terms autism and Asperger syndrome, which are consistent with current literature.

Autism has, historically, been the most well-defined diagnosis within the category of PDD. At times, some of these diagnostic terms appear to be used interchangeably within the literature and by practitioners. The term *Autism Spectrum Disorders* is sometimes used to refer to autism and other conditions which are included within the PDD classification. PDD is sometimes used to refer to all conditions within the category of PDD, and at other times it has been used to refer to PDD-NOS.

It is important to note that all of the disorders within the PDD classification have some common features and may benefit from the same instructional strategies, but there are differences in some areas such as the number of symptoms, age of onset, and developmental pattern. The diagnostic criteria for each of the disorders is outlined in Appendix A.

Characteristics Associated with Autism

Characteristics which are included in the criteria for the diagnosis of autism fall into the three major categories of communication, social interaction, and unusual behaviours and interests. Other associated features include attentional difficulties, cognitive deficits, unusual responses to sensory stimuli, and anxiety.

Impairments in Communication

Difficulties in language and communication are characteristics common to all individuals with autism. The extent of difficulties range from being nonverbal to those who have extensive vocabularies but may have deficits in the social use of language. Although the development of speech may vary, all individuals display some degree of difficulty in communication, particularly in the area of pragmatics (the social use of language).

The following is a summary of language deficits that may be present (DSM-IV, 1994; Indiana Resource Centre 1997; Koegel, Koegel, Frea & Smith, 1995; Lindblad, 1996):

> Effective programs for students with autism and other pervasive developmental disorders include a comprehensive communication assessment and strategies to develop expression, receptive skills, and pragmatics.

- Impairments in nonverbal communication include differences in facial expression, use of gestures, imitation, eye contact, body postures and mutual or shared focus of attention.

- There may be a delay in or lack of expressive language skills.

- Those who do develop speech may demonstrate differences in pitch, intonation, rate, rhythm, or stress, e.g., some individuals with autism may demonstrate speech that is monotone or has a lilting quality and distinct repetitive rhythm.

- Speech may also include repetitive and idiosyncratic language.

- Echolalia is common. This is the immediate or delayed literal repetition of the speech of others. Echolalic speech may appear to be non-meaningful, but it does indicate the ability to produce speech and to imitate. It may also serve

a purpose such as turn taking, making a statement, making an affirmative answer, making a request, rehearsal to help with processing what is heard, or to aid in the process of self-regulation (Prizant & Duchan, 1981).

- Individuals who develop speech may have a restricted vocabulary that is dominated by nouns, and communication may be characterized by restricted communicative functions. The majority of speech is often to make requests or rejections to regulate one's physical environment, and is limited in social functions.

- There may be a tendency to perseverate on a topic. That is, to continually discuss one topic and have difficulty changing topics.

- Difficulty with pragmatics is evidenced by problems initiating conversation, using rules, maintaining a topic, interrupting, and rigidity. The individual with autism may demonstrate a stereotypic routine way of interacting.

- Limited social communication should not be interpreted as a lack of interest or unwillingness. It is more likely due to deficits in the ability to extract social information from a social context (Quill, 1995a).

- Often, there are problems with comprehension of verbal information, following long verbal instructions, and remembering a sequence of instructions. In addition, the comprehension of language may be context-specific. The extent of difficulty will vary among individuals, but even those who are high functioning may have difficulty with comprehension of verbal information.

Implications for Instruction

Effective programs for students with autism and other pervasive developmental disorders include a comprehensive communication assessment. This typically involves assessment by a speech and language pathologist as well as informal observation and classroom-based evaluation. The assessment serves as the basis for the identification of goals, objectives and strategies for facilitating development of expressive skills, receptive language, and pragmatic skills. Consideration is given to specific instructional strategies as well as general classroom guidelines, and activities to promote social communication development.

Additional information is in *Strategies for Communication Development* (p. 26).

Impairments in Social Interaction

- Individuals with autism demonstrate qualitative differences in social interactions, and often have difficulty establishing relationships.

- The limited social interaction demonstrated by individuals with autism does not necessarily reflect a lack of desire to be with and interact with other people, but may be a result of the impairment in reciprocal social interaction.

"One must separate the variables of social interaction problems from emotions. People with autism desire emotional contact with other people but they are stymied by complex social interaction" (Temple Grandin, 1995, p. 44).

- There is an impairment in the ability to read and understand social situations, and to respond appropriately (Gray & Garand, 1993). For example:

- Individuals with autism have difficulty attending to relevant social cues, and shifting attention as necessary, and may miss a lot of social information.

- Understanding social situations typically requires language processing and nonverbal communication, which are often areas of difficulty.

- There is typically an impairment in the appropriate use of nonverbal behaviours and difficulty reading the nonverbal behaviour of others.

- Individuals with autism are impaired in those interactions that require knowledge of other people (Sigman, Dissanayake, Arbell & Ruskin, 1997). It has been theorized that individuals with autism have a social cognitive deficit in what is described as "theory of mind" (Baron-Cohen, 1995). This refers to "one's ability to realize that other people have their own unique point of view about the world" (Edelson, 1998, p. 4). It is difficult for those with autism to understand the perspective of others, or that others even have a perspective that could be different from their own. They may have difficulty understanding their own and other people's mental states, including beliefs, desires, intentions, knowledge and perceptions, and problems understanding the connection between mental states and action.

- There is a tendency to play with toys and objects in unusual and stereotypic ways.

- Some may engage in excessive or inappropriate laughing or giggling.

- Play is often lacking in the imaginative qualities of social play.

- The quality and quantity of social interaction is on a continuum which ranges from being aloof to active. Some individuals with autism may play near others, but do not share and take turns, while others may withdraw from social situations.

Wing and Gould (1979) classified social interaction into three subtypes. It should be noted that individuals with autism do not necessarily fall into one distinct category, but the description of the subgroups does help to understand the range of impairment.

- Aloof Group – those who show no observable interest or concern in interacting with other people except for those necessary to satisfy basic personal needs. They may become agitated when in close proximity to others and may reject unsolicited physical or social contact.
- Passive Group – those who do not initiate social approaches, but will accept initiations from others.
- Active But Odd Group – those who will approach for social interaction but do so in an unusual and often inappropriate fashion.

Implications for Instruction

Social skill development is an essential curricular area for students with autism, and it is an important component in developing plans to manage challenging behaviours. Students with autism do not learn social skills incidentally by observation and participation. It is generally necessary to target specific skills for explicit instruction, and to provide supports to use the skills within social situations.

Additional information is provided in the section *Guidelines and Strategies for Social Skills Training* (p. 31).

Unusual Behaviours and Interests

Individuals with autism often present with unusual and distinctive behaviours, including:

- a restricted range of interests with a preoccupation with one specific interest or object

- an inflexible adherence to a nonfunctional routine

- stereotypic and repetitive motor mannerisms, such as hand flapping, finger flicking, rocking, spinning, walking on tiptoes, spinning objects

- a preoccupation with parts of objects

- a fascination with movement such as the spinning of a fan, wheels on toys

- an insistence on sameness and resistance to change

- unusual responses to sensory stimuli.

Implications for Instruction

Many of the odd and stereotyped behaviours associated with autism may be due to other factors such as a hypersensitivity or hyposensitivity to sensory stimulation, difficulties in understanding social situations, difficulties with changes in routine, and anxiety. The student's Personal Program Plan should incorporate strategies for expanding the student's interests, developing skills, understanding the student's responses to sensory stimuli, and preparing the student for planned changes.

It may not be possible to eliminate all repetitive behaviours. The response to a specific behaviour is based on a functional analysis. Strategies often focus on making environmental adaptations to decrease behaviours and/or replace a specific behaviour with a more appropriate alternative.

Additional information is provided in the section *Managing Challenging Behaviours: Positive Program Strategies* (p. 41).

Attentional Difficulties

Individuals with autism may present with a range of difficulties with attention. Specific deficits in attention have major implications for development in other areas such as communication and social development.

- Individuals with autism often have difficulty attending to relevant cues and/or information in their environment, and may attend to an overly restricted portion. This is referred to as stimulus overselectivity (Rosenblatt, Bloom & Koegel, 1995).

- There may also be difficulties disengaging and shifting attention from one stimuli to the next, which may contribute to some of the observed rigidity and resistance to change.

- Another feature of autism is an impairment in the capacity to share attention, which is referred to as joint attention.

- The individual may also demonstrate a short attention span.

Implications for Instruction

These difficulties with attending can affect development in all areas and may significantly impair development of social behaviour and language. For example, the child may be responding to the irrelevant social cues, may attend to limited portions of conversation, may not be attending to multiple cues in speech and language, and may have problems generalizing because the particular stimuli or cue is not present in other environments.

It is important that instruction incorporate techniques for increasing attention, and that information and instruction is provided in a format which is clear and emphasizes relevant information.

Cognitive Deficits and Cognitive Learning Styles

An effective program is one that reflects the unique combination of strengths and needs of the individual student.

Individuals with autism present with a psychoeducational profile that is different from normally developing individuals. Studies reveal deficits in multiple cognitive functions, yet not all are affected. In addition, within one domain, there may be deficits in complex abilities, yet the simpler abilities may be intact. The following cognitive features associated with autism are summarized from the current research (Bristol, et al., 1996; Minshew, 1998; Minshew, Goldstein, Quill, 1995b; Taylor & Seigel, 1994):

- deficits in attending to relevant cues and information, and in attending to multiple cues

- receptive and expressive language impairments, particularly in abstract and pragmatic language

- deficits in concept formation and abstract reasoning

- impairment in social cognition, including deficits in the capacity to share attention and emotion with others, and to understand the feelings of others

- impairments in the ability to plan, organize, and problem solve

- a relative strength in rote memory, and in the ability to recall simple information, but difficulties with encoding more complex information

- relative strengths in processes involved in visuospatial organization

"When I was a child and a teenager, I thought everybody thought in pictures. I had no idea that my thought processes were different" (Grandin, 1995).

Some individuals with autism may excel at tasks such as putting puzzles together, and perform well at spatial, perceptual and matching tasks.

The strength in visuospatial skills has been described in personal accounts of individuals with autism (Grandin, 1986, 1995; Williams, 1996). Temple Grandin is internationally known for her expertise in designing livestock facilities, as well as for her presentations and publications of her personal experiences with autism. She attributes her success in designing livestock facilities to her ability to visualize the required detail of such apparatus and buildings.

Grandin suggests that some people with autism can more easily learn and remember information that is presented in a visual format, and that they may have problems learning about things that cannot be thought about in pictures. She explains that she has a visual image for everything she hears and reads, and that she "thinks in pictures".

Implications for Instruction

These areas of strengths and cognitive deficits are manifested in patterns of strengths and weaknesses in social and academic performance. This will vary with the functional level of the student. It is important to understand that the profile of cognitive skills is often uneven, regardless of the level of intelligence (DSM-IV, 1994), and that an effective program is one that is based on the unique combination of strengths and needs for the individual student.

- The student may have difficulty with comprehension of oral and written information, such as following directions or difficulty with reading comprehension. Yet some higher-functioning individuals may be relatively capable in their ability to identify words, apply phonetic skills, and in their knowledge of word meanings.
- Some students may demonstrate a strength in certain aspects of speech and language, such as sound production (phonology), vocabulary, and learning simple grammatical structures (syntax), yet have significant difficulty carrying on a conversation and using speech for social and interactive purposes (pragmatics).
- A student who is high-functioning may perform numerical computations relatively easily, but be unable to solve mathematical problems.

The professional literature has documented the attentional and language impairments associated with autism, as well as deficits in concept formation and memory of complex information. When these characteristics are considered in combination with personal accounts of how individuals with autism are more visual, it indicates the need to incorporate visual material when teaching individuals with autism.

Suggestions for instructional strategies are provided in the section *Educating the Student with Autism* (p. 18).

Unusual Responses to Sensory Stimuli

Personal accounts of autism (Grandin, 1995; Williams, 1996) have also emphasized the differences in the experience of sensory stimulation. Grandin suggests that the characteristics associated with autism may, in part, be due to a disorder in sensory processing.

Awareness of different sensory experiences is central to understanding behaviours and planning programs for children with autism.

> *"It appears that at one end of the spectrum, autism is primarily a cognitive disorder, and at the other end, it is primarily a sensory processing disorder. At a midpoint along the spectrum, autistic symptoms appear to be caused by equal amounts of cognitive and sensory problems"* (p. 58).

The extent to which sensory problems may contribute to other characteristics associated with autism is not certain. However, there is sufficient information to suggest that consideration be given to the type and amount of sensory stimulation in the environment, and the individual's reaction to it. Responses to sensory stimulation may vary from hyposensitive to hypersensitive, and, in some situations, environmental stimuli may be disturbing or even painful to someone with autism. This may apply to any or all types of sensory input.

- Tactile - adverse reactions to tactile stimulation are frequently experienced.

> *"From as far back as I can remember, I always hated to be hugged. I wanted to experience the good feeling of being hugged, but it was just too overwhelming. It was like a great, all-engulfing tidal wave of stimulation, and I reacted like a wild animal"* (Grandin, 1995, p. 63). *Shampooing actually hurt my scalp. It was as if the fingers rubbing my head had sewing thimbles on them. Scratchy petticoats were like sandpaper scraping away at raw nerve endings"* (p. 66).

Even though some sources of stimulation may be adversive, different types and/or amounts of stimulation may have a calming effect. Grandin also described her craving for pressure even though she couldn't tolerate being touched unexpectedly. She developed a squeeze machine for herself that enabled her to control the amount of pressure and seemed to have a calming effect.

- Sound - Grandin also described her hypersensitivity to sound.

    "When I was little, loud noises were also a problem, often feeling like a dentist's drill hitting a nerve. They actually caused pain. I was scared to death of balloons popping, because the sound was like an explosion in my ear. Minor noises that most people can tune out drove me to distraction" (1995, p. 67).

These different responses to sensory stimuli may also be apparent in visual information and smell. Some children may react to odours such as perfumes and deodorants. Another child may use smell to seek out information about the surroundings. Some may cover their eyes in certain lighting, or in response to shiny objects, while others may seek out shiny things, and look at them for an extended period of time.

Implications for Instruction

The awareness of different experiences of sensory stimulation may be central to understanding behaviours and in planning programs for children with autism.

These unpleasant or painful experiences may contribute to some of the behaviours that are displayed by individuals with autism (Gillingham, 1995). For example, people with severe sensory processing problems may go into total shutdown when they become overstimulated (Grandin, 1995). Tantrums may be related the desire to escape situations which are over-stimulating. Self-stimulating behaviours can occur when stimuli become overwhelming, and are often used to help the individual calm down by generating a self-controlled, repetitive stimulus (Indiana Resource Center for Autism (IRCA), 1997).

Sensory Integration Therapy has been used with some individuals with autism. Sensory integration theory was developed by Jean Ayres (1979), and is a theory of brain-behaviour relationships. It is important to note that sensory integration is a process and theory. Proponents of sensory integration theory and treatment acknowledge that there is a need for further research. However, many parents and teachers report significant benefits.

There are occupational therapists trained in Sensory Integration Therapy, and the decision to pursue this type of treatment is determined by the parents. Guidelines and suggestions for parents and teachers can be found in the book Building Bridges through Sensory Integration (1998) by E. Yack, S. Sutton and P. Aquilla. Additional information is available in Ayres (1979) and Fisher, Murray, & Bundy (1991).

Anxiety

Although anxiety is not identified in the DSM-IV criteria, many individuals with autism, as well as their parents and teachers, identify anxiety as a characteristic associated with autism and Asperger syndrome. This may be related to a variety of other features:

- not being able to express oneself

- difficulties with processing sensory information

- possibly fearing some sources of sensory stimulation

- the need for predictability, and having difficulty with change may result in an anxious response to new situations and last minute changes

- difficulty understanding social expectations.

Implications for Instruction

Programs for children with autism often need to address the issue of anxiety, when it occurs, and what seems to contribute to it. Changes and adaptations can be made within the environment to reduce anxiety-arousing situations, and a variety of strategies can be used to help the individual to manage their anxiety and cope with difficult situations. Such changes and adaptations are identified in the remainder of this document.

$\mathcal{E}$*DUCATING THE STUDENT WITH AUTISM*

Developing the Personal Program Plan

Children with autism present with differences in learning style, impairments in communication and social skill development, and the presence of challenging behaviours. However, there is considerable individual variability in how these characteristics are manifested. There is no specific curriculum to teach students with autism. Effective programs are individualized and based on the unique needs and abilities of each student. The student's personal program plan will include a combination of objectives from the regular curriculum as well as objectives that are unique to the individual.

Saskatchewan Education suggests that a Personal Program Plan (PPP) be developed through collaboration by a team of people directly involved with the student. The team includes the parents, classroom teacher, special educator, teacher assistant, speech language pathologist, consultant, educational psychologist and the student, where appropriate.

The written program plan is intended to guide the day-to-day work of the educators and to provide information on the types of adaptations and strategies used to accommodate the student. The program components are:

- personal and educational data, including assessment information
- identification of the student's strengths and needs
- long-term goals and short-term objectives.
  This typically includes goals and objectives related to the regular curricular areas and within the main developmental domains. For the student with autism/PDD, the key curricular areas are:
  - **communication development** including the development of expressive skills through speech and/or augmentative systems, development of receptive language, and pragmatic skills

> There is no specific curriculum to teach students with autism. Effective programs are developed to meet the unique needs and abilities of individual students.

- **academic instruction** appropriate to the developmental level of the student
- increasing **understanding of the environment**
- developing **social skills** and behaviours appropriate to a variety of contexts and situations
- increasing and developing **self control and self-management**.

- resources and strategies that will be used in working toward the goals and objectives

- assignment of responsibility for carrying out specific aspects of the plan

- a process for review and evaluation of the plan.

The PPP is not intended to provide the daily plan of instruction for the student. Rather, it provides an outline of the curricular goals for that individual student, the adaptations, and effective strategies. It is reasonable to expect that the program may need to be modified throughout the year, as the student and teachers become more familiar, and as changes take place.

When developing a student's PPP, it is important to make adaptations in instruction and classroom management to address the needs of the child. Communication and social skills are key areas of the child's development and must be addressed in the plan. The following information is provided to assist the team in developing a PPP for a student with autism.

Instructional Approaches and Classroom Management

1. **Use visual methods of teaching** (adapted from Quill, 1995a & Hogdon, 1995a)

   - Children with autism often demonstrate relative strengths in concrete thinking, rote memory, and understanding of visuospatial relationships, and difficulties in abstract thinking, social cognition, communication, and attention (Quill, 1995a). The use of pictographic and written cues can often aid in

helping the student to learn, communicate, and develop self-control.

- One of the advantages of using visual aids is that they can be examined for as long as needed to process the information. In contrast, oral information is transient. Once it is said, the message is no longer available. This may pose problems for students who have difficulties processing language, and who require additional time (Hogdon, 1995a). In addition, it may be difficult for the student with autism to attend to the relevant information and to block out the background noises. The use of visual supports enables the individual to focus on the message.

- The type of visual aids and symbols vary in complexity. Objects are the most concrete form. Pictures and photographs are the next level of representation. Graphic symbols are somewhat more complex and consist of pictographs and written language. However, graphic symbols have been widely used, and have been successful with children with autism. There are software packages available that provide quick access and the opportunity to create customized symbols (see Appendix B).

- Visual supports can be used in a variety of ways in the classroom. Hogdon (1995) and Quill (1995a, 1995b) provide examples of different types of supports:
  - visual aids for organization, such as daily schedules, mini-schedules, activity checklists, calendars, choice boards
  - aids for giving directions, such as classroom rules, file cards with directions for specific tasks and activities, pictographs and written instructions for learning new information
  - strategies for organizing the environment, such as labelling objects and containers, signs, lists, charts, and messages
  - aids for social development such as posting rules and routines, and teaching social skills through the use of Social Stories (Gray, 1993a, 1993c)
  - a Social Story is a description of a social situation which includes the social cues and appropriate responses, and is written for a specific situation for

the individual student. For further information, refer to the section *Guidelines and Strategies for Social Skills Training*

- aids to assist in managing challenging behaviours and developing self-control.
  This may include rules, as well as pictographs, which provide a cue for expected behaviour.

- The key question to ask when planning an activity or giving an instruction is "How can this information be presented in a simple visual format?" The selection of visual aids is guided by an understanding of the child and his/her abilities and responses. Many examples of visual supports are provided in the book *Visual Strategies for Improving Communication* (Hogdon, 1995). This book is available for purchase from the Saskatchewan Education Learning Resource Distribution Centre and may be borrowed from the Saskatchewan Education Resource Centre.

2. **Provide a structured, predictable classroom environment**. This is not to be confused with an authoritarian approach. The environment should be structured in the sense that it provides consistency and clarity, students know where things belong, they know what is expected of them in a specific situation, and can anticipate what comes next.

3. **Provide a customized visual daily schedule**. Vary tasks to prevent boredom, and alternate activities to reduce anxiety and possibly prevent some inappropriate behaviours. For example, alternate familiar, successful experiences with less preferred activities. It may be helpful to alternate large group activities with opportunities for calming activities in a quiet environment. In addition, the incorporation of physical activity and exercise at points throughout the day is helpful.

4. **Know the individual**, and maintain a list of strengths and interests.

5. **Provide positive praise** while learning, and provide information about what the student does right or well.

6. **Use meaningful reinforcements**. The student with autism may not be motivated by common reinforcers. He/she might prefer some time spent alone, time to talk to a favourite staff member, a trip to the cafeteria, an exercise routine such as going for a walk, time to play with a favourite object, music, playing in water, getting to perform a favourite routine, items that provide specific sensory stimulation, or sitting at the window. It is important to know what is reinforcing for each child.

7. **Consider sensory factors** in instruction and environment. Some of the factors to note are:

    - Visual – Are there distracters such as light, movement, reflection, or background patterns? Consider the eye level of the student, and the position of the teacher in relation to the student, and distracters that may interfere with attention. Also consider the time required to shift attention.

    - Auditory - Are there fans, loud speakers, fire alarms, several people talking at once, air conditioners, bells, dogs barking, or scraping? What is the general sound level, and the predictability and repetitiveness of sounds? Consider the individual's comprehension of verbal information and the time typically required to process auditory information and to shift attention.

    - Tactile – Are there textures which seem to be aversive? Are temperatures appropriate? Does the student demonstrate a need to explore through touch and yet avoid being touched? What is the level of ability/defensiveness in the use of objects?

    - Vestibular – Consider the student's need to move and exercise. What are the individual's reactions to movement?

    - Taste – Consider the preferences, dislikes, textures and temperatures of foods.

8. **Note tasks and activities which create frustration** and examine the environment for items, sounds and activities that may result in sensory overload for the individual. Make available those sensory experiences that may be calming for the student, and adapt tasks

and materials to promote successful participation. When feasible, decrease environmental distracters that interfere with learning or confuse, disorient or upset the student.

9. **Have a relaxation area**. At times, it may be necessary to have a calm, quiet, designated area where the student can go to relax.

10. **Plan and present tasks at an appropriate level of difficulty**.

11. **Use age-appropriate materials**.

12. **Provide opportunities for choice**.

13. **Avoid long strings of verbal information**. Break down instructions and use visual aids.

14. **Pay attention to processing and pacing issues** which may be linked to cognitive and/or motor difficulties, and give the student ample time to respond.

15. **Use concrete examples and hand-on activities** when teaching abstract ideas and conceptual thinking.

16. **Introduce unfamiliar tasks in a familiar environment** when possible. When this is not possible, prepare the individual for the new environment through the use of visual aids such as pictures, videotapes, and/or social stories.

17. **Use organizational aids and visual supports** to assist the student to attend to pertinent information, and to teach new tasks.

18. **Provide opportunities for meaningful contact with peers** who have appropriate social behaviour.
    * Involve the student in shared learning arrangements.
    * Pair with buddies for walking down the hall, on the playground, and during other unstructured times.
    * Vary peer buddies across time and activities, to prevent dependence on one child.

- Peers may also be involved in providing individualized instruction.
- Cross-age peer supports/buddies can be arranged by assigning an older student to assist the student with autism.
- Pair students while attending special school events such as assemblies and clubs.
- Facilitate involvement in after-school or extracurricular activities.
- Assist the student with autism to support his/her classmates or younger children in other classrooms. If your school has an arrangement where a class of older students is paired with a younger class, ensure that the student with autism is also paired, and provide the necessary supports for success.
- It will be necessary to teach appropriate social behaviour, and to provide the student with situation-specific expectations for behaviour.
  Information on the development of social skills is provided in the section *Guidelines and Strategies for Developing Social Skills* (p. 31).

19. **Encourage independent effort** and incorporate proactive measures to reduce the likelihood of becoming dependent on prompts.
    - Use visual aids to decrease the reliance on prompts from the teacher/teacher assistant.
    - Be careful that the teacher assistant is not always closely positioned next to the student; positioning the assistant away from the student and changing teacher assistants may help to avoid dependency.
    - Provide visual organizational aids such as schedules, task outlines, check lists, charts, and involve the student in using them.
    - Increase awareness of environmental cues.
    - Teach in natural environments that contain the cues and reinforcement that prompt and maintain the behaviour.

20. **Plan for transitions** and prepare the student for change. This can be done with the aid of visual schedules to inform changes in routine. Social stories can also be used to prepare the student for new situations.

21. **Direct and broaden fixations** into useful activities.

22. **Develop talent areas**. If the child demonstrates a particular interest and strength in a specific area (i.e., music, drama, art, graphics, computer), provide opportunities to develop further expertise in the area. This may not only provide enjoyment and success, but may also lead to the development of skills for future employment.

The above strategies and guidelines were adapted from Gillingham (1995), Grandin (1995), Gray (1993c), Gray & Garand (1993), Indiana Resource Center for Autism (1997), Hogdon (1997), Koegel & Koegel (1995), Olley & Reeve(1997), and Quill (1995a, 1995b).

Strategies for Communication Development

Goals and objectives are based on the abilities and needs of the student.

Programs to facilitate the development of communication include natural language interventions to teach functional language skills in the social context where they will be used (Koegel, Koegel, Frea & Smith, 1995). The classroom and school environments provide a wealth of opportunities to develop functional communication within social contexts, and to promote generalization. However, opportunity alone will not address the communication needs of the student with autism. The identification of specific skills for instruction and strategies for developing the targeted skills are needed.

The communication goals and objectives for the student with autism are best determined in collaboration with the parents and a speech language pathologist, and are based on the abilities and needs of the student. The speech and language pathologist can assist in assessment of communication skills and provide suggestions and strategies tailored to the unique needs and characteristics of the student.

The following are some general strategies and suggestions to assist with communication:

1. **Focus on developing interaction and communication in the environments in which the child actually communicates**.

2. For the young child it may be necessary to **provide some structured teaching to develop social and communicative play**. This can be done through the provision of structured play opportunities which incorporate the child's interests. Modelling, physical prompts, visual cues and reinforcement are used to facilitate attention, imitation, communication and interaction.

3. **Use vocabulary and sentence level appropriate to the student's comprehension capability**. Use language that is clear, simple and concise. For students with more severe communication disabilities, choose familiar, specific, and concrete words, and repeat as necessary.

4. **Teach the student to listen**. The use of visual supports may aid in obtaining and maintaining attention.

5. **It may be necessary to talk more slowly or to pause between words** to allow time for the student to process the information. The pace of speech is dependent on the ability of the individual child.

6. **Use visual input** to aid comprehension of oral speech.

7. When working with students who are higher functioning, it is easy to assume that the student is understanding information, particularly if they are able to repeat it. However, even though there may be good recall, the understanding may not be there. It is important to **avoid long strings of information, to use visual supports to aid comprehension, and to check for understanding**.

8. **Use social stories** to explain events/activities.

9. **Teach new vocabulary** in a variety of contexts and using a visually-based approach.

10. It is important that those involved with the student **have a thorough knowledge of the student's form of expression** and that they adjust their expectations for communication accordingly.

11. For students with limited expression, **accept restricted verbal and non-verbal behaviour as communication**.

12. **Set up communication opportunities to encourage expression** including:
    - situations to encourage requests, such as for food, a toy or help
    - situations to encourage negation such as refusing a food or toy, protesting when asked to do something, or indicating when the student wants to stop

- situations to encourage commenting, such as labelling pictures in books, or objects from a box, greetings or play activities.

13. Some children demonstrate echolalia, the literal repetition of words or phrases. **Echolalia can be used as a teaching tool**. The echolalic speech can be shaped through the use of rules and using the echolalic skill to model more appropriate language (Rydell & Prizant, 1995). The speech and language pathologist can assist in providing specific suggestions for the individual student.

14. **Some children may benefit from the use of an augmentative communication system**. An augmentative communication system is any approach that supports, enhances or adds to the way a person tells you something (Geneva Centre). It may be recommended for the nonverbal child, and also for the child who has limited verbal expression, but appears unable to use speech in a functional way to express wants and needs.

- The decision to implement an augmentative communication system, and the selection of the type of augmentative system, is made by the parents in consultation with a speech language pathologist (SLP). This may be the school SLP or referral to another SLP with expertise in the area of autism and augmentative communication systems.

- The educator's role is often to encourage the student to use their augmentative means of communication to express themselves and to supplement oral speech.

- There are a variety of augmentative systems including gestures, pictures, symbols, and/or technological devices. One type of augmentative system that is frequently used with individuals with autism is the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994). This system involves the use of symbols or pictographs to communicate. Instruction is

provided through naturally occurring situations and begins with symbols that are highly reinforcing for the individual. The student is taught the concept of exchange, and is systematically moved through a sequence of strategies to use symbols to communicate in a variety of settings and situations. For additional information on PECS refer Bondy, A. & Frost, L. (1994), and Frost, L.A. & Bondy, A.S. (1994).

15. Virtually all individuals with autism have difficulty with pragmatics - the interpretation and use of language in social situations. Even those individuals who have a good vocabulary and appear to have a command of the language may have a restricted understanding of social and conversational interactions. **The social use of language is an important area for instruction for students with autism**.

- Carol Gray (1994) has developed a Comic Strip Conversation strategy for teaching conversation skills through the use of simple drawings. These drawings illustrate what people say and do and emphasize what they may be thinking. A set of eight symbols is used to represent basic conversational skills such as listening, interrupting, loud and quiet words, talk and thoughts. Colours may also be incorporated to represent the emotional context. (Gray's book *Comic Strip Conversations* is available for loan from Saskatchewan Education Resource Centre).

- Social Stories (Gray, 1993a, 1993c, 1994) with scripts can also be used to develop conversation skills and communication appropriate to specific social contexts and situations.

- To facilitate social communication, structure interactions around the student's activity preferences and routine.

- Encourage informal and formal communicative social exchanges during the day.

- Individuals with autism have difficulty understanding subtle social messages and rules, and

also have problems interpreting nonverbal communication from others. It may be helpful to provide the student with the concrete rule when one does exist, and to present this in a visual format, such as writing it down or incorporating the rule into a social story or comic strip conversation.

- Students also need opportunities for social interactions and community-based experiences in order to practice the skills.

The above strategies and guidelines were adapted from Gray (1993a, 1993c, 1994), Hawkins (1995), Indiana Resource Center for Autism (1997), Koegel, Koegel, Frea & Smith (1995), Lindblad (1996), and Quill (1995b).

Guidelines and Strategies for Social Skills Training

One of the defining characteristics of autism and pervasive developmental disorders is the impairment in social interactions and social skills. Social skill development is an essential curricular area for students with autism, and is also a crucial component of any intervention plan for changing problem behaviours.

1. When addressing social skill development, it is essential that the student have the **opportunity to participate and interact in a variety of natural environments** where appropriate models, natural cues and stimuli, and functional reinforcers are available. Placement within integrated environments provides this access to peer models and social opportunities.

2. In general, individuals with autism need **explicit teaching** to develop social skills and understanding of social situations.

3. One of the most helpful methods for teaching social skills is the use of **Social Stories,** a strategy developed by Carol Gray (1993a). A social story is a description of a social situation which includes the social cues and appropriate responses, and is written for a specific situation for the individual student. The story can be used for a variety of purposes, including facilitating the inclusion of students in regular education classes, to introduce changes and new routines, to explain reasons for the behaviour of others, to teach situation-specific social skills, and to assist in teaching new academic skills.

   The process begins with the identification of student needs through observation and assessment. Once a difficult situation is identified, the author observes the situation and attempts to consider the perspective of the student in terms of what will be seen, heard, and felt. A story is written at an appropriate comprehension level for the student, and includes descriptive, directive, and perspective statements. The descriptive sentences provide information on the setting, activity and people

involved. The directive statements are positive statements of the desired response for a given situation, and the perspective statements provide a description of the possible reactions of others.

Gray and Garand (1993) suggest three basic approaches for implementing a social story:

- For a student who reads independently, the story is read twice by an adult, followed by the student reading it back. Then the student reads it daily.
- If the student does not read, the story may be recorded on a cassette tape with a signal (i.e., bell) to turn the pages. The student is taught to "read" the story, and reads it daily.
- Videotape the social story to incorporate video modelling. The story is read aloud on a videotape, with one page on the screen at a time.
- Extensive information on the use of social stories as well as guidelines and examples are provided in the resources authored by Carol Gray in the Resource List (Appendix B).

4. **The use of social stories as well as other visual supports are an integral part of a comprehensive social skills program for a student with autism**. They can be incorporated in teaching students complex social behaviours and survival skills that are needed in everyday situations. Developing an understanding of the basic rules associated with a given situation will help the child to adapt to the social context, and may prevent increased anxiety and reduce the reliance on inappropriate coping behaviours.

- **Waiting** – visual cues such as an object, pictures and written words can provide concrete information to make waiting less abstract and more specific to the situation.

- **Taking turns** – this can be taught through the use of social stories as well as the use of a picture or pictograph to cue the child. It may also be necessary to provide some instruction and rehearsal in turn-taking activities.

- **Transitions** – the use of social stories and providing warnings with visual cues can aid in making the

transition from one activity to another. This can be particularly difficult if the student has not completed the activity, and the student may need to be prepared for the possibility of having to finish later.

- **Changing the topic in conversation** – Some students may perseverate on one topic. Visual rules, established time limits, and setting a time and place to engage in a favourite topic may help in teaching the student when he/she needs to end and/or change the topic.

- **Finishing** – It may help to teach the student to use environmental cues such as observing and following the behaviour of other children. It may also be necessary to use a timer, and a method for checking their own work.

- **Initiating** – Social stories can be particularly useful for teaching a student how to approach others, ask for something, get into a game, say hello, and to leave a situation if upset.

- **Being flexible** – Visual systems can be used to explain changes in a concrete way. If sequenced schedules or picture routines are used, a specific picture can be removed or crossed out, and another put in its place.

- **Being quiet** – Visual supports may be helpful to teach the specific behaviours for being quiet, and to teach rules for specific situations.

5. Another instructional strategy which presents information in a visual format is the use of **Cognitive Picture Rehearsal** (Groden & LeVasseur, 1995). This method involves presenting a sequence of behaviours in the form of pictures or pictographs with an accompanying script. The student is guided through repeated practice of the sequence of behaviours.

   For additional information, refer to the book *Teaching Children with Autism: Strategies to Enhance Communication and Socialization* by Kathleen Quill (1995).

6.   The student may also need **instruction and support to participate in the activities at recess**. This can be a very confusing time. Recess is less structured, with typically a lot of activity and noise. The student with autism may experience difficulties in coping with the amount of stimulation, as well as in reading the social cues and understanding expectations for behaviour. Gray (1993b) provides a collection of material to socially simplify recess in *Taming the Recess Jungle.*

7.   It may be helpful to **educate peers**. This can be done informally or in a more structured manner. Young children can be provided with prompts to initiate and maintain interaction with their autistic classmate. They may need help to understand the behaviour of the autistic student. For example, the teacher may need to translate nonverbal communication, or explain that a specific activity is difficult for the student, and identify what the peer can do to help.

Children can be trained to use strategies to enhance the social competence of the child with autism. Pivotal Response Training (PRT) is one technique that has been used during recess breaks and has been successful in increasing interactions, initiation, varied toy play, and language use (Pierce & Schreibman, 1997). PRT involves teaching typical peers to use strategies to (a) gain attention, (b) give choices to maintain motivation, (c) vary toys, (d) model social behaviour, (e) reinforce attempts, (f) encourage conversation, (g) extend conversation, (h) take turns, and (i) narrate play.

Older students can be provided with information on autism, the characteristics, and tips for interacting with the student with autism. It is important that parents be involved in the decision to discuss autism with their child's peers. They may wish to preview any materials, or may want to be involved in the presentation.

8.   **Optimally, the end result of developing specific social skills is to enable the student to interact with others in a variety of settings, and to facilitate the development of social opportunities and relationships**. Children who demonstrate basic social skills may still have difficulty establishing

connections with other children, and in maintaining interactions with peers. Teachers and parents may facilitate further social interaction through:

- encouraging a friend to play with the child at home
- enrolling the child in clubs and societies
- teaching the child to observe other children to follow what to do
- encouraging cooperative games
- modelling how to relate to the child, and educating other students in the class
- encouraging prospective friendships
- providing enjoyment at break times
- doing projects and activities which illustrate the qualities of a good friend
- helping the student to understand emotions through direct teaching of how to read and respond to cues that indicate different emotions.

9. The student may also benefit from **social skill instruction within a small group structured format**. There are a variety of social skills training programs and resources available, such as the *Skillstreaming* series (McGinnis, Goldstein, & Arnold, 1990) and *The Social Skills Intervention Guide* (Elliot & Gresham, 1991).

These programs include an assessment which is used to identify skills for instruction. The lessons follow a similar format in each of the social skills curricula: (1) identifying the skill and skill components, and when they are used; (2) modelling the skill; (3) role play; (4) opportunities to practice; and (5) strategies for generalization.

Although these curricula are not developed specifically for children with autism, they can be used in combination with appropriate adaptations and supports. In addition, there may need to be a particular emphasis on the strategies for facilitating generalization of targeted skills.

10. Finally, the goal for all students, including those with autism, is to **increase independent participation in a variety of environments**. Attwood (1988) provides suggestions for social skills instruction for students with Asperger syndrome. These may also be adapted for use with some students with autism.

One method that has been used to increase independence is teaching self-management procedures (Dunlap, Dunlap, Koegel & Koegel, 1991; Koegel, Koegel, Hurley & Frea, 1992). Self-management involves teaching the students to monitor their own behaviour, and to obtain reinforcement for engaging in the behaviour. The process for teaching self management includes the following:

- define the target behaviour
- identify reinforcers
- choose or design an appropriate self-monitoring method (i.e., wrist counter, stickers)
- teach the student to use the self-monitoring device
- facilitate independence by gradually reducing prompts and increasing the time the students spend self-managing their behaviour.

The above strategies and recommendations were adapted from Attwood (1998), Dunlap, et al., 1991), Geneva Centre (1994), Gray (1993a, 1993b, 1993c), Hawkins (1995), Indiana Resource Center for Autism (1997), Jenkins, Odom & Speltz (1989); Koegel & Koegel (1995), Koegel & Koegel, Hurely & Frea (1992), and Quill (1995a, 1995b).

*M*ANAGING CHALLENGING BEHAVIOUR

Children with autism may present with some unusual and challenging behaviours, and do not always respond to the usual methods of discipline. It is frequently necessary to develop a systematic plan for changing behaviours. A behaviour intervention plan must be based on an understanding of the characteristics of autism, as well as knowledge of the strengths and needs of the individual student.

A behaviour plan can be developed through a collaborative problem-solving process involving the significant people in the student's life, including the parent(s)/guardian, classroom teacher, special educator, and teacher assistant. It may also include other involved persons such as the principal, consultant, speech language pathologist, and psychologist. The following section outlines the major components of the process to develop a behaviour plan (adapted from Dalrymple & Porco, 1993).

A behaviour plan is developed through a collaborative problem-solving process.

1. Identification of the Problem Behaviour

- Identify and describe the behaviour in observable terms, including where and when it occurs, what usually happens before the behaviour, and the typical reactions of other people.

- It is important to determine whether the behaviour actually does pose a problem. Some key considerations are:
  - Is the behaviour potentially harmful to the student or others?
  - Does it interfere with the student's learning or the learning of others?
  - Does it result in negative reactions and/or avoidance by peers and adults?

- The student may display more than one challenging behaviour. It may not be reasonable to expect to change all behaviours, and priorities for intervention will need to be established.

2. Identification of Function of Behaviour and Contributing Factors

- The function or purpose of a behaviour is not always obvious. It is frequently necessary to collect information about the student, behaviour, environment, and consequences to determine what purpose the behaviour serves and what factors are maintaining the behaviour.

- A comprehensive behaviour plan should include a thorough assessment of the behaviour and the context in which it occurs, to determine the underlying contributing factors.

- Assessment should also include gathering significant information about the student, such as likes and dislikes, fears and frustrations, communication skills, strengths and needs, how the student interacts socially, and the typical responses to sensory stimuli.

- Problem behaviours may be a result of other characteristics associated with autism, such as attending difficulties, problems with interpreting verbal information, limited verbal expression, impairment in social skills, and different responses to sensory stimulation. For example, what appears to be a lack of cooperation may be the result of not understanding expectations or not knowing what is going to happen.

- **Functional Analysis of Behaviour** is the process of identifying the function(s) that a specific behaviour serves for the individual, and is based on the premise that all behaviour serves some purpose. The purpose may be to (1) gain attention, (2) gain a tangible consequence, (3) escape from an unpleasant situation, (4) gain a sensory consequence, (5) self-regulate, (6) make a comment or declaration, (7) release tension, or (8) it may be habitual (Donnellan, Mirenda, Mesaros, & Fassbender, 1984; Durand & Crimmins, 1988).

- The ABC process for collecting the information for a functional analysis involves identifying:
  - **A**ntecedents (what happened just before the behaviour, where the behaviour occurred, and with whom)

All behaviour is purposeful.

- **B**ehaviour description
- **C**onsequence (what happened after, and as a result of, the behaviour)

- When describing the students behaviour:
  - include the frequency, intensity and duration of the behaviour
  - be specific, for example, hollering and screaming can vary in intensity and duration, and may or may not be a priority
  - clearly identify the situation where the behaviour does and does not occur.

- Information can be acquired through observation and data collection. Parents, teachers and others involved with the student on a regular basis can provide information.

- The information is analyzed to identify patterns, possible reinforcers and anything that may be triggering the behaviour. In some situations, a questionnaire such as the *Motivation Assessment Scale* (Durand & Crimmins, 1988) can assist in determining possible functions of behaviours.

3. **Identification of an Alternate Behaviour**

Functional analysis of behaviour serves as the foundation for developing the behaviour plan. Once the possible purpose of a behaviour is determined or hypothesized, it is possible to identify an alternate, more appropriate behaviour that can serve the same function.

The focus of the behaviour intervention is on instruction rather than discipline. The goal is to increase the student's alternate appropriate means of achieving the same purpose. The success of the plan is more dependent on the instructional and proactive components and less influenced by the reactive strategies. The following may assist in identification of alternate behaviours.

- The targeted alternate behaviour frequently includes communication and/or social skill development.

- The alternate behaviour might also be a more appropriate means of seeking sensory stimulation, or an appropriate method for reducing anxiety

The focus of a behaviour intervention plan is instruction of appropriate skills.

(i.e., relaxation exercises, visual imagery, going to a quiet place).

- It cannot be assumed that the student has the skills necessary to engage in the alternate behaviour. Systematic instruction and reinforcement are usually necessary.

- The targeted behaviours may be those involved in anger management and self-control.

- In most situations, teaching of the alternate behaviour will need to be combined with other positive program strategies.

4. Identification of Strategies for Changing Behaviour

Environmental Adaptations

Consider environmental factors.

Problem behaviours can often be reduced or eliminated by making changes in the environment. The assessment and analysis of the behaviour may indicate that it occurs within specific areas, or during specific times such as transitions. Sometimes the likelihood of the behaviour occurring can be minimized by making environmental accommodations. This does not mean that the entire classroom has to be changed for one student, but there are adjustments that can be made depending on the student's individual needs.

Possible environmental adaptations:

- **Remove distracting stimuli**.

- **Be aware of any hypersensitivities** to sensory stimuli. Examine the environment for any sensory overload, and decrease stimulation if feasible. Incorporate sensory experiences that are calming for the student into the daily routine of the student.

- **Make changes in physical arrangements** such as seating.

- **Provide a clear and predictable schedule**.

- **Schedule calming down times or exercise breaks** prior to difficult situations.

- **Alternate** more difficult and demanding **tasks** with those that are easier and more enjoyable.

- **Provide choices**.

- Provide **access to favourite activities and peers**.

- Have **a place** where the student can go **to relax**.

Positive Program Strategies

Provision of a program that emphasizes the development of communication and positive behaviours in a predictable and rewarding environment can help to reduce the frequency and severity of problem behaviours.

Components of a positive program include:

- **Teach communication skills**. The appropriate form and content will vary depending on the abilities of the student. Consideration of the use of augmentative systems is done in collaboration with the parents and a speech language pathologist.

- **Teach social skills**. Remember that children with autism have difficulty reading social cues and will not simply "pick up" social skills from watching others. When a child displays an inappropriate behaviour, we can't assume that they have the appropriate skill in their repertoire, or that they know when to use it. Social skills need to be taught for each situation.

- **Use social stories** to teach behaviour for situations which pose a problem. Social stories can also be used to prepare the student for new situations and activities.

- **Provide clear expectations** for behaviour. Post rules and use appropriate visual aids to help the student to understand what is expected.

- **Provide a clear schedule**. Go through the schedule with the student, and involve him/her in referring to the schedule. Use the schedule to prepare the student for transitions between activities and to prepare for any changes that may occur.

- **Teach the student to make choices** and provide opportunities for choice within the schedule.

- **Provide instruction at a level appropriate to the student**, and use visual aids to clarify instructions and teach new concepts and skills.

- **Observe the student for signs of increasing anxiety** and the environmental factors that may be associated with increased anxiety. For example, if social play increases stress, it may be helpful to provide the opportunity for isolated play. This does not mean that the program should forego the goal of increasing interactive play with peers. However, the amount of time spent with others may need to be restricted if the student is very anxious. Over time, contact with other students can be increased, within the context of a program which teaches social skills and provides support within interactive situations.

- **Provide opportunities for relaxation** throughout the day. This may be for brief 5-10 minute periods, and can be accomplished in a variety of ways, such as going to a special calm place in the school, listening to music with headphones, playing with a favourite object, sitting quietly and looking out the window, or engaging in a repetitive behaviour. It is important to note that what is calming for one child may increase anxiety for another.

- **Teach the student to say "I need a break".**

- **Relaxation training** can be provided by teaching the student specific routines and behaviours to relax.

- **Provide opportunities for rehearsal and desensitization to new places, people or things**. Remember that change is difficult. However, adapting and coping with change is a necessary life skill. Introduce new situations slowly so that the student has an opportunity to become familiar with the setting, people and expectations.

- Remember to **reinforce appropriate behaviour**, and to use reinforcements that are meaningful to the individual student.

- One type of behaviour that is frequently of concern to parents and teachers is repetitive stereotypical behaviour. These behaviours cannot be totally

eliminated, but they may be reduced and, in some situations, replaced with more suitable alternatives. The response to the specific behaviours will depend, in part, on the function that it serves for the individual child. For example, Grandin (1995) describes how repetitive rocking and spinning helped shut out the world when noise became too overwhelming.

"Rocking made me feel calm. It was like taking an addictive drug. The more I did it, the more I wanted to do it. My mother and my teachers would stop me so I would get back in touch with the rest of the world. I also loved to spin, and I seldom got dizzy. When I stopped spinning, I enjoyed the sensation of watching the room spin" (p. 45).

If the behaviour is used to calm down, it may be appropriate to teach other methods of relaxation. For some students, it may be appropriate to find another source of stimulation that may satisfy a sensory need. The following are **general suggestions for consideration in reducing or replacing repetitive behaviours**:

- Teach an alternative behaviour.
- Provide a variety of sensory experiences during the day.
- When the behaviour is happening, try to divert the person's attention to another activity.
- Negotiate when and where the repetitive actions are acceptable. Controlled access may reduce the desperation to engage in the activity, and should be scheduled rather that being contingent upon good behaviour.
- Gradually reduce the amount of time allotted for the behaviour. Increase the amount of time between scheduled times for repetitive behaviours.
- Use the level of repetitive behaviour to assess the person's level of stress.
- Allow the person to engage in the behaviours in an emergency situation to calm him/herself down.

- Instruction may need to focus on **anger management and self-control**.

  - Social stories may be used to teach students self-control within specific situations.

  - Cognitive Picture Rehearsal (Groden & leVasseur, 1995) is another visually based approach used to teach self-control. This strategy uses visual supports in an individualized program. Pictures and scripts for a sequence of behaviours are presented, and the student has the opportunity for repeated practice of the behaviour, with immediate reinforcement.
  - The general process is to:
    (a) identify the target behaviour
    (b) identify the antecedents and provide the student with an appropriate way to cope
    (c) identify reinforcers that follow the appropriate behaviour.

    The student is provided with individual instruction and, when he/she is familiar with the sequence, the sequence is done prior to the stressful situation, and then within the situation.

- Use **strategies to promote independence and self-management**. Self-management procedures developed by Koegel et al. (1992) are outlined in the section *Guidelines and Strategies for Social Skills Training*.

Reactive or Consequence-based Interventions

Positive programming strategies which focus on increasing student competence and making the necessary accommodations to the physical setting, materials and instruction, will be the most successful in facilitating long-term behavioural change. However, it is sometimes necessary to design a plan for the immediate reaction to a behaviour in order to maintain safety. It is essential that everyone involved with the student is prepared to react to specific behaviours in a consistent way. In general, there are three major types of reactive techniques: ignoring the behaviour, redirection, and removal from reinforcements.

Positive programming strategies are the most successful in facilitating long-term behavioural change.

- **Ignoring the behaviour** may be appropriate for minor attention-seeking behaviours. However, it is often difficult to implement in a classroom setting. It is important to make sure that the student is not being reinforced by other sources, such as peers.

- **Redirection** is a vital component of any behaviour intervention plan. If a behaviour is unacceptable, the student needs to know what is expected instead, and this needs to be communicated clearly. Assistance and support may be required. The use of a visual aid, such as a pictograph, is often helpful.

- Redirection is used in combination with positive programming strategies. The student will need to be taught the alternate behaviour, and provided with opportunities to practise and rehearse.

- **Removal from the reinforcements** may involve removal from the situation. If a student is very anxious or upset, it may be necessary to leave the situation to calm down before any redirection or teaching of alternate behaviours can occur. This can be combined with positive programming strategies such as teaching the student to recognize when they are becoming anxious, and teaching them to remove themselves from the situation before they lose control of their behaviour.

- In addition, it is helpful to keep the individual with familiar people, places or objects at a time of crises, rather than trying to introduce change that would increase the level of anxiety.

- It may be appropriate to allow the individual to engage in a repetitive, stereotypical behaviour in a very stressful situation. It may be a coping mechanism. Although the goal may be to teach other, more appropriate means of dealing with stress, this may be an appropriate reactive strategy that is more suitable than aggression.

5. **Developing the Behaviour Plan**

   Once the team has identified the problem behaviours and contributing factors, the alternate behaviours, and the strategies for instruction and management, the specific

interventions and approaches should be specified in the student's personal program plan.

Written plans clearly outline the environmental adaptations, positive program strategies and reactive strategies, so that all people involved with the student can maintain a consistent approach. This is particularly important in maintaining consistency between home and school and environments throughout the school.

In addition, time lines need to be established, and a process should be in place to evaluate the effectiveness of the plan.

6. Evaluating the Behaviour Plan

Factors to consider in evaluating the effectiveness of the strategies identified in the student's personal behaviour intervention plan are:

- Is the intervention being implemented consistently?
- Does it need to continue for a longer period of time?
- Do minor adjustments need to be made?
- Is the behaviour being maintained through other factors that were not accounted for?
- Do the reinforcements need to be modified?
- Are alternate strategies needed?

*E*DUCATING STUDENTS WITH ASPERGER SYNDROME

Persons with Asperger syndrome (AS) share some of the same characteristics as individuals with autism, and there is debate on whether AS is an independent diagnostic category or another dimension at the higher end of the autistic continuum (Szatmari, 1995). Although Asperger syndrome shares some characteristics with higher-functioning autism, there are some unique features, and a different developmental progression and prognosis (Myles & Simpson, 1998) for individuals with AS.

According to DSM-IV (1994) criteria, the child must meet the criteria for social impairment, repetitive activities and age of onset, but have normal cognitive and language development. AS involves fewer symptoms than autism (see Appendix A).

Learning and Behavioural Characteristics of Students with Asperger syndrome

1. Asperger syndrome is characterized by a qualitative impairment in social interaction. Individuals with AS may be keen to relate to others, but do not have the skills, and may approach others in peculiar ways (Klin & Volkmar, 1997). They frequently lack understanding of social customs and may appear socially awkward, have difficulty with empathy, and misinterpret social cues. Individuals with AS are poor incidental social learners and need explicit instruction in social skills.

2. Although children with AS usually speak fluently by five years of age, they often have problems with pragmatics (the use of language in social contexts), semantics (not being able to recognize multiple meanings) and prosody (the pitch, stress, and rhythm of speech) (Attwood, 1998).

   - Students with AS may have an advanced vocabulary and frequently talk incessantly about a favourite subject. The topic may be somewhat narrowly defined and the individual may have difficulty switching to another topic.

   - They may have difficulties with the rules of conversation. Students with AS may interrupt or talk over the speech of others, may make irrelevant

comments and have difficulty initiating and terminating conversations.

- Speech may be characterized by a lack of variation in pitch, stress and rhythm and, as the student reaches adolescence, speech may become pedantic (overly formal).

- Social communication problems can include standing too close, staring, abnormal body posture and failure to understand gestures and facial expressions.

3. The student with AS is of average to above average intelligence and may appear quite capable. Many are relatively proficient in knowledge of facts, and may have extensive factual information about a subject that they are absorbed with. However, they demonstrate relative weaknesses in comprehension and abstract thought, as well as in social cognition. Consequently, they do experience some academic problems, particularly with reading comprehension, problem solving, organizational skills, concept development, and making inferences and judgements. In addition, they often have difficulty with cognitive flexibility. That is their thinking tends to be rigid. They often have difficulty adapting to change or failure and do not readily learn from their mistakes (Attwood, 1998).

4. It is estimated that 50% to 90% of people with AS have problems with motor coordination (Attwood, 1998). The affected areas may include locomotion, ball skills, balance, manual dexterity, handwriting, rapid movements, lax joints, rhythm and imitation of movements.

5. Individuals with AS share common characteristics with autism in terms of responses to sensory stimuli. They may be hypersensitive to some stimuli and may engage in unusual behaviours to obtain a specific sensory stimulation.

6. Individuals with AS may also be inattentive and easily distracted and many receive a diagnosis of ADHD at one point in their lives (Myles & Simpson, 1998).

7. Anxiety is also a characteristic associated with AS. It may be difficult for the student to understand and adapt

to the social demands of school. Appropriate instruction and support can help to alleviate some of the stress.

Strategies for Teachers

Many of the strategies for teaching students with autism are applicable for students with AS. The professional literature often does not differentiate between high-functioning autism and Asperger syndrome when outlining recommended practices. However, it is important to give consideration to the unique learning characteristics, to provide support when needed, and to build on the student's many strengths.

The following section identifies specific learning difficulties and suggests a number of possible classroom strategies.

Learning Difficulty	Classroom Strategies
Difficulties with language • tendency to make irrelevant comments • tendency to interrupt • tendency to talk on one topic and to talk over the speech of others • difficulty understanding complex language, following directions, and understanding intent of words with multiple meanings	• use Comic Strip Conversations (Gray, 1994) to teach conversation skills related to specific problems • teach appropriate opening comments • teach student to seek assistance when confused • teach conversational skills in small group settings • teach rules and cues regarding turn-taking in conversation and when to reply, interrupt or change the topic • use audio-taped and videotaped conversations • explain metaphors and words with double meanings • encourage the student to ask for an instruction to be repeated, simplified or written down if he does not understand • pause between instructions and check for understanding • limit oral questions to a number the student can manage • watch videos to identify nonverbal expressions and their meanings
Insistence on sameness	• prepare the student for potential change, wherever possible • use pictures, schedules and social stories to indicate impending changes
Impairment in social interaction • difficulty understanding the rules of social interaction • may be naïve • interprets literally what is said • difficulty reading the emotions of others • lacks tact • problems with social distance • difficulty understanding "unwritten rules" and once learned, may apply them rigidly	• provide clear expectations and rules for behaviour • teach (explicitly) the rules of social conduct • teach the student how to interact through social stories, modelling and role-playing • educate peers about how to respond to the student's disability in social interaction • use other children as cues to indicate what to do • encourage cooperative games • provide supervision and support for the student at breaks and recess, as required • use a buddy system to assist the student during non-structured times • teach the student how to start, maintain and end play • teach flexibility, cooperation and sharing • teach the students how to monitor their own behaviour • structure social skills groups to provide opportunity for direct instruction on specific skills and to practice actual events • teach relaxation techniques and have a quiet place to go to relax

Restricted range of interests	• limit perseverative discussions and questions • set firm expectations for the classroom, but also provide opportunities for the student to pursue his own interests • incorporate and expand on interest in activities and assignments
Poor concentration • often off task • distractible • may be disorganized • difficulty sustaining attention	• provide frequent teacher feedback and redirection • break down assignments • provide timed work sessions • reduce homework assignments • seat at the front of the classroom • use non-verbal cues to get attention
Poor organizational skills	• use schedules and calendars • maintain lists of assignments • help the student to use "to do" lists and checklists • place pictures on containers and locker • use picture cues in lockers
Poor motor coordination	• involve in fitness activities; student may prefer fitness activities to competitive sports • take slower writing speed into account when giving assignments (length often needs to be reduced) • provide extra time for tests • consider the use of a computer for written assignments, as some students may be more skilled at using a keyboard than writing
Academic difficulties • usually average to above average intelligence • good recall of factual information • areas of difficulty include poor problem solving, comprehension problems and difficulty with abstract concepts • often strong in word recognition and may learn to read very early, but difficulty with comprehension • may do well at math facts, but have difficulty with problem solving	• do not assume that the student has understood simply because he/she can re-state the information • be as concrete as possible in presenting new concepts and abstract material • use activity-based learning where possible • use graphic organizers such as semantic maps, webs • break down tasks into smaller steps or present it another way • provide direct instruction as well as modelling • show examples of what is required • use outlines to help student take notes and organize and categorize information • avoid verbal overload • capitalize on strengths, e.g., memory • do not assume that they have understood what they have read – check for comprehension, supplement instruction and use visual supports

Emotional vulnerability • may have difficulties coping with the social and emotional demands of school • easily stressed due to inflexibility • often have low self-esteem • may have difficulty tolerating making mistakes • may be prone to depression • may have rage reactions and temper outbursts	• provide positive praise and tell the student what she/he does right or well • teach the student to ask for help • teach techniques for coping with difficult situations and for dealing with stress • use rehearsal strategies • provide experiences in which the person can make choices • help the student to understand his/her behaviours and reactions of others • educate other students • use peer supports such as buddy system and peer support network

Sensory Sensitivities
• most common sensitivities involve sound and touch, but may also include taste, light intensity, colours and aromas
• types of noises that may be perceived as extremely intense are:
  • sudden, unexpected noises such as a telephone ringing, fire alarm
  • high-pitched continuous noise
  • confusing, complex or multiple sounds such as in shopping centres
	• be aware that normal levels of auditory and visual input can be perceived by the student as too much or too little
	• keep the level of stimulation within the student's ability to cope
	• avoid sounds that are distressing, when possible
	• use music to camouflage certain sounds
	• minimize background noise
	• use ear plugs if noise or reaction are very extreme
	• teach and model relaxation strategies and diversions to reduce anxiety

Adapted from Attwood (1998), Donnelly & Levy (1995), Grandin (1998), Moreno & O'Neal (1997), Myles & Simpson (1998), Williams, (1995).

$\mathcal{T}$*RANSITION* *PLANNING*

Individuals with autism and Asperger syndrome frequently have difficulty with the unknown and may fear the unpredictable. It is difficult for them to take in all of the information within a new situation, determine what the expectations are and then generate appropriate responses. As a result, transitions are often difficult for individuals with autism and Asperger syndrome and may result in increased anxiety and inappropriate or resistant behaviours.

It is not possible to provide a program and environment that are free from transitions and free from change, they are a part of life. The goal is to help the student cope with the changes and to adapt to a variety of settings. In many situations, anxiety can be decreased and inappropriate behaviours prevented or reduced, if the individual is prepared for change and transition. This includes transitions between activities and settings throughout the day, transitions from one grade to the next, transition from one school to another and transition to adult life.

Strategies to Help with Transitions Between Activities and Settings

- Give the student ample warning prior to any transition.

- Schedules can be used to prepare the student for changes in activities. It is important to involve the student in referring to the schedule. This can be done at the beginning of the day, as well as at transition times. Outline the schedule using a description of what to expect, e.g., "first _____, then _____."

- Schedules vary in terms of complexity and length, and are tailored to the ability of the individual student. They can be presented in written words, pictures/pictographs or objects that depict certain activities. It is important to implement a method that indicates the completion of an activity, such as turning over a picture card or crossing out an activity.

- A schedule may not be sufficient to prepare the student for change. In some situations, teachers have provided

the student with an object which will be used in the next activity or setting to help him/her understand what is coming next.

- The use of a watch, clock or timer may also help the student to understand time periods.

- Social stories are effective in preparing some students for change and particularly for preparing students for new situations and unfamiliar activities.

- The use of visual cues in combination with verbal instructions may help the student to understand what is expected.

- Allow choice whenever possible.

Transitions Between Grade Levels

- When preparing for the transition between classrooms, it is necessary to prepare the student and the receiving teacher.

- Preparation for transition should begin in early spring.

- The receiving teacher will need to be provided with information about the student's strengths and needs. This can be facilitated through team meeting(s) involving teachers, parents, support personnel and the teacher assistant(s). The receiving teacher may also need to be provided with information about autism and the educational implications.

- It is beneficial for the receiving teacher to visit the student in the current classroom environment in order to observe the child's participation as well as the current instructional strategies that are effective for the student.

- The student can be prepared for the new classroom setting through the use of social stories and photographs of the new teacher and classroom. It may be helpful to prepare a small scrapbook that the student can refer to over the summer.

- The student may also make visits to the future classroom. It may be helpful for the student to be accompanied by the teacher assistant or current teacher, in order to maintain some familiarity.

- It is also possible to prepare the student with the use of videotapes of the new setting.

- A planning meeting is conducted to exchange information about the student as well as to discuss instructional strategies and approaches that have been most effective. Ideally, the meeting involves parents, teachers, teacher assistant, speech language pathologist and others who are involved in the child's program on an on-going basis. This provides the parents and teachers with the opportunity to discuss goals, instructional strategies, curricular modifications, methods for maintaining appropriate behaviour and communication.

- It is preferable to conduct the meeting before the end of the current school year. However, some teachers prefer to have additional time to get to know the student. If the receiving teacher has had opportunity to meet and observe the student in the current classroom, and if information regarding strengths, needs and recommended strategies has been exchanged, it is feasible to conduct the planning meeting in the fall.

Transitions Between Schools

The suggestions for transitions between classrooms are also applicable to planning for transitions between schools. However, additional time and preparation may be required, as the student will need to adjust to a whole new building rather than just a classroom. If the transition is from elementary to high school, the student will also need to learn about changes in the way school operates. For example, the student will need to be prepared for the number of teachers that he/she will have, and the various locations for instruction.

- Arrange for the student to visit the school on a number of occasions. If the student is particularly resistant to change, it may be necessary to introduce new aspects slowly, and to go through a process of desensitization and rehearsal. For example, the initial visit may need to be devoted to simply going to the school and going in the front door. On another visit, the student might visit a classroom, then the gymnasium, and later individual classrooms.

- Providing the student with a videotape of the new school and written information (appropriate to the student's academic level) may help the student to rehearse for the change.

- Identify key people that the student can talk to or go to for help.

- Identify peers who may help the student adjust to the new school and who may be able to accompany the student to various locations in the school.

Transition from High School to Adult Life

It is recommended that transition planning from high school to adult life begin as early as possible. The student and parents need time to make the adjustment from elementary school to secondary school. Formal planning for transition to adult life often begins after the first year of secondary school.

Although it may seem that there is ample time to postpone transition planning until the last year or two of secondary school, it is important that parents, advocates, school personnel and adult service providers begin to consider long-term planning for the individual in the following areas:

- graduation or school exit date
- employment options
- post secondary training/education
- income support/insurance
- residential options
- transportation needs
- medical needs
- community recreation and leisure options
- maintenance of family/friend relationships
- advocacy/guardianship.

Transition planning is a shared responsibility between parent/guardian, the school and adult service providers. To be effective, the planning process should be a collaborative effort among the student, family, school and adult service providers.

The identification of desired post-school outcomes is the driving force behind transition planning, so the student and family are central to the planning process. The desired post-

Transition planning should begin early.

school outcomes will frame the objectives of the PPP and set the directions of the day to day activities.

The Individual Transition Plan is part of the Personal Program Plan.

The transition section of the student's PPP is developed through a meeting of the collaborative team. There are a variety of tools or processes for conducting the meeting. One approach is to conduct a MAPS meeting. MAPS refers to the McGill Action Planning System (Pearpoint, Forest & Snow, 1992). During the MAPS meeting, the participants focus on answering seven key questions:

- What is the story of the person? (history)
- What is the dream for the future?
- What is the nightmare? (situations, outcomes to avoid)
- Who is the person? (process for gathering comprehensive information)
- What are his/her strengths, abilities, gifts and talents?
- What are his/her needs?
- What is the plan of action?

The transition plan targets desired outcomes for adult life.

Regardless of the process or format used to conduct the transition planning meeting, the end result should be a section of the student's personal program plan that targets desired outcomes for adult life, specific current needs, a plan for addressing those needs, identification of the agencies/persons responsible and time lines. Subsequent planning meetings will need to be arranged to review the plan, check that specific objectives have been achieved, that the long term goals are still appropriate and necessary revisions are made (Freeze, 1995).

The role of school personnel is to continue to provide opportunities for the student to develop skills for work and independent living. The day to day program and instruction for the student increasingly focus on developing functional skills and community-based training.

The range of expectations will depend on the student's ability and needs. For example, some students with Asperger syndrome may plan to go on to further education following secondary school. Consequently, there will be a greater emphasis on academic preparation in addition to work experience, development of job-related skills and skills for leisure and recreation. For others, the program may focus on work experience, community-based training and self-care.

In general, the school program prepares the student for transition through:

- providing a variety of work experiences to help the individual determine preferences
- encouraging participation in extracurricular activities and social events
- encouraging volunteer work
- helping with developing a resume
- training in social skills for the job place
- teaching appropriate dress and hygiene
- providing on-the-job preparation, once preferences have been established
- training in the use of public transportation
- training in self-care
- training in self-management
- teaching functional academics appropriate to the ability level of the student.

Adapted from Freeze (1995), Geneva Centre (1994), Pratt (1997), Smith, Belcher & Juhrs (1994).

$\mathcal{A}$PPENDIX A

DSM-IV Criteria for Autistic Disorder (299.00)

A. A total of at least six items from (1), (2), and (3), with at least two from (1), and one from (2) and (3):

(1) Qualitative impairment in social interaction, as manifested by at least two of the following:

(a) Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction

(b) Failure to develop peer relationships appropriate to developmental level

(c) Markedly impaired expression of pleasure in other people's happiness.

(2) Qualitative impairments in communication as manifested by at least one of the following:

(a) Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gestures or mime)

(b) In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

(c) Stereotyped and repetitive use of language or idiosyncratic language

(d) Lack of varied spontaneous make-believe play or social imitative play appropriate to developmental level.

(3) Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by as least one of the following:

(a) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

(b) Apparently compulsive adherence to specific nonfunctional routines or rituals

(c) Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

(d) Persistent preoccupation with parts of objects.

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age three years:

(1) social interaction,

(2) language as used in social communication, or

(3) symbolic or imaginative play.

C. Not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.

Rett's Disorder

Rett's Disroder, also referred to as Rett syndrome, is a condition that is found only in females. Physical and mental development are essentially normal for the first six to eight months of life. This is followed by a slowing or cessation in achieving developmental milestones. By 15 months of age, about half of the children with Rett syndrome demonstrate serious developmental delays. By age three, there is generally a rapid deterioration of behaviour evidenced by loss of speech and excessive levels of hand patting, waving, and involuntary hand movements (Van Acker, 1997).

DSM-IV Diagnostic criteria for 299.80 Rett's Disorder

A. All of the following:
   (1) apparently normal prenatal and perinatal development
   (2) apparently normal psychomotor development through the first 5 months after birth
   (3) normal head circumference at birth.

B. Onset of all of the following after the period of normal development:
   (1) deceleration of head growth between ages five and 48 months
   (2) loss of previously acquired purposeful hand skills between ages five and 30 months with the subsequent development of stereotyped hand movements (e.g., hand-wringing or hand washing)
   (3) loss of social engagement early in the course (although often social interaction develops later)
   (4) appearance of poorly coordinated gait or trunk movements
   (5) severely impaired expressive and receptive language development with severe psychomotor retardation.

Childhood Disintegrative Disorder

For individuals with CDD, there may be several years of reasonably normal development followed by a loss of previously acquired skills. In approximately 75% of cases, the child's behaviour and development deteriorate to a much lower level of functioning. The deterioration stops, but there are minimal developmental gains past this point in the progression of the disorder. In addition, there is the development of various autistic-like features (Volkmar, Klin, Marans, & Cohen, 1997).

DSM-IV Diagnostic criteria for 299.10 Childhood Disintegrative Disorder

A. Apparently normal development for at least the first two years after birth as manifested by the presence of age-appropriate verbal and nonverbal communication, social relationships, play, and adaptive behavior.

B. Clinically significant loss of previously acquired skills (before age 10 years) in at least two of the following areas:
(1) expressive or receptive language
(2) social skills or adaptive behavior
(3) bowel or bladder control
(4) play
(5) motor skills

C. Abnormalities of functioning in at least two of the following areas:
(1) qualitative impairment in social interaction (e.g., impairment in nonverbal behaviors, failure to develop peer relationships, lack of social or emotional reciprocity)
(2) qualitative impairments in communication (e.g., delay or lack of spoken language, inability to initiate or sustain a conversation, stereotyped and repetitive use of language, lack of varied make-believe play)
(3) restricted, repetitive, and stereotyped patterns of behavior, interests, and activities, including motor stereotypies and mannerisms.

D. The disturbance is not better accounted for by another specific Pervasive Developmental Disorder or by Schizophrenia.

Asperger's Disorder

Asperger's Disorder has many features common to autism. The distinguishing criteria are that there are no clinically significant delays in early language development and no clinically significant delays in cognitive development or in the development of age-appropriate self-help skills, adaptive behaviour, and curiosity about the environment in childhood.

DSM-IV Diagnostic criteria for 299.80 Asperger's Disorder

A. Qualitative impairment in social interaction, as manifested by at least two of the following:
   (1) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
   (2) failure to develop peer relationships appropriate to developmental level
   (3) a lack of spontaneous seeking to share enjoyment, interest, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
   (4) lack of social or emotional reciprocity.

B. Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
   (1) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
   (2) apparently inflexible adherence to specific, nonfunctional routines or rituals
   (3) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex wholebody movements)
   (4) persistent preoccupation with parts of objects.

C. The disturbance causes clinically significant impairment in social, occupation, or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g., single words used by age two years, communicative phrases used by age three years).

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behaviour (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorders or Schizophrenia.

Reprinted, with permission, from the *Diagnostic and Statistical Manual of Mental Disorders,* 4th Edition, (1994). Washington, DC: American Psychiatric Association, p. 77.

Pervasive Developmental Disorder Not Otherwise Specified (Including Atypical Autism)

This diagnosis is used when an individual demonstrates impairments in the development of reciprocal social interaction or verbal and nonverbal communication, or when the repetitive and stereotypical behaviours are present, but the criteria are not met for Autistic Disorder, Asperger's Disorder, Rett's Disorder, or other specific conditions (DSM-IV, 1994).

APPENDIX B

RESOURCES

Consultative and Support Services

1.   The Special Education Unit of Saskatchewan Education provides one-on-one consultative support and professional development opportunities through the ACCESS Team. These services are accessed by completing the ACCESS Referral Form (found at http://www.sasked.gov.sk.ca/curr_inst/speced/) and submitting to the Special Education Unit, 2220 College Avenue, Regina SK S4P 3V7, facsimile (306) 787-2223.

2.   Saskatoon Society for Autism
     Suite 201
     2225 Hanselman Court
     Saskatoon SK S7L 6A8
     (306) 665-7013

3.   Autism Resource Centre
     Box 4751
     Regina SK S4P 3Y4
     (306) 569-0858

Books and Software

The following books are recommended sources of information on autism and Asperger syndrome. Teachers and school personnel may borrow these resources from the Saskatchewan Education Resource Centre, 2220 College Avenue, telephone (306) 787-5977, facsimile (306) 787-5059. The titles indicated as "available from the LRDC" may be purchased from the Learning Resource Distribution Centre.
      1500 4th Avenue
      Regina SK S4P 3V7
      Fax: 787-9747

Attwood, T. (1998). Asperger's Syndrome. A guide for parents and professionals. London: Jessica Kingsley Publishers. (available from the LRDC)

Cohen, D.J., & Volkmar, F.R. (Eds.) (1997). Handbook of autism and pervasive developmental disorders (2nd ed.). New York: John Wiley & Sons.

Cohen, S. (1998). <u>Targeting autism: What we know, don't know, and can do to help young children with autism and related disorders</u>. University at California Press.

Freeman, S., & Dake, L. (1996). <u>Teach me language: A language manual for children with autism, Asperger's syndrome, and related developmental disorders</u>. SKF Books.

Frith, U. (1991). <u>Autism and asperger syndrome.</u> New York: Cambridge University Press.

Frost, L.A., & Bondy, A.S. (1994). <u>The picture exchange communication system: Training manual</u>. Cherry Hill NJ: Pyramid Educational Consultants, Inc.

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Gray, C. (1993). <u>The social story book</u>. Jenison MI: Jensison Public Schools.

Gray, C. (1993). <u>Taming the recess jungle</u>. Jenison MI: Jenison Public Schools.

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Gray, C. (1996). <u>Social stories: All new social stories teaching social skills</u>. Arlington TX: Future Horizons.

Harris, S., & Handleman, J. (1994). <u>Preschool programs for children with autism.</u> Austin TX: Pro-ed.

Hodgdon, L.A. (1995). <u>Visual strategies for improving communication. Volume 1: Practical supports for school and home</u>. Troy MI: Quirk Roberts. (available from the LRDC)

Hodgdon, L.A. (1999). <u>Solving behaviour problems in autism: Improving communication with visual strategies</u>. Troy MI: Quirk Roberts. (available from the LRDC)

Indiana Resource Center for Autism (1997). <u>Autism training sourcebook</u>. Bloomington IN: Indiana University, Institute for the Study of Developmental Disabilities. (available from the LRDC)

Johnson, R.M. (1994). <u>Picture communication symbols</u>. Solana Beach CA: Mayer-Johnson Co.

Koegel, R.L., & Koegel, L.K. (1995). Teaching children with autism: Strategies for initiating positive interactions and improving learning opportunities. Baltimore MD: Brookes.

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Schopler, E., & Mesibov, G.V. (Eds.). (1994). Behavioral issues in autism. New York: Plenum Press.

Schopler, E. (1995). Parent survival manual: A guide to crisis resolution in autism and related developmental disorders. Austin TX: pro-ed.

Siegel, B. (1996). The world of the autistic child: Understanding and treating autism spectrum disorders. New York: Oxford University Press.

Simpson, R.L., & Myles, B. S.(Eds.), (1998). Educating children and youth with autism. Strategies for effective practice. Austin: pro-ed.

Smith, M.D., & Belcher, R.G., & Juhrs, P.D. (1994). A guide to successful employment for individuals with autism. Baltimore MD: Brookes.

Twachtman-Cullen, D. (2000). How to be a para pro. A comprehensive training manual for paraprofessionals. Higganum, CT: Starfish Speciality Press.

Yack, E., Sutton, S., & Aquilla, P. (1998). Building bridges through sensory integration. Toronto: Print Three. (Distributed through the Geneva Centre).

INTERNET RESOURCES

There are hundreds of web sites which contain some information on autism, Asperger syndrome, and pervasive developmental disorders. The quality of information varies among sites. The following sites are offered as a starting point. They provide useful information for parents and teachers, and also include links on a wide range of related topics.

Center for the Study of Autism
http://www.autism.org
This site provides information on autism and related disorders, an overview of interventions and alternate therapies, numerous personal accounts, information for siblings, and an extensive list of links on related topics.

Autism Society of America
http://www.autism-society.org.
Provides an overview of autism, information on educating students with autism, and provides lists of resources/materials, journals, organization, listservs and links.

Online Asperger Syndrome Information and Support (O.A.S.I.S.)
http://www.udel.edu/bkirby/asperger/
Very informative site for information on characteristics and educational considerations for students with AS.

Division TEACCH (Treatment and Education of Autistic and related Communication handicapped Children)
http://www.unc.edu/depts/teacch
Provides information on TEACCH services at the University of North Carolina at Chapel Hill. Also includes information on autism and Asperger syndrome, guidelines and tips for teachers, and a link to the Autism Society of North Carolina Bookstore – a very good source for books and manuals.

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