

Developing and Implementing Programming for Students with Autism Spectrum Disorder



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Developing and Implementing Programming for Students with Autism Spectrum Disorder

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Developing and Implementing Programming for Students with Autism Spectrum Disorder

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Prepared by the Department of Education

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Cataloguing-in-Publication Data

Main entry under title.

Developing and implementing programming for students with Autism Spectrum Disorder / Nova Scotia. Department of Education.

ISBN: 978-1-55457-458-2

1. Autistic children—Nova Scotia. 2. Autistic children—Education—Handbooks manuals etc. I. Nova Scotia. Department of Education.

371.94-ddc22

2012

Acknowledgments

This document is based largely on the works of various ministries of education across Canada, including Manitoba Education's *Supporting Inclusive Schools: A Handbook for Developing and Implementing Programming for Students with Autism Spectrum Disorder* (2005), The Newfoundland and Labrador Student Support Services document *Teaching Students with Autistic Spectrum Disorders* (2003), the Saskatchewan Education document *Teaching Students with Autism: A Guide for Educators* (1999), the Alberta Learning document *Teaching Students with Autism Spectrum Disorders* (2003), the British Columbia Ministry of Education document *Teaching Students with Autism: A Resource Guide for Schools* (2000), and the Ontario Ministry of Education document *Effective Educational Practices for Students with Autism Spectrum Disorders: A Resource Guide* (2007). We are indebted to these provinces for allowing us to use their valuable resources.

The Nova Scotia Department of Education would like to thank the following people for their contribution to this document.

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Introduction

Background

Autism spectrum disorder (ASD) is a complex neurologically based developmental disorder characterized by impairments in communication, social interaction, and behaviour patterns.

The symptoms of ASD range from mild to profound and affect individuals very differently. The term “spectrum” recognizes the complex range of this disorder within a continuum of severity. The effects of ASD are lifelong impacting on all areas of a person’s life.

Educators throughout Canada and elsewhere are currently experiencing a substantial increase in the number of children identified with ASD. It is complicated by the fact that the incremental increase in prevalence over time has coincided with a gradual broadening in how we define ASD.

Autism spectrum disorder is one of the most common developmental disorders. In 2009, the estimated prevalence of autism spectrum disorder was 1 in 110 (Rice 2009). In 2012, the Centers for Disease Control and Prevention in the United States estimated that 1 in 88 children have been identified with ASD. Four out of five students diagnosed with ASD are boys. These statistics have been accompanied by an increase in the number of requests for programming and services focused on the needs of students with ASD. The Nova Scotia Department of Education, through the province’s Autism Spectrum Disorder Action Plan, has taken action to address the growing need by

- hiring a provincial autism consultant with the Department of Education, Student Services Division
- supporting the establishment of school board autism teams
- allocating claims-based autism targeted funding for professional development and resources within school boards
- providing funding to boards for transition-to-school programming for students with ASD

- supporting training opportunities for school board staff in evidence-based instructional strategies
- developing a guide and fact sheet for teachers and administrators on programming for students with ASD
- incorporating information from preschool programs and services such as Early Intensive Behavioural Intervention (EIBI) and Early Intervention (EI) into individual program planning in the school setting
- participating as a member of the Implementation Management Program Team for the Early Intensive Behavioural Intervention (EIBI) program with the Department of Health and Wellness

Purpose

This guide is intended to be a resource for program planning teams who are responsible for developing and implementing programming for students with autism spectrum disorders in Nova Scotian public schools. It should also help school boards identify areas in which professional development may be needed. Parents/guardians and teachers may also wish to utilize related resources (see Resources for a list of supporting Department of Education documents).

Key Principles

The following key principles, as stated in the *Special Education Policy*, serve as a context for program planning teams in the use of this guide.

Right to an Appropriate Education

A right to an appropriate education means the fundamental educational human right of every individual to have their unique learning needs responded to on an individual basis.

Right to Quality Education and Qualified Teachers

All students have a right to quality education taught by licensed qualified teachers.

Right to Inclusive Education

Inclusive education embodies beliefs, attitudes, and values that promote “the basic right of all students to receive appropriate and quality educational programming and services in the company of their peers.”¹

Teachers’ Responsibility

Teachers are responsible for teaching all students who are placed under their supervision and care. This includes responsibility for safety and well-being, as well as program planning, implementation, and evaluation. This is not a responsibility that can be transferred or delegated to non-teaching staff.²

Parental Involvement

Parents/guardians have a duty and a responsibility to support their children in achieving success. They are an integral part of their children’s education and should be involved in program planning from the outset.³

Student Involvement

All students are expected to achieve to the best of their individual abilities the essential graduation learnings as stated in *Public School Programs*.⁴

Individual Program Plan and Accountability

An individual program plan (IPP) is developed in consideration of the student’s strengths and challenges. The outcomes in the IPP form the foundation for the evaluation of student progress. This progress is an important component in measuring school success.

Collaboration

Collaboration and consultation are essential in planning and supporting students with special needs to ensure a coordinated and consistent approach to program planning and service delivery.

1 *Inclusion* (Nova Scotia Department of Education 2010); see also *Education Act*, Section 64(2)(d)

2 Responsibilities of teachers and principals are outlined in the *Education Act*, sections 26 and 38.

3 *Education Act*, Section 25; *Special Education Policy*, Policy 2.2

4 *Education Act*, Section 24

Section 1: What is Autism Spectrum Disorder?

Pervasive Developmental Disorders

Pervasive Developmental Disorder (PDD) is the clinical category within the *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition (American Psychiatric Association 2000) (DSM-IV-TR) for neuro-developmental disorders that involve impairments in reciprocal social interaction and communication skills, and the presence of stereotypical behaviours, interests, and activities. The conditions classified as a PDD are

- autistic disorder
- Asperger's disorder/syndrome
- pervasive developmental disorder not otherwise specified (PDD-NOS)
- childhood disintegrative disorder
- Rett's syndrome

Each of the above conditions is professionally diagnosed through the presence or absence of certain behaviours and developmental delays.

Autism Spectrum Disorder

The term autism spectrum disorder (ASD) is commonly used to refer to

1. autistic disorder
2. Asperger's syndrome
3. PDD-NOS

In this guide, the term ASD is used to refer to the above three conditions. ASD does not include Rett's syndrome or childhood disintegrative disorder.

At the time of publication of this guide, the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), is under review. It is anticipated that DSM-V will have changes in the identification criteria.

Assessment and diagnosis of ASD involves gathering and analyzing information on the individual's development. Contributions that provide an overall profile of the individual may come from

- educators
- parents/guardians
- board based autism specialists/consultants
- speech-language pathologists
- occupational therapists
- psychologists
- other medical professionals
- early interventionists
- pre-school/day-care personnel

1. Autistic Disorder

DSM-IV-TR criteria for a diagnosis of autistic disorder requires that the onset of delays or atypical functioning is evident prior to three years of age and include

- qualitative impairment in social interaction, as defined, for example, by a lack of non-verbal behaviours (e.g., eye gaze, facial expression, gestures) used to regulate social interaction and by a lack of spontaneous sharing of enjoyment or interests with others
- qualitative impairment in communication, as defined by delayed or failure to develop spoken language, repetitive or idiosyncratic language, difficulty initiating or sustaining a conversation, and lack of varied, social-imitative, or make-believe play
- the presence of restricted and repetitive patterns of behaviour, interests, and activities of unusual focus and intensity, by inflexible adherence to specific routines or rituals, and by stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping)

2. Asperger's Disorder/Syndrome

Asperger's syndrome (AS) shares many of the same features of autistic disorder, including the impairments in social interaction and communication and the restricted and repetitive patterns of behaviours, interests, and activities.

The main difference between autistic disorder and Asperger's syndrome is that students with AS do not have clinically significant delays in early language or cognitive development. Students with AS acquire speech at the expected time but have a significant delay in the development of social communication skills. They usually do not have the same degree of difficulty in the development of age appropriate self-help and other adaptive skills as those with autistic disorder.

3. Pervasive Developmental Disorder Not Otherwise Specified

The diagnostic criteria for PDD-NOS is the same as those for autistic disorder except that fewer symptoms are required and onset of the delays or atypical functioning can be after three years of age.

Programming Considerations

Although every student with ASD is unique, some characteristics are considered particularly important in programming for students with ASD. These primary characteristics fall into three main categories:

1. social interaction
2. communication
3. behaviour

These are identified by the presence of specific indicators. These are summarized in the table below.

Characteristics and Indicators of ASD

Characteristics	Indicators
Social interaction	<ul style="list-style-type: none"> • marked lack of awareness of the existence or feelings of others • atypical seeking of comfort at times of distress • atypical imitation • unusual social play • limited ability to form friendships with peers
Communication	<ul style="list-style-type: none"> • difficulties with interpreting, understanding, or using non-verbal communication • difficulties with language comprehension • restricted vocabulary • echolalic speech • repetitive and idiosyncratic speech patterns • tendency to perseverate on a topic • difficulty with social use of language (pragmatics) • significant differences in oral language
Behaviour	<ul style="list-style-type: none"> • restricted repertoire of activities • stereotyped and repetitive body movements • persistent preoccupation with parts of objects or attachment to unusual objects • markedly restricted range of interests or a narrow pre-occupation with one interest • difficulties with attention and motivation • need to follow routines in precise detail • marked distress over changes in the environment • unusual response to sensory stimuli • high levels of anxiety

The characteristics and indicators of ASD will have significant implication on the learning process of students with autism. Here are some of them:

- deficits in attending to relevant cues and information and to multiple cues
- impairment in receptive and expressive language, particularly in the use and understanding of abstract concepts and relational terms
- deficits in concept formation and abstract reasoning
- impairment in social cognition, including deficits in the capacity to share attention and emotion with others or to understand the feelings of others
- inability to plan, to organize, and to solve problems
- difficulty with generalizing new skills
- relative strengths in visual spatial skills and tasks

Section 2: Characteristics and Associated Features of ASD—A Closer Look

Characteristics of ASD

As mentioned in Section 1, the characteristics associated with ASD fall into three categories:

1. social interaction
2. communication
3. behaviour

1. Social Interaction

Students with ASD demonstrate qualitative differences in social interaction and often have difficulty establishing relationships. They may have limited social interactions or a rigid way of interacting with others. This lack of effective social communication may result from an inability to distill social information from the social interaction and use appropriate communication skills to respond.

Understanding social situations typically requires language processing and non-verbal communication, which are areas of deficit for people with ASD. They may not notice important social cues and might miss necessary information. People with ASD typically experience difficulty in the use of non-verbal behaviours, such as gestures, to regulate social interaction, and in reading the non-verbal behaviour of others.

When six-year-old Jenna wants something at home or in the classroom that she can't get for herself, she takes the forearm of the nearest adult and places the adult's hand on what she wants, without looking at the adult or communicating in any other way.

Seven-year-old Tim bumps classmates seated on the carpet and steps on their hands without seeming to notice their presence or their reactions to him.

Social Interaction Indicators:

- marked lack of awareness of the existence or feelings of others
- atypical seeking of comfort at times of distress
- atypical imitation
- unusual social play
- limited ability to form friendships with peers

Nine-year-old Max sits down in the middle of a hallway full of older students at their lockers at 3 p.m. He seems oblivious to the jostling and grumbling, but catches the attention of a passing adult, rolls his eyes, and says, “I’m surrounded by idiots.”



SUGGESTED READING

See resources listed on the ALR database to support programming for developing social skills; e.g., *Thinking about YOU Thinking about ME* (Winner 2007).

Marked Lack of Awareness of the Existence or Feeling of Others

Students with ASD typically experience significant difficulty relating to others. In some cases, they may act as if others do not exist. A student may acknowledge someone’s presence in order to have a need met (e.g., to obtain an object) and subsequently ignore the person. The student might demonstrate this apparent aloofness by

- appearing to be deaf
- failing to respond when called
- appearing not to listen when spoken to, failing to produce a facial expression appropriate to the occasion, or producing a facial expression that is inappropriate to the occasion
- avoiding eye contact
- failing to enjoy or return other people’s affection
- treating people as if they were inanimate objects or useful tools

Students with ASD may respond socially to others in a variety of ways. Depending on the student, an absent, diminished, or atypical response to others might involve

- not sharing enjoyment, such as showing their objects of interest to others
- an unwillingness or inability to engage in co-operative play
- a tendency to spend inordinate amounts of time following their own interests or pursuing ritualistic activities
- difficulty making personal friendships
- a desire or drive for social interaction without the interaction skills to succeed

They may also be unable to appreciate or react in typical ways to the feelings and emotions of others, such as pain or distress. This is a characteristic of many students with ASD and often impedes the development of friendships.

Atypical Seeking of Comfort at Times of Distress

Students with ASD typically seek predictability and function best in structured activities and environments. Therefore, they often experience difficulty managing changes to their environment or routines. They may have strong emotional reactions to seemingly insignificant objects or situations, perhaps because they associate them with a previous unpleasant experience.


SUGGESTED READING

See *The Incredible 5-Point Scale* (Buron and Curtis 2003).

While typically developing students seek reassurance when afraid or in pain, students with ASD might not know how to communicate their need to others, or they may not understand that people can be of assistance.

When distressed, five-year-old Amy calms herself with the noise made by brushing her fingers across a soft brush held close to her ear, rather than wanting to be cuddled or to hold a doll or stuffed toy.

Atypical Imitation

Students with ASD usually do not learn effectively through imitation and require direct instruction. While typically developing students may observe and successfully imitate a variety of skills and behaviours spontaneously, students with ASD generally do not. As infants, children with ASD often do not imitate simple actions such as waving “bye-bye.”

The difficulty with focus and attention demonstrated by many individuals with ASD may impact on imitation skills, particularly if they are not interested in the situation. They may lack the motor planning and coordination needed to imitate multi-step motor routines, such as tooth brushing or preparing their school backpack or going through the cafeteria lunch line. The ability to learn by observing and imitating will remain limited as the students get older unless they receive direct instruction and intensive practice. Providing this practice in situations that are motivating for the students is the best way to learn these skills.

Nine-year-old Max wants the attention of his classmates and makes frequent social overtures to his peers. Unfortunately, he is often ignored. One day, he approached some older boys on the playground with taunts and insults. In response, they shoved him around and ridiculed him. The next day he gave tickets to his classmates to come see him getting beaten up in the afternoon. Because he knows that a fight attracts a crowd (and brings attention) he believes he has found a way to get his peers to pay attention to him.

Six-year-old Chris communicates with a few words and great agitation that he wants to stop skating with the other students and return to his classroom. The teacher assistant tells him that it is not time to leave the ice yet. He looks at her and then begins swearing loudly. In the past, the consequence for swearing has always been an immediate return to his classroom from an outside activity.

Unusual Social Play

Students with ASD typically experience difficulty with social and play skills. When they do play, their play is usually routine and repetitive in comparison to the spontaneous, creative, and evolving play of their peers. Many will not play with toys or other objects, or they will use them in idiosyncratic ways. A toy plane, for example, may not be a thing that flies but an object that has a metallic taste, rattles when it is shaken, and makes interesting visual patterns when its propellers spin.

Five-year-old Dianne is attending a classmate's party. Everyone is excited about the fish pond activity. When given the fishing rod for her turn, Dianne begins to spin around twirling the fishing rod.

Students with ASD may be passive in their initiation of play, preferring not to initiate interaction but willing to engage after invitation. Some students with ASD may appear aloof by playing next to other children but not sharing in or taking turns playing with other children (parallel play).

In his primary class, five-year-old David plays with blocks by lining them up in various ways on a tabletop and then moving his head back and forth to enjoy the visual effect. He loudly resists the efforts of other children to add onto his lines. He does not appear to attend to the ways in which other children use blocks for castles or garages or paths, and his use of blocks has not changed after two months of primary.

Underdeveloped play skills may contribute to students' difficulty interacting with others in later years. If students with ASD are not able to play with other children when they are young, they might not develop the skills necessary to interact with others when they are older. While many students with ASD begin to show interest in their peers as they get older, they often do not have the play and social communication skills required to connect meaningfully with them.

Dale and Michael, both ten, are referred to a social skills group. On the first day, they are told to play with anything in the room that they wish. They walk past the age-appropriate activities such as board games, card games, and construction toys, and head straight for the large toddler toys. They then have difficulty figuring out how they work.

Brenda Smith Myles in Asperger Syndrome and Difficult Moments (2005) describes a student, referred to her for aggression on the playground, who told her his favourite game was "Walker, Texas Ranger." When asked how to play it, he said that you kicked people and hit them and then at the end people liked you and that he was doing that at recess and soon people would like him.

Limited Ability to Form Friendships with Peers

Students with ASD tend not to spontaneously seek interaction with peers. They might not be able to tolerate being physically close to others, and may withdraw from them. They might also signal a desire for contact with others but do so in socially inappropriate ways, such as standing very close to someone but saying nothing, or silently stroking another child's face or arms. Consequently, they often miss opportunities to acquire and practise social skills, leading to greater social distance from others.

Of the many skills required for effective social contact, two are frequently absent or diminished in students with ASD:

- relating to peers and others in a positive and reciprocal manner
- adjusting to meet changing social demands in different contexts (for example, understanding that language or actions acceptable with peers in private conversations may not be appropriate with adults or authority figures)

Eleven-year-old Matthew stands nose-to-nose to talk to peers and advances as they retreat, not noticing or understanding the social distance commonly expected.

Nine-year-old Kyle dominates every interaction with peers in group tasks and in social activities, assigning roles and making rules, and changing them as necessary to ensure that he is always first and he always wins.

Implications for Instruction

Social skill development is essential for students with ASD. Plans for managing challenging behaviours must include specific instruction in appropriate behaviours. Most students with ASD typically do not learn social skills incidentally by observation and participation. Teachers must target specific skills for explicit, direct instruction and provide support for using the skills in social situations.

Communication**Indicators:**

- difficulties with interpreting, understanding, or using non-verbal communication
- difficulties with speech
- significant difference in intonation and voice control
- echolalic speech
- repetitive and idiosyncratic speech patterns
- restricted vocabulary
- difficulty with language comprehension
- tendency to perseverate on a topic
- difficulty with social use of language (pragmatics)

2. Communication

All students with ASD experience language and communication difficulties, although there are considerable differences in language ability among individuals. Some students are non-verbal, some students may develop speech that is not functional and, still others, may have fluent language with deficits only in the area of pragmatics (the social use of language).

Difficulty with Interpreting, Understanding, or Using Non-verbal Communication

- facial expressions
- eye contact and following the direction of others' eye gaze
- mutual or shared focus of attention
- gestures
- proximal issues (personal space)
- body postures

Eighteen-year-old Alex approaches a male classmate in the cafeteria and starts talking to him about his favourite subject, dinosaurs. Excited about his news, he moves in closer as he speaks. The boy steps back and Alex steps forward. His classmate glances at his watch and points at it. Alex continues to talk and to follow his classmate out of the cafeteria.

Michael, a grade six student, experiences a great deal of difficulty simultaneously looking at the teacher and listening to what he says. When the teacher insists that he maintain eye contact, Michael becomes very anxious and displays inappropriate behaviour.

Tony Attwood (1998), an Australian clinician and author, tells of a young man who, when Attwood reminded him of the necessity to look at him when they conversed, said "Why should I keep looking at you? I know where you are sitting."

Difficulties with Speech

- motor speech difficulties resulting in problems with consonant and syllable structure impacting production
- enunciation of words may be overemphasized

Significant Differences in Intonation and Voice Control

- odd pitch or intonation
- atypical rate of speech (faster or slower)
- unusual rhythm or stress
- monotone, mechanical, or lilting voice quality
- voice volume that is too soft or too loud

Echolalic Speech

Echolalic speech is immediate or delayed literal repetition of the speech of others. It

- appears to be non-meaningful to the listener, but typically serves as a communicative function (e.g., communicating emotional state or desire to interact) or a cognitive function (e.g., regulating or stabilizing emotional state)
- may serve as a communicative function, however it is important not to assume that the student understands the echolalic speech
- indicates the ability to produce speech and to imitate
- may be triggered by a situation or emotion, even if it seems to have no connection to the situation
- can be either immediate or delayed (the student may repeat what was just heard or repeat it later, sometimes many months or years later)

Delayed echolalic utterances may have no obvious meaning for the listener.

Eight-year-old Colleen is asked, “Do you want the computer?” Colleen replies “want the computer?” to indicate “yes, please.”

Repetitive and Idiosyncratic Speech Patterns

- using associational speech, memorized words, or phrases that the student tries to fit into a particular situation because he or she cannot phrase language more conventionally

Five-year-old Daniel, walking with his mother, approaches a heavyset woman. He looks her up and down and then looks at his mother and says, “It’s not over until the fat lady sings.”

One day, five-year-old Kym, who has a special interest in maps, falls and cuts her knee. While the cut is healing Kym notices that the shape of the scab looks like Africa. From then on, when Kym falls and hurts herself she remarks, “Africa, Africa.”

Restricted Vocabulary

- dominated by nouns and factual information
- often confined to requests or rejections, to regulate one’s physical environment
- limited in social functions

Difficulty with Language Comprehension

- difficulty comprehending verbal information
- problems following verbal instructions
- difficulty remembering a sequence of instructions
- problems comprehending abstract information
- literal and concrete interpretation of information
- difficulty inferencing, analyzing, problem solving

Ann's grade 7 math teacher tells her class to take out their math books, scribbles, and pencils and begin working on the even problems on page 203. Ann is a very good math student but she does not respond to the teacher's directions.

Grade 11 student Susan, insists that she should run for the student council because she says she is a very fast runner.

Tendency to Perseverate on a Topic

- continually discusses one topic and has difficulty changing topics

Carol asks each person who enters her home, "Do you like the Beatles?" Carol loves the Beatles and has spent hours researching them on the Internet and she has memorized each album they recorded and is able to tell you every song title on each album.

Difficulty with Social Use of Language (Pragmatics)

- problems initiating communication (intent to communicate may be disguised with unusual conversational bids)
- difficulty maintaining and extending conversation
- difficulty using non-verbal cues (e.g., facial expression or eye gaze of others)
- inappropriate interrupting
- inflexibility in style of conversation, stereotypic style of speaking
- difficulty keeping conversation on topic, or making tangential comments
- difficulty understanding the perspective or feelings of others
- problems recognizing that an interaction has ended
- difficulty with self-monitoring

During quiet classroom working environments, Dennis, a fifteen-year-old, will break the silence of the room and ask his teacher or the teacher assistant, "How are you doing?" every few minutes.

Christine is a thirteen-year-old who is learning about conversational discourse. She will greet people with "Hello, how are you?" and walk away before hearing the response.

Implications for Instruction

Effective programs for students with ASD include comprehensive communication assessment and intervention. This typically involves informal observation and classroom-based evaluation as well as assessment by a speech language pathologist. These evaluations help to identify pragmatic skills as well as the outcomes and strategies that facilitate development of receptive and expressive language skills. Communication outcomes should have a functional focus. Instruction should emphasize the development of attention, imitation, comprehension of vocabulary and instructions, as well as the use of language in play and in various social settings.

3. Patterns of Behaviour

Students with ASD typically demonstrate a narrow range of behaviours, interests, and activities that may be viewed as unusual, odd, or idiosyncratic. The adherence to sameness and routine reflects their attempts to manage their world and might not reflect conscious choice.

Restricted Repertoire of Activities

Students with ASD are often more oriented to objects than to people, and yet many have a very small repertoire of activities they can enjoy doing with the objects or materials that they like. They may need to be systematically taught to broaden their range of interests and activities so that they can entertain themselves, increase their attention span, improve trial-and-error learning skills, and master activities that will then become vehicles for social interaction.

Five-year-old Jacob has ASD and significant cognitive challenges. He seems to have no means to enjoy himself, other than eating. When he is exposed to a large variety of toys and materials, he is observed to briefly watch toys that spin, such as spin tops, even though he doesn't attempt to use them.

He is then taught, using demonstration and hand-over-hand support and a simple script of "push ... look," to push a top and watch it spin. He is praised each time he pushes and is offered a raisin as a reinforcer after three pushes. Eventually, while being taught to do a new activity, he is offered a raisin as a reinforcer, but he pushes it away and points to the top instead.

He now has enlarged the repertoire of activities (pushing on the top) that he can enjoy doing and that can be used as reinforcers to teach new activities.

Patterns of Behaviour Indicators:

- restricted repertoire of activities
- stereotyped and repetitive body movements
- persistent preoccupation with parts of objects or attachment to unusual objects
- markedly restricted range of interests or a narrow preoccupation with one interest
- difficulties with motivation
- need to follow routines in precise detail
- marked distress over changes in the environment

Stereotyped and Repetitive Body Movements

Students with ASD may show “stereotyped” behaviours (such as hand flapping, finger flicking, rocking, hand clapping, lunging, and grimacing), which compete with purposeful tasks or activities. The desire to perform these movements often seems strongly internally motivated. Attempting to halt them without teaching a replacement behaviour can lead to other similar behaviours.

Persistent Preoccupation with Parts of Objects or Attachment to Unusual Objects

Students with ASD often develop preoccupations with particular objects (e.g., wheels, light switches, string, fans), sounds, colours, or textures that go well beyond the stage of a simple interest. As with the stereotyped and repetitive body movements previously described, the internal motivation behind these preoccupations and attachments can be very strong. For example, a student preoccupied with spinning a toy car’s wheels might find that activity more interesting than rolling the care along the floor.

Markedly Restricted Range of Interests or a Narrow Preoccupation with One Interest

Most students with ASD show an intense interest in a narrow range of objects, activities, or people. In higher-functioning students, these interests often become preferred conversational topics that dominate social interaction with others.

Eleven-year-old Marcel has chosen J.P. Cormier as his topic for a classroom project on musicians, and in the process he has developed an intense interest in bluegrass. Every spontaneous conversation between Marcel and his peers or adults at school is used to relay the latest things he has learned about J.P. Cormier or other bluegrass greats, and he is very creative about inserting his topic into apparently unrelated classroom discussions. He also brings tapes so that his teacher can play them during class. He shows no awareness that, while his teacher is charmed, his grade 6 peers are uninterested at best.

Difficulties with Motivation

Frequently, what motivates students with ASD is different from what motivates their peers. Internal motivators, such as the need to fit in with peer groups, share experiences, or receive recognition from others, i.e., the teacher, may not be meaningful. Some students with ASD may not find external rewards (or reinforcers) motivating. In fact, students with ASD might not

be able to understand or tolerate many things a typically developing student might find rewarding, such as,

- physical contact (for example, a light pat or a hug)
- non-verbal signals (wink or head nod)
- verbal praise
- extra time for social contact
- reinforcers, such as checkmarks, to be exchanged for money or privileges

Students with ASD are typically motivated by highly individual preferences and interests. If these are understood and incorporated appropriately into learning activities, it may be possible to increase the motivation of students with ASD, and by so doing, improve their attention.

Ten-year-old Cole reads well and loves books, especially ones new to him. His teacher identifies a selection of books and stores them in a labelled box in the classroom. The books are available to him only for a few minutes after he has worked successfully in math each day.

Seven-year-old Rajinder is motivated by being in control of choices and by being able to photocopy and then complete dot-to-dot pictures. He has a visual schedule reminding him that after he completes two tasks, he can choose:

1. *to go to the office and choose a piece of coloured paper from the colours available from the school supply, or*
2. *to photocopy a dot-to-dot of his choice from the teacher's workbook*

Need to Follow Routines in Precise Detail

All students (and adults, too) require a degree of structure, routine, and predictability in their day. Most students with ASD, however, need to maintain highly consistent routines in order to function with any success. Students with ASD usually perform tasks exactly as they are taught. With thoughtful planning and teaching, this can be a learning strength. Conversely, unlearning one skill and relearning another may require considerable time and effort.

Six-year-old Sharon has learned to follow a visual task strip for removing and putting on outerwear. When spring arrives and she does not always come to school with snow pants, a hat, or a scarf, she has a tantrum each time she has to dress or undress if the items of clothing matching the pictures are absent.

Marked Distress over Changes in the Environment

Seemingly minor changes may provoke strong reactions. Change that might go unnoticed or be welcomed by a typically developing student might lead to distress or a tantrum in a student with ASD.

For example, a student with ASD may be distressed if

- seating at desks or tables is rearranged
- bulletin boards are changed
- materials are removed and replaced with different ones
- different centres are open on different days
- the class uses a different bathroom in the school than usual, or enters through a different door
- physical education class occurs outside rather than in the gym
- the classroom teacher stands in a different place than usual to talk to the class
- instead of the usual activity, a special visitor speaks to the class or there is a special assembly

Implications for Instruction

Many of the atypical and stereotyped behaviours associated with ASD may be caused by factors such as hypersensitivity or hyposensitivity to sensory stimulation, difficulties in understanding social situations, and difficulties with changes in routine, all of which can cause anxiety. The instructional plan must incorporate strategies that address sensory issues, teach social skills, prepare for planned changes, expand on interests, and teach self-regulation strategies.

Planning instruction for students with ASD should include a Functional Behavioural Assessment. Teachers need to consider the problematic behaviour and its function for each particular student. For example, the function might be to gain attention or to avoid something. While it might not be possible to eliminate all challenging behaviours, successful teaching strategies for supporting students with ASD focus on helping the student learn another appropriate behaviour that will serve the same function.

Cognition

Cognition is a multi-layered system whereby information is processed, analyzed, organized, and stored for future reference. Although cognitive skills and weaknesses occur along a continuum, individuals with ASD have difficulty processing and integrating information and responding to it in flexible ways. They may have significant deficits in certain areas of cognitive functioning while other areas are fairly intact.

Learning

Cognition information is

- processed
- analyzed
- organized
- stored for future reference

The profile of children with ASD is typically one of uneven development. A small percentage of children may demonstrate unusual or exceptional abilities in the presence of serious cognitive deficits. Rates of learning are also affected, with progress occurring at slower rates than would be expected given chronological age.

The way in which individuals process information is important to the learning process. Children learn about the world through sensory experience, emotional connections, and language. Typically developing children are able to link new experiences to past experiences and subsequently develop a broad knowledge base that is constantly being revised and expanded. They develop complex and varied ways of knowing about things. This information is stored and retrieved in an infinite number of ways.

Children with ASD have problems integrating information in meaningful and flexible ways. They tend to process information one piece at a time, resulting in a narrow, more restricted understanding. Information is often stored and recalled as a whole, rather than analyzed, reorganized, or related to other information. For some, the difficulties in extracting meaning from information results in fragmented learning experiences. This results in restricted concept development, problems in generalization, and poor social communication. Students with ASD process information that is fixed in space more easily than information that is rapidly changing. The transient nature of language and non-verbal communication can be difficult to follow, and this affects successful social interaction.

Rote memory and visual spatial tasks are relative strengths for most individuals with ASD. Because information is stored in more restricted ways, there is a tendency to rely on patterns. Memory tasks that involve free recall without explicit retrieval cues are more challenging. People with ASD often require more concrete cues to remember linguistic information and to initiate communication with others. A good rote memory does not ensure comprehension and application. Many children with ASD can decode a text but cannot understand what they have read. They may be able to memorize the multiplication tables but have trouble applying this information for problem-solving.

Cognition Impairment Indicators:

- deficits in attending to relevant cues and information and to multiple cues
- receptive and expressive language impairments
- deficits in concept formation and abstract reasoning
- impairment in social cognition
- executive function difficulties
- difficulty with generalizing new skills
- relative strengths in visual spatial skills and tasks

Deficits in Attending to Relevant Cues and Information and to Multiple Cues

Due to the processing difficulties that are characteristic of ASD, some students have difficulty determining what information is most relevant. Students with ASD may respond to irrelevant objects or cues in the teaching stimulus or environment. Additionally, students might not recognize and use all the important cues in the educational setting (sounds, visual representations, tactile cues). As a result, they make incorrect connections in learning or social communication. For example, typically developing children will look at a picture and listen to the word used to name the picture. A student with autism may look at the picture but not “hear” the spoken word and therefore will not learn this association. Similarly, a child who hears the spoken word but does not attend to the picture or item will not learn the label.

Lauren loves basketball. For her twelfth birthday she was given an official WNBA tri-coloured basketball for a gift. When asked why she refused to play basketball with it she replied, “It’s not a basketball. It is not orange.”

Receptive and Expressive Language Impairments

Some students may demonstrate strength in certain aspects of speech and language, such as sound production (phonology) or vocabulary and simple grammatical structure (syntax), yet have significant difficulty carrying on a conversation and using speech for social and interactive purposes (pragmatics). They can have problems particularly in the use and understanding of abstract concepts and relational terms. A student who is higher functioning might perform numerical computations easily but be unable to solve application problems.

Students with ASD may have difficulty comprehending oral and written information, such as following directions or understanding what they read. Some higher functioning individuals may be capable of identifying words, applying phonetic skills, and knowing word meanings; however, teachers should not assume comprehension based on good decoding skills.

Deficits in Concept Formation and Abstract Reasoning

Concepts may be learned in specific, rigid, or divergent ways. There may be gaps in concept formation or restricted application and generalization of known concepts. Connecting or making associations and thereby engaging in higher-level thinking skills, such as inferencing or analyzing, can prove challenging for many students with ASD, even those who are considered higher functioning or have Asperger’s syndrome.

Individuals with ASD also tend toward liberal or concrete interpretation of information. Thinking in the abstract or reflecting upon language, events, or experience is problematic. These students work much better with factual information and can have difficulty imagining or writing about activities they have not personally experienced. Concepts must be directly taught, and it is essential that there be a plan for generalization of these concepts across settings, materials, and people.

The grade 11 English language arts teacher is starting a new unit on poetry. As an inspiration for her students she posts a picture of a desert sunset and asks Thomas to write a poem about the feelings it elicits for them.

Sixteen-year-old Thomas writes:

I see the sun, it is red

I see the sand, it is light brown

I see the cactus, it is green

The picture is hanging crooked.

Impairment in Social Cognition

Students with ASD have significant difficulty “stepping into someone else’s shoes” or conveying empathy. In fact, they have significant difficulty with any interaction that requires knowledge of other people and what they think or know. It has been theorized that they have a social cognitive deficit in this area, which Baron-Cohen (1995) terms “mindblindness.” People with ASD may not be able to understand the perspective of others, or even understand that other people have a perspective that could be different from their own. They may have difficulty understanding their own and, particularly, other people’s beliefs, desires, intentions, knowledge, and perceptions, and they often have problems understanding the connection between mental states and actions.

For example, a child might not be able to understand that another child is sad, even if that child is crying. Children with ASD may not grasp the fact that other people have their own perceptions and viewpoints.

Eighteen-year-old Jim is asked what he thinks is inside the Ritz Cracker box. He guesses crackers; but instead, there are poker chips inside. When asked what he thinks his classmate will guess when asked what’s inside the box, he says, “poker chips.”

Executive Function:

- planning
- organizing
- sequencing ideas and actions
- connecting past experience with present action
- monitoring performance
- time management

Executive Function Difficulties

Executive function refers to the higher level mental processes that guide our behaviour as we manage the various tasks we encounter in our environment. These processes include task initiation, working memory, planning and organizing thoughts, actions, and materials; shifting our attention and thinking flexibly, regulating our emotional states, inhibition and impulse control, time management, and goal-directed persistence. Additionally, an important executive skill is the ability to be able to stand back and reflect upon how things are going, to observe how the problem-solving process is working so that changes can be made. Good executive function means being able to connect past experience to present actions and being able to self-regulate behaviour as we get the job done. Problems with executive functioning can impact communication, social interactions, school performance, and career success.

Some of the behaviours seen in persons with ASD can be attributed to executive deficits including the need for sameness and routine, rigidity and inflexibility, the difficulty in initiating non-routine tasks, and problems with self-regulation and self-monitoring. The organizational challenges seen with higher functioning or Asperger's students are often attributed to a lack of motivation and attention when executive deficits are a major contributing factor. Problems with planning, shifting, and self-monitoring can impact social interaction with others particularly in group situations where speaker and listener roles are constantly changing along with the topic of interest. Being unable to "think ahead" or use working memory to reflect back on past events to help in the current situation can result in anxious responses to task demands, people, or events.

Difficulty with Generalizing New Skills

Students with ASD do not automatically generalize newly learned skills beyond the immediate context in which the skills were learned. They may only perform new skills in the situation in which they originally learned them, or only with objects originally used or very closely associated within the context of learning.

Five-year-old Justin has learned to use the washroom independently at home; however, he is unable to transfer the skills associated with toileting in any other washroom outside his home.

Sixteen-year-old Mark completed a science project on the environment. He was unable to transfer these skills to a project assigned in history class.

Relative Strengths in Visual Spatial Skills and Tasks

Some students with ASD have stronger abilities in the areas of rote memory and visual spatial tasks than in other areas. They may excel at visual spatial tasks, such as putting puzzles together, but have difficulty recalling more complex information.

Strengths in visual spatial skills have been described in personal accounts of individuals with ASD. Temple Grandin (1995) suggests that some people with ASD can more easily learn and remember information presented in a visual format and that they may have problems learning about things that cannot be thought about in pictures. Grandin explains that she has a visual image for everything she hears and reads, and that she “thinks in pictures.”

Implications for Instruction

These cognitive variations result in unique patterns of strengths and challenges in a student’s academic performance, social interaction, and behaviour. Development of cognitive skills is usually uneven. Programming for the student should therefore be based on the specific combination of strengths and challenges of that individual, which are identified through the program planning process (see Section 3).

Associated Features of ASD

In addition to the primary characteristics essential to the diagnosis, associated features are frequently observed in students with ASD. Awareness of, and familiarity with, these associated features provide a more comprehensive understanding of the student and are essential to identifying individual strengths and challenges within the program planning process.

Associated features of ASD include

1. unusual patterns of attention
2. unusual responses to sensory stimuli
3. motor performance and planning difficulties
4. anxiety

1. Unusual Patterns of Attention

These difficulties with attention may include

- impaired capacity to share attention with another person around an object or event of interest (shared attention)
- difficulty identifying relevant cues or information in the environment, instead focusing attention on one aspect of the situation that may be tangential to the topic or task; additionally, the student might focus on one aspect of a situation and ignore the rest, or notice an insignificant detail, for example, a student might look at a ball but not at the person to whom the ball is being thrown, or they might focus on a staple in the corner of a paper, but not the information on the paper itself
- an attention span that is either too short or overly focused on a task, object, or event (stimulus over selectivity) to the exclusion of what is going on around them
- problems disengaging or shifting attention from one stimulus to another, or engaging in conversation with more than one person at a time
- inability to attend to multiple cues in speech and language and therefore miss important subtleties of the message
- attend to limited portions of a conversation or thereby missing the intent of the speaker

Seven-year-old Martin has a parent who is a gemologist, and he is interested in gems and rocks. He appears to pay close attention to a story read by his teacher as he sits on the carpet in front of her. Asked afterward to say what he liked best about the story, he responds, “What a whopper,” pointing to the teacher’s engagement ring. This left his teacher wondering whether his fascination with gems kept him from paying attention to the story.

Nine-year-old Nathan has been invited by a classmate to play catch during recess. While throwing, Nathan looks exclusively at the ball and ignores the classmate to whom it is being thrown.

Twelve-year-old Kelly, when asked to put away coins after a coin-counting task, turns all the coins face down and whispers to herself “the ones with the leaves.” She used that cue to discriminate pennies from dimes and nickels, rather than use colour as many students would do.

Implications for Instruction

Understanding these unusual patterns of attention is crucial in appropriate development of programming and services. Information and instructional activities presented to students with ASD should be provided in a format

that is clear, focuses their attention, and emphasizes the most relevant information. Individualized strategies for focusing the student's attention are developed as part of the program planning process.

Parents/guardians can provide valuable information when they share methods of helping their child to focus on things they need to learn. Special areas of interest of the child may be capitalized upon to engage and focus their attention on a specific task. For example, if a child is particularly interested in fire trucks, putting a fire truck sticker on a page may focus the child's attention to the task they are to complete. However, caution is to be exercised to ensure that the special areas of interest are socially and culturally appropriate.

2. Unusual Responses to Sensory Stimuli

Sensory integration is how we process and organize information received through our senses so that we feel comfortable and secure and are able to respond appropriately to particular situations and environmental demands.

Students with ASD usually differ from their peers in their sensory experiences. Responses to sensory stimulation can range from hypo-sensitivity (under-reactive, hypo-reactive) to hypersensitivity (over-reactive, hyper-reactive).

According to personal accounts of individuals with ASD, environmental stimuli can be disturbing or even painful. This reaction may apply to any or all types of sensory input.








Students with ASD may perceive things in the environment differently than others. It is important to recognize that, although the students' responses may seem unusual, they may be reacting appropriately to what they are perceiving. For example, a student's perception of sounds might be overly acute. In a school setting, we may gradually include a student into music class, being careful to desensitize the student to the various sounds. Similarly, they may under-react to what they perceive.

The extent to which sensory problems may contribute to overall functioning will vary. There is sufficient information to suggest that consideration be given to both the type and amount of sensory stimulation in the environment, and the individual's reaction to it. Therefore, the development of a sensory profile, in consultation with other qualified service providers, is important to ensure appropriate programming for the student.

Sensory Systems:

- tactile
- auditory
- visual
- olfactory
- gustatory
- vestibular
- proprioceptive

Description of the Sensory Systems

System	Location	Function
Tactile (touch) 	Skin—density of cell distribution varies throughout the body; areas of greatest density include mouth, hands, and genitals	<ul style="list-style-type: none"> provides information about the environment and object qualities (touch, pressure, texture, hard, soft, sharp, dull, heat, cold, pain)
Vestibular (balance) 	Inner ear—stimulated by head movements and input from other senses, especially visual	<ul style="list-style-type: none"> provides information about where our body is in space, and whether or not we or our surroundings are moving; tells about speed and direction of movement
Proprioception (body awareness) 	Muscles and joints—activated by muscle contractions and movement	<ul style="list-style-type: none"> provides information about where a certain body part is and how it is moving
Visual (sight) 	Retina of the eye—stimulated by light	<ul style="list-style-type: none"> provides information about objects and persons; helps us define boundaries as we move through time and space
Auditory (hearing) 	Inner ear—stimulated by air/sound waves	<ul style="list-style-type: none"> provides information about sounds in the environment (loud, soft, high, low, near, far)
Gustatory (taste) 	Chemical receptors in the tongue—closely entwined with the olfactory (smell) system	<ul style="list-style-type: none"> provides information about different types of taste (sweet, sour, bitter, salty, spicy)
Olfactory (smell) 	Chemical receptors in the nasal structure—closely associated with the gustatory system	<ul style="list-style-type: none"> provides information about different types of smell (musty, acrid, putrid, flowery, pungent)

Source: *Asperger Syndrome and Sensory Issues: Practical Solutions for Making Sense of the World* (p. 5), by B. S. Myles, K. T. Cook, N. E. Miller, L. Rinner, and L. A. Robbins, 2000. Shawnee Mission, KS: AAPC.

Tactile System (Touch)

The tactile system is the largest sensory system in the body. It includes the nerves under the skin surface that send information to the brain. The system provides information on touch, pain, and pressure. This information is interpreted by the individual as painful, neutral, or pleasurable. The tactile system allows us to perceive our environment and have the appropriate reaction for survival. We pull away from something that is too hot and might harm us. We respond with pleasure to the warmth and pressure of a hug.

Although some sources of stimulation might cause avoidance, other types or amount of stimulation can have a calming effect.

People with ASD may frequently experience adverse reactions to tactile stimulus. Tactile defensiveness is a condition in which a person is extremely sensitive to touch. This can result in

- withdrawing when being touched
- refusing to eat certain textures of foods or to wear certain types of clothing
- complaining about having one's hair or face washed
- avoiding getting one's hands dirty
- using one's fingertips rather than whole hands to manipulate objects

While some sources of stimulation can be aversive to some students with ASD, different types or amounts of stimulation may have a calming effect. Students might seek out stimulation that is not appropriate in social settings (e.g., physical stimulation).

Six-year-old Sarah is easily agitated whenever her mother sends her to school in new clothes. She will often scratch and mark her neck in an effort to remove the manufacturer's label on the neckline that is causing her significant discomfort.

Auditory System (Hearing)

Students with ASD can be hypersensitive or hyposensitive to sounds. Seemingly innocuous sounds, such as the squeak of a marker on a page or the bubbling of an aquarium, may cause extreme distress (hypersensitive). Normally occurring sounds can be experienced as painful or frightening. Students may tolerate loud sounds when they like them or are in control of them (e.g., banging a drum) but react catastrophically to a ringing school bell or the buzzing sound of a TV when a video ends.

Alternatively, students with ASD might not respond to sounds in their environment and act as if they are deaf or hard of hearing (hyposensitive). Some students with ASD may not be able to focus on one sound and ignore others,

Hypersensitive:
over-reactive
Hyposensitive:
under-reactive

such as listening to the teacher's instructions while other students are talking in groups. Other students may be so focused on an activity that they are oblivious to sounds in the environment, including having their names called loudly.

Seven-year-old Sherry becomes withdrawn and unresponsive at the same time every day in her classroom. Her teacher eventually realized that Sherry shuts down in anticipation of the sound of the bell ringing and shuts down again to recover from it.

Visual System (Sight)

Some students with ASD cover their eyes to avoid certain lighting or visual effects (such as flickering fluorescent bulbs) or in response to reflections or shiny objects, while others seek out shiny things and look at them for extended periods of time or enjoy moving their heads or moving objects before a light source to produce visual effects.

A student might have difficulty finding something directly in their field of vision, such as a book or a pen, because they don't pick it out from the background or because motivation is not high enough to support visual concentration. The same student may be able to "Find Waldo" or notice a word or numbers of perseverative interest on the side of a truck a block away.

Olfactory (Smell) and Gustatory (Taste) Systems

Some individuals have adverse reactions to olfactory or gustatory stimuli, while others may seek these forms of stimuli in a way that we do not ordinarily expect. In some individuals, we see both of these responses.

Different responses to sensory stimuli may be apparent in a student's reaction to smells. Students may react in various ways to odours such as perfumes and deodorants. For example, in a school setting, a child may react adversely to a particular teacher. However, it might simply be the scent of the teacher's shampoo causing the adverse reaction. Some students with ASD have very restricted food preferences due to sensitivities to certain tastes or textures. In extreme instances there may be a concern regarding adequate nutrition.

When fourteen-year-old Marty walked down the street, he was able to discern what each house was serving for supper by the smells coming from the houses.

Vestibular System (Balance)

The inner ear contains structures that detect movement and changes in position. Students with ASD may have differences in this orienting system, which can result in fear of movement or difficulty with orientation on stairs or ramps. Some students may actively seek intense movement that vigorously stimulates the vestibular system, such as whirling, spinning, or other movements that typically developing students could not tolerate. The opposite, however, can also be true, and the student might not be successful with activities such as climbing a ladder, somersaulting, or bending at the waist to pick up an object or to put on boots. Some students with ASD may experience little or no difficulty with motor movements or balance.

Temple Grandin is an author who writes from the perspective of someone with ASD. “Spinning was another favourite activity. I’d sit on the floor and twirl around. The room spun with me. This self-stimulatory behaviour made me feel powerful. After all, I could make a whole room turn around. Sometimes I made the world spin by twisting the swing in our backyard so that the chain would wind up. Then I’d sit there as the swing unwound, watching the sky and earth whirl. I realize that non-autistic children enjoy twirling around in a swing too. The difference is, the autistic child is obsessed with the act of spinning.” (Grandin 1996)

Proprioceptive System (Body Awareness)

Proprioception is the sensory feedback to muscles and joints that provides information as to where our body is in space and how it is moving. Students with ASD who have problems in this area might

- have an odd posture
- appear clumsy
- have difficulty sitting properly in a chair
- press their pencil with too much force or not enough force
- drop pencils and other belongings frequently
- be unaware of proper orientation of clothing

Difficulties with motor planning—the sequencing of motor performance skills required for such activities as getting on a bicycle, getting dressed, or opening a door—may be related to difficulties with body awareness.


SUGGESTED READING

For more information on sensory integration see

- *Building Bridges through Sensory Integration* (Yack, Sutton, and Aquilla 1998)
- *The Out of Sync Child* (Kranowitz 2005)
- *Asperger Syndrome and Sensory Issues* (Myles et al. 2000)
- *The Goodenoughs Get In Sync* (Kranowitz 2005)
- *Arnie and His School Tools* (Veenendall 2008)
- *Learning in Motion* (Angermeier, Krzyzanowski, and Keller Moir 2009)
- *Learn to Move, Moving Up!* (Brack 2009)

Implications for Instruction

Unpleasant or aversive sensory experiences may contribute to some of the inappropriate behaviours displayed by individuals with ASD (Gillingham 1995). For example, people with severe sensory processing problems may entirely shut down to avoid aversive stimuli or overstimulation (Grandin 1995). Tantrums may be related to the desire to escape situations that are overstimulating. Self-stimulating behaviours may help the individual calm down when stimuli become overwhelming, by generating a self-controlled, repetitive stimulus (Indiana Resource Centre for Autism 1997). Some individuals with ASD might engage in self-injurious behaviours as a result of sensory issues.

Awareness of differing experiences of sensory stimulation and integration is an important part of understanding behaviours of students with ASD and developing programs for them. Teachers and families can work with qualified professionals who can assess sensory responses and assist in implementing strategies to address this area of need. Programming to address sensory challenges should be considered if sensory issues are interfering with learning. The sensory activities should be integrated throughout the day in the student's individual schedule.

3. Motor Performance and Planning Difficulties

As in other developmental areas, individuals with ASD demonstrate variation in motor planning and motor skill abilities. Dyspraxia is a motor planning disorder referring to difficulties constructing a plan to carry out learned, purposeful movement, and subsequently organizing and implementing the required motor task.

Students with motor planning difficulties may have problems initiating, sustaining, switching, or combining motor movements. Children with ASD tend not to explore or interact with the environment to the same degree or in the varied ways that typically developing children do, and as a result they require interventions to ensure that these skills are developed.

Many tasks throughout the day require competency in motor planning. Navigating one's way around school obstacles such as other children and desks, getting dressed to go home, or developing a plan to pick up an object when both hands are already holding something can be challenging. Frustrations can be further exacerbated in the classroom setting by both academic demands and the physical environment. The ability to perform motor sequences may have no proportional relationship with a student's cognitive level.

Students may therefore

- fail to explore or interact with the environment to the same extent as typically developing children (includes exploring toys—spinning wheels rather than making the toy car drive along a road—and using playground equipment, etc.)
- take longer to learn unfamiliar routines
- have difficulty with multiple-step routines
- fail to recognize potential safety issues of their actions or, conversely, over-estimate the risk and freeze on the spot, unable to move

Motor skills that are developed through motor planning and imitation include gross motor, fine motor, bilateral coordination, and visual-motor coordination skills. The following chart helps to illustrate these.

Functional School Skills

Gross-Motor (strength in the arms, legs, and trunk muscles)	Fine-Motor (dexterity and strength in the hand)	Bilateral Coordination (coordinating the use of both sides of the body)	Visual-Motor Coordination (integrating the use of the eyes and hands)
<ul style="list-style-type: none"> • sitting upright at a desk • balancing on a chair or toilet seat • managing stairs and risers • participating in gym class • using playground equipment • navigating and manoeuvring around school obstacles such as children and desks • dressing to go outside or to the gym 	<ul style="list-style-type: none"> • holding a pencil correctly • controlling scissors when cutting • manipulating buttons/zippers • tying shoes • turning a doorknob • pushing the water fountain button • using utensils • using a mouse and keyboard 	<ul style="list-style-type: none"> • washing hands • climbing stairs with alternating feet • catching a ball • clapping hands • skipping / jumping jacks • holding paper with one hand while the other hand writes/colours/cuts 	<ul style="list-style-type: none"> • accuracy with cutting • accuracy with colouring inside the lines • accuracy with writing between the lines • copying geometric shapes • putting puzzles together • formulating letters and numbers

Implications for Instruction

Problems with motor performance have an impact on a variety of areas, including academics, play and social interactions, and functional life skills. Direct instruction using task analysis and visual cues to illustrate the steps and sequence of actions are essential components of enhancing motor performance. For some students the implementation of strategies and resources such as assistive technology devices will be necessary.


SUGGESTED READING

“Anxiety in Adolescents with Asperger Syndrome” (Farrugia and Hudson 2006)

4. Anxiety

Anxiety is not identified in the DSM-IV-TR criteria for a diagnosis of ASD but many feel that the role and effects of anxiety have been grossly understated. Many people with ASD, as well as their parents/guardians and teachers, identify anxiety as a major feature.

Research indicates that students with ASD are more vulnerable to stress and anxiety than the general population. Moderate to severe depression is also a significant issue for many individuals with ASD, particularly in adolescence. The presence of anxiety or depression indicates that the person is experiencing stress and is unable to manage the situation effectively. Anxiety, stress, or depression in students with ASD may be related to a variety of sources, including

- communication difficulties
- difficulties with processing sensory information, heightened sensitivities, or overload of incoming stimuli
- fearing/seeking some sources of sensory stimulation
- high need for predictability, and difficulty with unanticipated change
- difficulty understanding social expectations
- confusion, frustration, and fear because they are not understood
- fear of some people, animals, objects, or events because of previous experience and the inability to verbalize this effectively
- lack of appropriate programming


SUGGESTED READING

The Incredible 5-Point Scale
(Buron and Curtis 2003)

Anxiety does not always get expressed in children with ASD in ways that many people would expect. For example, it can be expressed in aggressive behaviours, self-injurious behaviours, temper tantrums, running, or self-stimulating behaviours. Conversely, the student may actually have no obvious observable reaction to a stimulus—no facial expression and flat affect—but may nonetheless be experiencing high levels of anxiety. Some children may “shut down” completely. However, they may still be experiencing anxiety. Also, some students may have a delayed reaction to something in the environment. For example, if a child with ASD has a new bus driver in the morning, he or she may express anxiety later in the day. Educators might not always immediately recognize the origin of a student’s anxiety and should be vigilant to look closely at what is taking place in the child’s life.

Nine-year-old Sean is distraught when he is not able to spell a word correctly, and he begins to lose control. When an adult quickly tells him, “That word is at least a grade 6 word, and no one would expect a boy in grade 4 to be able to spell it,” he says, “You mean it’s OK if I can’t spell it? Are you sure?” With several more reassurances, he is able to return to the activity.

Eleven-year-old Michael is told he can choose a game to play with a classmate after a session of work. He looks at various games but can't choose, telling his classmate that he isn't sure in which game he can be the winner, and that he can't play a game unless he's sure he can win.

Eight-year-old Krista was non-verbal as a younger child but has begun to use words well. She has always strenuously resisted efforts by parents or school personnel to take her outside in the winter. She is heard one day to say quietly to herself, "It's OK, the trees won't really poke your eyes out."

Implications for Instruction

Programs for students with ASD frequently have to address anxiety and the underlying causes. It is important to conduct a functional analysis to determine if the behaviours are due to anxiety and to ascertain the cause of the anxiety. Changes and adaptations can be made within the environment to reduce anxiety-arousing situations, and a variety of strategies can be used to help individual students manage anxiety and cope with difficult situations. Individuals with ASD experience confusion about the world around them and lack the ability to cope with situations that are anxiety provoking.

A well-planned program can lessen levels of anxiety to a great degree for students with ASD. Some strategies include

- teaching an effective way to communicate
- providing a structured environment with visual supports and schedules
- teaching self-control behaviours such as relaxation exercises (self-regulation)
- vigorous exercise where appropriate throughout the day (built into an individual program plan)
- positive behavioural support / functional behavioural analysis to better understand the sources of the anxiety
- providing appropriate breaks and calming activities throughout the day

Students with ASD are at high risk for bullying, teasing, and being taken advantage of. Educators need to be aware that this happens and monitor it accordingly. When possible, students can be assisted in recognizing bullying behaviours and be taught strategies to communicate when it is happening and what they should do about it. It is important that educators be aware of bullying and that they help other students in the class or school understand autism and its associated disabilities.

Summary

This section described characteristics of ASD and outlined instructional implications for each. While each student is unique, ASD is associated in varying degrees with particular communicative, social, behavioural, and learning profiles. Unusual patterns of attention, motor planning and production, and sensory responsiveness also characterize the behaviour and learning of students with ASD. Notably, these students have difficulty understanding and using language and non-verbal modes (e.g., gestures and eye gaze) of communicating with others, which affects their social development. They also tend to have a restricted range of interests, an inflexible adherence to routines, and unusually high levels of anxiety.

Instructional strategies should focus on

- developing communication skills
- providing explicit, direct teaching of social skills
- establishing functional routines
- preparing students for any changes or new situations
- environmental adaptations to help students focus attention on relevant information
- addressing sensory issues and using visual aids to optimize learning

Students with ASD require a high level of structure in the presentation of materials and in the organization of the learning environment and instructional methods. However, while explicit instruction should be the primary tool used with students with ASD, it is important for teachers to be flexible in their approach and to change expectations when the situation warrants it. Achieving a balance between the need for carefully planned instruction and flexibility in adapting approaches based on the changing needs of students is the key to a successful program.

Section 3: Program Planning for Students with ASD

The Program Planning Process

Program development for students with ASD takes place in the context of the *Special Education Policy* (Nova Scotia Department of Education 2008b) program planning process. Program planning is a collaborative process in which the members of a student's program planning team are those who have responsibility for his or her learning. They include

- parents/guardians
- principal/vice-principal
- teachers, including resource teachers
- other professional staff involved
- the student, when appropriate
- additional members, depending on the learning needs of the student and personnel resources of the school board and community

Through the program planning process, students with ASD are supported in the achievement of learning outcomes of the public school program curriculum and/or the outcomes of their individual program plans (IPP). An IPP is developed for a student with ASD when curriculum outcomes of the public school program are not applicable or attainable.

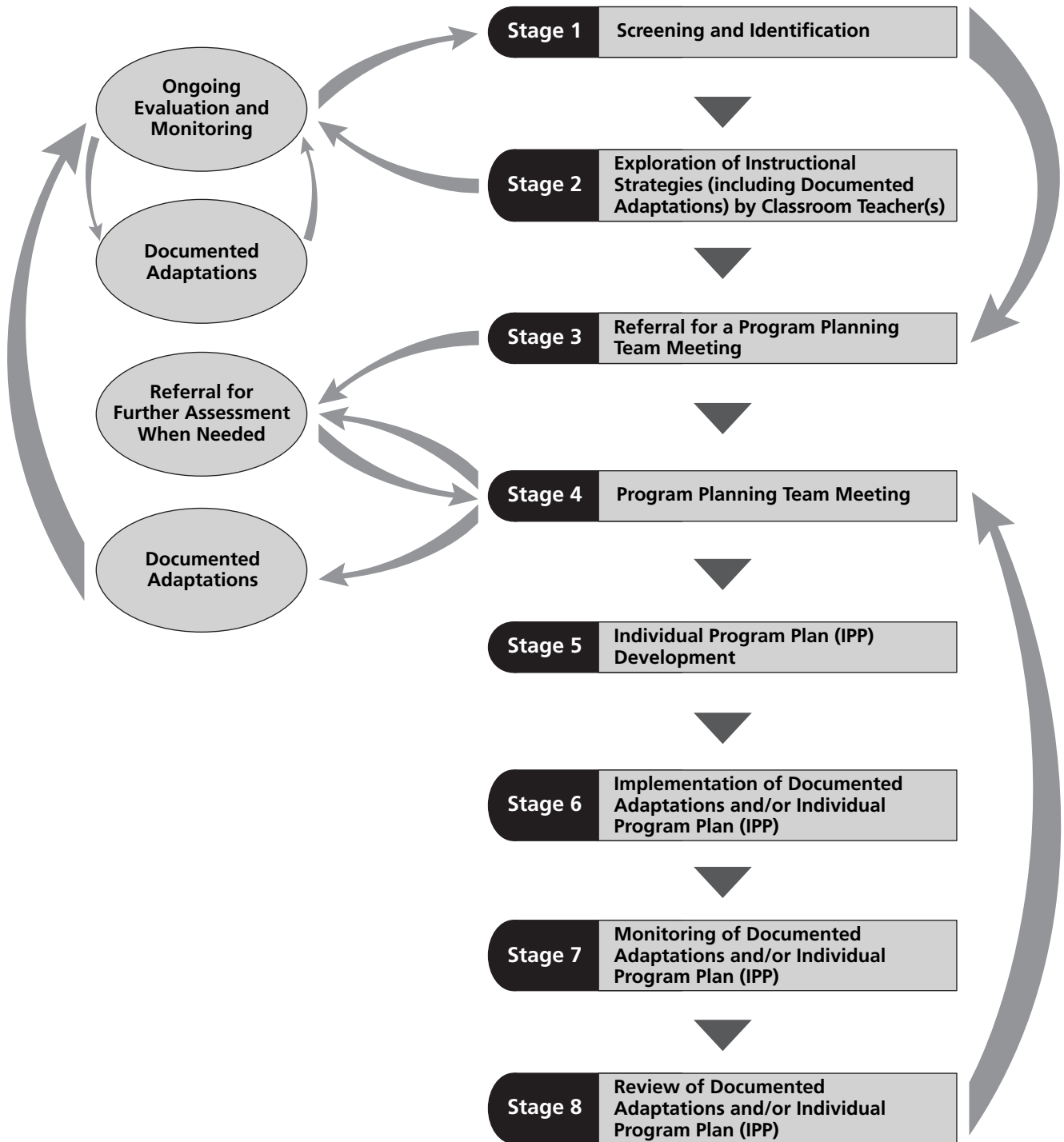
The following chart outlines the stages of the program planning process as identified in the Nova Scotia Department of Education's *Special Education Policy* (2008; Policy 2.2, p. 28), as well as the dynamics within this process, which vary with the specific strengths and challenges of the individual student.



SUGGESTED READING

For more information to support program planning, see "Nova Scotia Department of Education Support Resources" and "Autism Resources on the Nova Scotia School Book Bureau Authorized Learning Resources (ALR) Database" in the Resources section of this guide.

Identification, Assessment, and Program Planning



Roles and Responsibilities of Program Planning Team Members

Collaboration is essential to successful program planning. Each member of a student's program planning team has an important contribution to make to the process. Taken together, their contributions result in a comprehensive profile of the student's strengths and challenges and the appropriate programming to address them. The roles and responsibilities typically include the following:

Parent(s)/guardian(s)

- are involved from the beginning in the program planning process
- share information related to their child's strengths, challenges, and aspirations
- ensure that information that supports effective transitioning is shared (home-to-school, grade-to-grade, school-to-school, school-to-community)
- share relevant information related to events, family circumstances, and educational history that could affect programming and service, positively or negatively
- share with the team pertinent information from other professionals and agencies involved with the child
- carry out the specific parts of the program plan that are their responsibility as collaboratively agreed on through the program planning process

Administrators

- assume a leadership role in the program planning process
- support the right of parents/guardians to be involved
- ensure that appropriate team members, including parents/guardians, are notified of the date, time, and location of program planning meetings
- chair the program planning meeting or designate a person to act as chair
- ensure that a written record of proceedings is kept
- remain aware of communication regarding programming and services for students

Teachers and other professional school-based staff

- participate in the program planning process for students for whom they have responsibility
- implement program plans, as required
- track, monitor, and report on student progress
- review student records to support transitioning and programming


SUGGESTED READING
**Department of Education,
Supporting Student Success
Series:**

- *Supporting Student Success: Resource Programming and Services* (2002)
- *Transition Planning for Students with Special Needs* (2005)

The student (when appropriate)

- advocates through sharing strengths, challenges, and aspirations
- shares information related to personal and academic circumstances that could affect programming, positively or negatively
- is involved to the best of his or her ability in the development of appropriate programming and services
- carries out the specific parts of the program plan that are his or her responsibility as collaboratively agreed upon through the program planning process

Board-based support staff (when appropriate)

- participate in the program planning process as required
- provide, as appropriate, programming and services as agreed upon through the program planning process
- support a team that can work effectively
- bring to the team an understanding of resources and services available either within the board or within the larger school community

Note: board-based support staff refers to professional staff employed by the school board to support programming and services for students (e.g., speech-language pathologists, psychologists, program coordinators and autism consultants/specialists, student services coordinators/consultants, directors of programs and services, etc.)

Members of agencies in the community

- share assessment information regarding a student's strengths and challenges in the context of adherence to confidentiality protocols
- participate in program planning as appropriate
- participate, as appropriate, in reviewing and updating programming


SUGGESTED READING

The Ziggurat Model: A Framework for Designing Comprehensive Interventions for Individuals with High-Functioning Autism and Asperger's Syndrome (Aspy and Gossman 2007)

Making Program Planning Decisions

The Ziggurat Model is a framework for designing comprehensive interventions for students with ASD. It includes consideration for

- biological and sensory needs
- reinforcement (motivators)
- structural and visual strategies
- task demands
- skills to teach

This model compliments the program planning process by helping teams to determine whether the instructional demands on the student are appropriate and suited to the student's learning style and needs.

The Comprehensive Autism Planning System (CAPS), is a framework that program planning teams might use to address questions such as

- What supports does my student need in each class to be successful?
- What goals (outcomes) is my student working on in this class and in this setting?
- Is there a thoughtful sequence to the student's day that matches his or her learning style?

Adaptations

Some students with ASD are able to pursue the achievement of public school program curriculum outcomes with the support of adaptations. Adaptations are planned strategies and resources specific to the strengths and challenges of the student that facilitate achievement of public school program outcomes without changing them.

Adaptations can be developed and documented by teachers at the classroom level; however, if more planning is required than can be done at this level, a program planning team meeting is scheduled.

Adaptations may include one or more of the following

- organizational strategies
- environmental strategies
- presentation/instructional strategies
- motivational strategies
- assessment strategies
- resources

Individual Program Plan

For some students with ASD, public school program curriculum outcomes are not applicable or attainable. In other cases, students may require additional outcomes for enrichment. In such instances, an individual program plan (IPP) is developed by a program planning team. The student's IPP includes

- a summary of student strengths and challenges
- annual individualized outcomes
- specific individualized outcomes
- strategies and resources
- responsibilities area
- reviewing and reporting area
- signatures

It is important to note that some students with ASD may require adaptations in some areas and an IPP in other areas.



SUGGESTED READING

The Comprehensive Autism Planning System (CAPS) (Henry and Myles 2007)



SUGGESTED READING

Adaptations: Strategies and Resources [Fact Sheet] (2010)
http://studentservices.ednet.ns.ca/sites/default/files/Adaptations_WEB.pdf

See Sample Adaptation Planning Form, Appendix A.

Identifying Specific Strengths and Challenges: The Foundation of Successful Programming

The basis of successful programming for students with ASD is the identification of their individual strengths and challenges and the use of this specific information in the development of programming.

A student may exhibit challenges to learning that can be addressed by adaptations to his or her program, thereby meeting the public school program outcomes. If the student is unable to meet the outcomes or has specific needs outside the public school program and requires an IPP, his or her challenges become the basis for the development of individualized annual and specific outcomes. The student's strengths are used, to the extent possible, to determine appropriate instructional and assessment strategies.

Developing a profile of student strengths and challenges involves the following steps:

- Step 1: Gathering information
- Step 2: Sharing information
- Step 3: Identifying gaps in the information
- Step 4: Ensuring appropriate assessment to obtain required information
- Step 5: Creating a comprehensive profile of student's specific strengths and challenges

It should be noted that throughout each of these steps, program planning teams are expected to observe confidentiality protocols.

Step 1: Gathering information

In this step, it is important to be thorough in the collection process to ensure that all available information is obtained. Identifying the source and date of the information will help to ensure that the data is credible and current.

Step 2: Sharing information

Sharing information among team members helps the student's program planning team to

- establish a more comprehensive understanding and profile of the student's strengths and challenges
- identify and arrange for follow-up on any questionable or contradictory information
- identify gaps in the information

Step 3: Identifying gaps in the information

As indicated above, the identification of gaps in the information occurs in the process of information sharing. In identifying gaps, program planning teams should consider not only required information that is not available but also what information requires updating.

Step 4: Ensuring appropriate assessment to obtain required information

When gaps in required information regarding the student's strengths and challenges have been decided, the student's program planning team identifies how and through whom this information will be obtained. When this involves formal assessment, protocols regarding parental consent must be followed.

Step 5: Creating a comprehensive profile of student's specific strengths and challenges

In developing the student's profile of strengths and challenges, program planning teams may find it useful to use a framework such as the following to organize the information:

- primary characteristics: communication, social interaction, behaviour patterns
- associated features: unusual patterns of attention, unusual responses to sensory stimuli, motor performance, anxiety
- behaviours other than restricted or repetitive
- adaptive skill development; e.g., self-help skills

A sample worksheet for organizing student strengths and challenges is provided at the end of this chapter. As stated initially, a comprehensive profile of a student's specific strengths and challenges is essential to successful program development. It is the key to establishing appropriate outcomes and strategies for those students who require an IPP. A thorough understanding of strengths and challenges is also critical to the development of strategies for those students who require adaptations. Section 4 is devoted to an examination of techniques and strategies to support the learning success of students with ASD.

An IPP includes both annual and specific individualized outcomes. Annual individualized outcomes are statements of expected achievement based on past achievement, present performance, and priority areas of development.

Specific individualized outcomes are statements that outline the steps involved in achieving an annual individualized outcome. These outcomes are sequentially organized according to the developmental processes involved.

Program planning teams should ensure that the individualized outcomes that they develop are

- directly connected to the student's priority needs
- consistent with the program planning team's vision for the student and relevant to the student's vision for him or herself
- supportive of appropriate inclusion
- written in precise, clear, and unambiguous language
- reflective of expectations of the student's achievement over the course of one school year
- supportive of building independence
- reflective of the task analyzes necessary to identify the prerequisite skills and incremental steps involved
- in keeping with the student's past achievement and current rate of progress

Planning and Assessment Tools

A variety of comprehensive planning and assessment tools are available to guide programming for students with ASD.

Planning for successful student learning is a complex process that is driven by assessment. No single method of assessment is sufficient when planning for students with complex needs. Likewise, no planning model or teaching strategy stands alone.

Following is a list of commonly used tools for planning and assessment with students with ASD.

STAR: *Strategies for Teaching Based on Autism Research* is a comprehensive developmental curriculum. The STAR autism program teaches children with autism the critical skills identified by the 2001 National Research Council. The teaching strategies include discrete trial training, pivotal response training, and teaching functional routines. The STAR program includes detailed lesson plans, teaching materials, data systems, and a curriculum-based assessment for teaching in the six curricular areas of receptive language, expressive language, spontaneous language, functional routines, academics, and play and social skills.

FACTER: *Functional Assessment and Curriculum for Teaching Everyday Routines* assesses and teaches independence to students with developmental disabilities by addressing their ability to perform typical everyday "routines" while incorporating essential "related skills" for living. Routines serve as the basic unit for assessment and instruction in FACTER. These routines and related skills are identified as outcomes for a student's individual program plan.

TTAP: *TEACCH Transition Assessment Profile* is a comprehensive assessment used with adolescents and young adults with ASD to help plan for the functional areas deemed necessary for transition from school to community. Educators use this tool to help students with autism spectrum disorders prepare for life after high school in the areas of personal development, recreational living, employment, and residential arrangements. TTAP identifies principal transition goals as well as strengths and challenges. TTAP emphasizes evaluation in six major functional areas:

1. vocational skills
2. vocational behaviour
3. independent functioning
4. leisure skills
5. functional communication
6. interpersonal behaviour

ABLRS-R: *Assessment of Basic Language and Learning Skills—Revised*. The ABLRS-R is an assessment, curriculum guide, and skills tracking system for children with language delays. It contains a task analysis of the many skills necessary to communicate successfully and to learn from everyday experiences.

The ZIGGURAT Model: is a research-based system that capitalizes on strengths to address underlying deficits. It provides a framework for designing systematic and comprehensive interventions for individuals with ASD. It is assessment driven and strongly supports the program planning process when developing interventions for the complex needs of students with ASD. The model includes an underlying characteristics checklist for both classic and high-functioning students with ASD.

CAPS: *The Comprehensive Autism Planning System for Individuals with Asperger's Syndrome, Autism and Related Disabilities* is a planning system designed to be used alone or with other models, i.e., the Ziggurat Model, to help schools organize an instructional program for students with ASD. The CAPS provides a format for outlining a student's daily tasks and activities along with the skills being taught, strategies to be used, the staff involved, and type of data collection. Provision for generalization of skills acquired is also included.

Strengths and Challenges Organizer (Template)

Student: _____ Date: _____

Area	Specific Strengths	Specific Challenges
Characteristics		
Communication		
Social interaction		
Behaviour patterns (restricted and repetitive)		
Associated Features		
Unusual patterns of attention		
Unusual response to sensory stimuli		
Motor performance		
Anxiety		
Behaviour (other than restricted/repetitive)		
Self-help/management, independence		
Other (e.g., problem solving)		

Notes:

Strengths and Challenges Organizer (Sample)

Student: _____ Date: _____

Area	Specific Strengths	Specific Challenges
Characteristics		
Communication	<ul style="list-style-type: none"> beginning to use single words (mom, Thomas, Susan, bed) appears to understand small words for certain foods and activities (juice, cars, bathroom) tries to repeat words when prompted [I want...c___ (cookie)] takes adult by the hand to get what he or she wants. 	<ul style="list-style-type: none"> understanding of words is limited and also restricted to the topics of food, activities, and family names expressive language limited to less than 12 words with or without prompt
Social interaction	<ul style="list-style-type: none"> can play in parallel with adults 	<ul style="list-style-type: none"> does not play parallel with peers oversensitive to the physical proximity of other children playing does not demonstrate turn-taking skills
Behaviour patterns (restricted and repetitive)		<ul style="list-style-type: none"> play is simplistic and does not demonstrate use of imagination perseverates on lining toys up, and on spinning objects trouble with transitions (perseverates on activities)
Associated Features		
Unusual patterns of attention	<ul style="list-style-type: none"> can attend to activities of interest for up to 45 minutes 	<ul style="list-style-type: none"> restricted repertoire of reinforcing activities refusal to engage in group activities (circle, story time)
Unusual response to sensory stimuli	<ul style="list-style-type: none"> tolerates loud noises enjoys tactile stimulation from sand and water table enjoys eating 	<ul style="list-style-type: none"> hypersensitive to the proximity of peers in his play space
Motor performance	<ul style="list-style-type: none"> physically active good fine motor and bilateral skills (as demonstrated by hand activities such as lining up cars, spinning toys, shifting water and sand from left to right) 	<ul style="list-style-type: none"> awkward running gait unable to catch a ball
Anxiety		<ul style="list-style-type: none"> resorts to shaking finger in front of face and vocalizing loudly when redirected by an adult

Area	Specific Strengths	Specific Challenges
Behaviour (other than restricted/repetitive)		
	<ul style="list-style-type: none"> demonstrates emerging skills in imitation 	<ul style="list-style-type: none"> impulsively grabs items that don't belong to him
Adaptive Skills		
Self-help/management, independence	<ul style="list-style-type: none"> is toilet trained on a timed schedule 	<ul style="list-style-type: none"> not able to spontaneously indicate that he or she needs to go to the toilet
Dressing skills	<ul style="list-style-type: none"> is able to put on outerwear independently 	<ul style="list-style-type: none"> unable to manage buttons or zippers

Section 4: Teaching Students with Autism Spectrum Disorders—A Focus on Strategies

A Focus on Strategies

No single method or educational plan teaching students with Autistic Spectrum Disorders is appropriate for all students. This is supported by the National Research Council (2001). Also, strengths, interests, and challenges of students change over time, making it necessary for teachers to try different approaches. This chapter contains information about instructional approaches as well as strategies that have been successful for teachers working with students with ASD.

Evidence-Based Practice

School personnel and families are united in their desire to provide a quality, appropriate education for students with ASD. There are many treatment options discussed in literature and the media that may or may not be supported by sound research. It can be challenging for families and professionals alike to critically evaluate all of these options. It is important to have a means by which we can determine the most appropriate and effective intervention strategies or programs that can result in positive outcomes for students.

The term Evidence-Based Practice (EVP) refers to a team-based approach to decision making about intervention in which currently available, high-quality research is integrated with

- professional expertise and judgment, including data driven decision making
- preferences and values of the family, caregiver, or person with ASD
- the system capacity to implement an intervention including training and resources.

The program planning process is an opportunity for these factors to be discussed in the context of planning for students with ASD in the school setting.

The material in this section has been adapted by permission from Manitoba Education (2005).



SUGGESTED WEBSITES

For more information on evidence-based practice:

For the National Autism Center and a discussion of the National Standards Project go to www.nationalautismcenter.org/nsp/.

To access the National Autism Center's publication Evidence Based Practice and Autism in the Schools go to www.nationalautismcenter.org/pdf/NAC%20Ed%20Manual_FINAL.pdf.

For The National Professional Development Center on Autism Spectrum Disorders go to <http://autismpdc.fpg.unc.edu/content/evidence-based-practices>.

To access the Interprovincial Autism Advisory Committee's "Information Paper—Research to Inform Practice: Evidence-Based Practice," go to www.studentservices.ednet.ns.ca.

The National Autism Center (Massachusetts) published the National Standards Project in 2009 which discussed evidence based practice and identified the level of research support for interventions for children and youth with ASD (up to age 22). These results are currently being updated with a new review to be published in 2013. The National Professional Development Centre (North Carolina) also released a report on evidence based practice in 2008.

How does a program planning team decide which strategies represent the best choices for an individual student? One of the first and foremost considerations is knowing the student. Student-specific knowledge and understanding on the part of the program planning team members in the following four areas will greatly assist in selecting the most appropriate evidence-based strategies that will best support the student in successfully achieving the learning outcomes:

- strengths and challenges
- motivations and interests
- responsiveness to structure, routine, and predictability
- responsiveness to visual support

As discussed in Section 3, the identification of a student's strengths and challenges is the foundation of successful programming. Ensuring that the information is conveyed in specific terms is essential to making the best match for the student when deciding on instructional strategies.

Strengths and Challenges

Strategies that consider and use, to the extent possible, the strengths or relative strengths of the student provide some compensation for areas in which the student is more limited. For example, if reading is a relative strength for a student who does not comprehend spoken language well, strategies that incorporate print into instruction might aid the development of comprehension skills.

These issues may influence the manner in which programming and services will be delivered.

Motivations and Interests

Motivation, the personal reason for doing something, is critical for learning. It may come from within the person (intrinsic) or from outside the person (extrinsic). A motivated student is more likely to

- attend to an activity
- enjoy doing an activity, stay with an activity longer
- require less prompting and encouragement to complete an activity
- demonstrate increased rates of learning

Students with ASD are typically motivated by highly individual and frequently idiosyncratic things. They may not be motivated and rewarded by the same things that motivate other students, such as verbal praise.

Strategies that incorporate specific interests tend to be more motivating than instructional strategies that do not. Students will typically participate in instruction with greater attention and for longer periods of time when engaged in activities they find motivating.

It is essential that programming for students with ASD include identification of individual motivators. This increases a student's receptivity to learning. As an additional benefit, student behaviour is often best when the student is engaged in activities that incorporate individual interests and provide reinforcement.

Responsiveness to Structure, Routine, and Predictability

Students with ASD benefit from structure, routine, and predictability in their lives. Providing structure, routine, and predictability does not imply forcing a student to follow a strict routine imposed by an adult. Rather, the learning environment should be structured to provide an appropriate level of consistency and clarity; students should know where things belong, what is expected of them, and what comes next.

Individual needs and preferences should determine the amount of structure, routine, and predictability each student requires. Some students might require more than others. Also, a student can need more structure, routine, and predictability on some days than others. It is important to make adjustments as required.

Visual support is typically the most effective vehicle to communicate structure, routine, and predictability because it offers the student a permanent reminder of expectations. Visual supports can also increase the student's potential to function with greater independence once the routine is established.

Structured teaching is a familiar term to many Nova Scotian teachers and autism specialists. This intervention approach was developed by Dr. Eric Shoepfer, founder of University of North Carolina's Division TEACCH (Treatment and Education for Autistic and related Communication-handicapped Children).

The principles of structured teaching include

- understanding the culture of autism
- structuring the physical environment
- using visual supports to make the sequence of daily activities predictable and understandable (schedules)
- developing an individualized person- and family-centered plan for each student, rather than using a standard curriculum



SUGGESTED WEBSITES

To download visual symbols and photos, go to:

- www.usevisualstrategies.com
- www.do2learn.com
- www.card.ufl.edu/visual.htm
- www.setbc.org

Software packages that make graphic symbols:

- Boardmaker
- Communicate: Symwriter
- Communicate: InPrint2



SUGGESTED READING

How to Develop and Implement Visual Supports (Earles-Vollrath, Cook, and Ganz 2006)

Visual Strategies for Improving Communication (Hodgdon 2011)

Solving Behavior Problems in Autism (Hodgdon 1999)

A Picture's Worth (Bondy and Frost 2001)

"Organize and Structure Visual Support Systems" in *Understanding the Nature of Autism* (Janzen 2003, 197–229)

Table 4.3 "Visual Supports for Middle and High School Students with AS" in *Asperger Syndrome and Adolescence* (Myles and Adreon 2001, 87–91)

"Visuals" in *Asperger and the Elementary School Experience* (Moore 2002, 53–99)

Responsiveness to Visual Support

As previously stated, a recommended approach for teaching students with ASD is to use visual supports. Students often demonstrate relative strengths in concrete thinking, rote memory, and understanding of visual-spatial relationships, but have difficulties in abstract and relational thinking, social cognition, communication, and attention (Quill 1995b).

Pictographic and written cues can often help the student learn, organize, communicate, develop self-control, and build independence. An advantage of visual aids is that students can use them for as long as they need to process the information. In contrast, oral information is transient: once said, the message is no longer available. Oral information may pose problems for students who have difficulty or require extra time to process language (Hodgdon 1995b). In addition, it may be difficult for the student with ASD to attend to relevant information and to block out background stimulation. Using visual supports better enables the individual to focus on the message.

“Visual aids and symbols range in complexity from simple to concrete to abstract. The continuum moves from real object or situation, to facsimile, colour photograph, colour picture, black and white picture, line drawing, and finally to graphic symbol and written language. Objects are the most simple, concrete form of aid. Graphic symbols, although far along the continuum in terms of complexity and abstraction, have been used successfully with many students with autism spectrum disorders.”

—*Teaching Students with Autism Spectrum Disorders*, Alberta Learning 2003

Software packages that provide quick access to graphic symbols and the ability to create customized symbols are available from the Nova Scotia School Book Bureau (e.g., Boardmaker).

Visual supports can be used in the classroom in a variety of ways. To be successful, they must fit the student's level of comprehension by being at the appropriate level of complexity. Using a line drawing to support learning when the student needs colour photographs in order to comprehend will only frustrate everyone. The key question when planning an activity or giving an instruction is, How can this information be presented in a simple visual format? Choose visual aids on the basis of an understanding of the student's abilities and responses.

Taking this caution into account, visual supports are useful and can be employed to

- organize the student's activity: daily schedules, mini-schedules, activity checklists, calendars, choice boards
- provide directions or instructions for students: visual display of classroom assignments, file cards with directions for specific tasks and activities, pictographs and written instructions for learning new information

- assist the student in understanding the organization of the environment: labelling of objects, containers, signs, lists, charts, and messages
- support appropriate behaviour: posted rules and representations to signal steps of routines
- teach social skills: pictorial representations of social stories depicting a social situation with the social cues and appropriate responses, developed for a specific situation

Teaching Tools: Strategies to Support the Student with ASD across Settings and Curriculum Areas

Many instructional strategies need not be restricted to specific categories or particular settings. For example, a daily schedule may be used to provide structure, routine, and predictability; teach new vocabulary; develop expressive language skills; reduce anxiety resulting from change; and so on.

Apart from educational settings, most of these strategies are also appropriate for use in the home or community. Using the same strategy in a number of settings can have important benefits, including a generalization of skills that can be applied between settings and the development of communication between home and school.

Strategy selection must be guided by the qualifications and expertise required to implement the strategies. For example, teacher assistants will require specific training and ongoing supervision when they work with students. If a program planning team determines that a consultation is required concerning the selection and implementation of specific strategies, a referral to involve the appropriate professional may be made according to school board protocol.

Video Modelling

Video modelling is a technique that is well suited to students with autism. One strategy involves videotaping a student completing tasks or communicating with others within the environment and then playing the video for the student to watch. Before showing the video, prompting/cues can be edited out. Many activities can be videoed and students will learn from viewing themselves completing a variety of actions, communicative attempts, or play sequences throughout the day.



SUGGESTED WEBSITES

For a variety of commercially produced videos that depict children in school, home, and community activities, see www.modelmekids.com.

Video modelling can also be done by a peer or an adult performing a task or activity, then viewed by the student with ASD. As well, a task or activity can be videoed from the perspective of the student, where the student sees hands performing or completing a task. The video can also be of an activity from the student's point of view, such as going to an assembly. Because individuals with autism seem to be drawn to videos, movies, and computers, this strategy can be enticing to them.

Several studies on video modelling have shown promise, and school teams should explore this strategy. The following excerpts, from the *Model Me Kids* website, state the efficacy of this technique.

“ Video Modelling Effectiveness

Two new studies at Indiana University demonstrate that videos depicting exemplary behaviours can be effective in helping children and adolescents with autism spectrum disorders develop social skills ... Results from the [video modeling] meta-analysis indicate that both video modeling and VSM meet the Council for Exceptional Children's criteria for evidence-based practices.”

—Bellini and Akullian 2007, *Model Me Kids*

“ Both Susan Moreno (Director of MAAP Services) and I had the opportunity to review these videos and were both very impressed with the quality. The videos are great not only because the skills are modeled by peers, but also because the skills are broken down step by step and then reviewed using the storyboards which have actual pictures of the scenes depicted in the video. They also use arrows and other graphics to draw the viewers' attention to the certain cue or body language used in the social skill. We also like that each social skill (or chapter) is only a few minutes in duration. This allows multiple viewings of the same chapter for repetition in a very short amount of time. Both Susan and I highly recommend these videos for schools and/or use at home.”

—Lara Blanchard, MA, BCBA of MAAP Services, *Model Me Kids* 2012



SUGGESTED READING

“Breaking Things into Manageable Pieces” in *FACTER: Functional Assessment and Curriculum for Teaching Everyday Routines* (Arick, Nave, and Hoffman 2004; NSSBB# 1897)

“Organize & Structure Verbal Information” in *Understanding the Nature of Autism* (Janzen 2003, 230–44)

Task Analysis

Task analysis can be used to teach a wide range of skills to a student with ASD. It involves breaking complex tasks down into small sub-tasks. These smaller, more manageable steps may then be taught and reinforced in sequence, allowing the student to learn the larger, more complex task. If the student continues to have difficulty with smaller steps, they can be broken down into even smaller steps. For example, a task analysis of a social skill such as asking a peer to play may be broken down into small steps to facilitate student learning. Refer to pages 55–58 for a task analysis template and samples.

Sample Task Analysis A

Name:															
Target: Brushing teeth															
Date of introduction:										Target date for independence:					
Prompts: <ul style="list-style-type: none"> • PP=physical prompt • I=independent performance of step • VP=verbal directive prompt • GP=gestural prompt 															
Setting(s) targeted for skill development:															
Teaching Session	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date of trial (dd/mm):															
Initial:															
Time of day:															
1. Get glass, toothbrush, and toothpaste from cupboard															
2. Turn on cold water															
3. Pick up and wet toothbrush															
4. Unscrew cap of toothpaste															
5. Put toothpaste on brush															
6. Set tube on counter															
7. Brush upper back teeth in up and down motion 5 times															

Sample Task Analysis B

Name: Ricky								
Target: Asking a peer to play								
Date of introduction:					Target date for independence:			
Prompts: <ul style="list-style-type: none"> • PP=physical prompt • VP=verbal directive prompt • I=independent performance of step • GP=gestural prompt 								
Setting(s) targeted for skill development: Rehearsal in Learning Centre, Playground								
Teaching Session	1	2	3	4	5	6	7	8
Date of trial (dd/mm):								
Initial:								
Time of day:								
Identify peer who is not currently playing with anyone								
Identify activity to play								
Approach peer								
Gain peer's attention by saying name or tapping him or her on the shoulder								
Establish eye contact with peer								
Ask peer if he or she would like to play								
Commence activity if peer agrees to play, or approach another peer								

Breaking Verbal Instructions into Small Steps

Avoid long strings of verbal information when providing instruction for students with ASD. Supporting verbal instruction with visual cues and representation will help students comprehend material and understand expectations.

Applied Behaviour Analysis

Applied Behaviour Analysis (ABA) refers to the application of behavioural principles of learning and motivation to address socially significant problems; to increase skills and decrease problematic behaviours. Socially significant behaviours include such things as academics, reading, social skills, communication and adaptive living. The focus is on systematically targeting small measureable units of behaviour (Maurice, Green, and Luce 1996).

The following are some of the key principles associated with ABA:

- Focus on observable behaviours that can be measured and tracked over time.
- Examine the function of a behaviour—what it does or communicates for the student.
- Develop a task analysis—breakdown complex tasks or skills into steps.
- Select target skills, teaching methods, and consequences on a student-by-student basis.
- Use motivation as a basis for positive reinforcement.
- Clearly define and describe teaching methods and behaviours to ensure that intervention strategies and target behaviours are clear to everyone involved.
- Demonstrate the efficacy of intervention by means of measurement and objective evaluation, through collection of data.
- Control as many aspects of the learning environment as possible. This includes carefully selecting
 - the type of cue or instruction to provide
 - the type of prompting to provide if the student does not produce the desired response independently
 - the type of reinforcement to motivate learning and behaviour change
 - ongoing evaluation of the effect of instruction, through systematic data collection

ABA is a general strategy that has wide applicability to various student groups and settings. Many elements of ABA are discussed in this resource, including Functional Behaviour Assessment (FBA), task analysis, fading, shaping, and reinforcement. A teaching strategy derived from ABA that is commonly used with students with autism spectrum disorders is Discrete Trial Training (DTT).

Discrete Trial Training

With their permission, we have used the Alberta Learning document, *Teaching Students with Autism Spectrum Disorders* (2003), to describe the applied behaviour analysis methodology.

Components of a Discrete Trial

A discrete trial consists of four basic components:

1. The teacher presents a specific instruction or environmental cue to the student for his or her response.
2. The student produces an observable and measurable response.
3. The teacher provides specific feedback to the student, depending on the response.
4. The teacher pauses between the consequence (feedback) and the subsequent trial or instruction.



SUGGESTED WEBSITES

For software modules with discrete trial methods for teaching many different skills, see www.dttrainer.com.



SUGGESTED READING

See *The STAR Program* for discrete trial procedures. (Arick et al. 2004)

In order for the method to be effective, teachers must consider several factors during discrete trial training. First, prior to issuing the original instruction, ensure the student is attending. Instruction should be short, concrete, and phrased as a statement rather than a question. During the initial stages of teaching, it is important to use consistent wording. As the student experiences success, gradually vary instructions to promote generalization. It is also important to give instructions in a natural tone of voice.

Following the instruction, the student will respond correctly or incorrectly, or fail to respond at all. If the student begins to display inappropriate behaviour or initiates an incorrect response, provide feedback immediately.

The feedback or consequences will vary depending on the student's response. If the student responds correctly, feedback will generally consist of praise and, if necessary, other forms of reinforcement. If the student responds incorrectly or does not respond at all, the teacher should provide feedback and prompt the student to produce a correct response. This step is often referred to as a correction trial. Some students find verbal corrections or reprimands, such as "no," quite aversive. The decision about the type of consequences to use should be made on a student-by-student basis.

Conducting a Teaching Session

The following outlines the steps involved in conducting a teaching session using ABA in general and discrete trial training in particular.

These steps take place prior to the teaching session:

- The teacher identifies which skill will be taught during the session.
- The teacher decides which prompting methods and consequences will be used to promote learning. The teacher generally refers to the collected data to determine what will constitute a correct response, the type of cue or instruction to provide, the level of prompting, and the type of reinforcements that have proven effective in the past.
- The teacher identifies where the teaching session will take place. This decision is often based on the type of skill being taught and where the student is in the learning process.
- The teacher identifies what materials and data collection system will be used during the teaching session and ensures they are readily accessible.

These steps take place during the teaching session:

- The teacher systematically controls the teaching environment by using predetermined cues, prompts, and consequences. Usually a series of discrete trials are conducted. In some cases, several trials targeting the same skills may be completed in succession. Alternatively, trials may be interspersed with other activities.
- The teacher records data about the level of prompting required, the student's responses, and the types of consequences used.

Following the teaching session, the teacher

- analyzes and summarizes the collected data, to be reviewed prior to future teaching sessions to aid in making informed decisions
- communicates critical information to others involved with the student to ensure consistency

ABA encourages teachers to consider all aspects of the teaching environment. When teachers feel that learning is not occurring or not happening as quickly as it should be, the following possibilities should be considered:

- The selected reinforcers or consequences are not motivating to the student.
- The student is not attending when the initial instruction or cue is delivered.
- Prompts are being provided too soon or too late.
- The student is being over-prompted.
- Inadvertent prompting is being provided. That is, the student is responding to an element of the environment that is not currently being considered a prompt.
- Undesired behaviours are being inadvertently reinforced; e.g., other students attend to the student when the teacher withdraws attention.
- Teaching procedures are not revised frequently enough to ensure that skill acquisition occurs at a reasonable pace.
- The teaching procedures and target behaviours are not defined clearly enough to ensure consistency across teachers or environments.

Strategies for Teaching Based on Autism Research (STAR) Program

The STAR program is a resource available in each school board across Nova Scotia. It includes an assessment profile and suggested outcomes and implementation/teaching strategies based on research in Autism. A number of Nova Scotian teachers, autism specialists, and consultants have been trained in the ABA methods used in this program including discrete trial training, and pivot response training, and developing functional routines (task analysis and systematic teaching of everyday routines). Program planning teams may wish to refer to their trained autism specialists and other professionals for further support in programming and services.

Activity-Based Instruction

In contrast to discrete trial training, which often occurs within the context of highly structured and teacher-controlled instructional activities, activity-based instruction tends to occur within the context of typical classroom activities (Bricker and Prerri-Frontczak 1998).



SUGGESTED READING

The STAR Program
(Arick, et al. 2004)

During these activities, teachers take advantage of teachable moments, the naturally occurring opportunities to give relevant instructions that result in naturally occurring forms of reinforcement. The use of activity-based instruction calls for careful planning to ensure that students have multiple opportunities to practise skills in the context in which those behaviours would typically occur. For instance, during an art activity the teacher could give instructions to teach colour identification skills (e.g., “give me red paper,” “find the red paint brush,” “give Justin the red paint”). Since the reinforcement for demonstrating the desired response is access to the activity, it is important to select motivating activities carefully.

Activity-based or embedded instruction also uses a number of teaching strategies based on the principles of ABA. These strategies have been called naturalistic teaching (Kohler et al. 1997). Naturalistic teaching involves the following components:

- Activities must be of interest to students.
- Student responses can be encouraged or elicited through environmental arrangements (e.g., putting desired toys out of students reach, or through predetermined prompts).
- Reinforcement is related to student response (e.g., a student vocalizes toward a toy and is given the opportunity to play with the toy).
- Teaching opportunities are embedded in activities (Warren and Yoder 1997).

The activity-based approach to instruction allows teachers to focus on multiple goals or skills within a single activity. For example, a simple puzzle activity could be used to promote the development of communication skills (e.g., requesting puzzle pieces), social skills (e.g., taking turns with a peer), motor skills (e.g., placing pieces), and cognitive skills (e.g., matching pieces to their holes). Another benefit of activity-based instruction is that reinforcement is built into the activity. Because activity-based instruction occurs within the context of naturally occurring activities, skill generalization is often facilitated.

Discrete trial teaching is more structured and allows for more repetition or trials than activity-based methods. However, activity-based methods are typically easier to implement in inclusive settings and often result in greater skill generalization. Both methods are valuable, and the decision about which to use should be based on the skill being taught, as well as student behaviours, abilities, and interests.



SUGGESTED READING

For a discussion of using prompts and cues, see “Teach New Skills” in *Understanding the Nature of Autism* (Janzen 2003, 245–269).

Supporting Independence

Prompt Hierarchies

Prompts are the cues or reminders used when training a student toward a desired behaviour. Prompts may be physical, gestural, or verbal. The prompt is often designed to model the desired behaviour or help the student perform it. The term “hierarchy” is used to rank prompts from least intrusive to most intrusive. Understanding how to use prompt hierarchies helps to avoid teaching a student with ASD to become over-dependent on prompts. Prompt teaching is used to try to ensure that this does not happen. Keep in mind that prompts introduced to support learning eventually need to be removed. Table 4.1 illustrates a prompt hierarchy.

Table 4.1: Prompt Hierarchy (Sample)

Stimuli	Level of Prompt (from least intrusive to most)	Behaviour	Consequences
Audio recorder or iPod is available in the school for the student’s use; music has been determined to be a favourite activity for the student; student has free time.	natural	Without prompting, and given free time and the presence of the recorder, student turns on recorder.	Student listens to music.
	gestural	Adult points toward recorder; student turns on recorder.	Student listens to music; adult may nod approval.
	indirect verbal	Adult says, “Why don’t you listen to music?” Student turns on recorder.	Student listens to music; adult says, “Good idea!”
	direct verbal	Adult says, “Turn on the recorder.” Student complies.	Student listens to music; adult may verbally reinforce for turning on tape recorder.
	model	Adult models turning on recorder for student, then gives student a turn to do so.	Student is reinforced for attending to model by getting to listen to music.
	minimal physical	Adult points student in direction of recorder and pushes student’s hand toward recorder if necessary; student turns on recorder.	Student listens to music; adult may need to provide additional verbal praise.
	partial physical	Adult positions student’s hand on recorder button, but releases hand so student can press it.	Music may be enough, but student may require additional reinforcement.
	full physical	Adult physically assists the student’s hand through the turning on of the recorder.	Again, music may be sufficient, but additional reinforcement may be necessary.

Encourage Independent Effort and Incorporate Proactive Measures to Reduce Potential Prompt Dependence

Students with ASD who are constantly prompted might not reach their potential for independent action. Since independence is a desired outcome for all students, instruction should incorporate strategies such as those listed below to decrease the potential for prompt dependence.

Students' levels of independence will vary depending on their cognitive profile, developmental level, the task requirements, and setting. Program planning teams need to define specific outcomes related to independence that are realistic and attainable. When teaching independence, begin with tasks in which the student has demonstrated mastery. Remember: a student cannot be independent if he or she does not know how to do the task.

Some suggestions to encourage independence:

- Use visual aids to decrease reliance on physical and verbal prompts.
- Plan ways to fade prompts.
- Provide visual organizational aids, such as schedules, task outlines, checklists, and charts, and involve the student in developing and implementing them, if feasible.
- Provide instruction to increase the student's awareness of environmental cues (for example, preparing the student for the ringing of a school bell at recess).
- Teach in an environment that remains consistent, using consistent environmental cues.
- Ensure that adults are not always positioned too close to the student and that more than one adult has contact with the student.
- Reward on-task behaviour.



SUGGESTED READING

For a discussion of behavioural based teaching strategies, see:

- *Right From the Start* (Harris and Weiss 1998)
- "Critical Instructional Strategies" in *Understanding the Nature of Autism* (Janzen 2003)
- *Pivotal Response Intervention I: Overview of Approach* (Koegal and Koegal 1999)
- *The STAR Program*, Ch. 9 (Arick et al. 2001)

Modifying Behaviours

Behaviour Shaping

Students with ASD often need assistance to develop behaviours that are not already part of their repertoire of skills. Behaviour shaping as a teaching strategy is a way of helping students develop desired new behaviours. First, the target behaviour is identified and the student's closest approximation to that behaviour is reinforced. If prompts are used, they should be of the least intrusive level and faded as quickly as possible. Gradually, expectations for performance are increased, and only responses that more closely approach the target behaviour are reinforced.

This is a formal use of a strategy often used naturally by parents whose child is just beginning to communicate. For example:

The child reaches toward a pitcher of juice.

The parent pours some and says “juice.” Showing the juice to the child, the parent withholds the juice until the child provides communicative intent (e.g., the child says “j” and receives the juice).

The parents repeat the prompts on other occasions.

Gradually, the child’s ability to imitate and articulate improves, until the child is able to repeat the word “juice” and then say “juice” without a parental prompt.

Provide Precise, Positive Feedback

Give students precise information about what they do right or well (for example, “Great colouring” or “Good job finishing that math problem”). Generalized praise might result in unintended learning that is hard to reverse. Students with ASD can learn in one trial, so behaviour is important. Accidental learning can occur if a student mistakenly connects something he or she is doing with the reinforcement he or she receives. Saying “Sal, you are doing very well” when Sal is also swinging his feet while he does his match assignment might connect the feet swinging with general praise.

Use Meaningful Reinforcement

A reinforcer can be anything from praise to tangible objects to desired activities that increase the frequency of a behaviour. What is important is that the reinforcer is motivating and desired by the student. Students with ASD might not be motivated by common reinforcers that work with other students. They might instead prefer having some time alone, taking a trip to the cafeteria, going for a walk, having an opportunity to talk with a preferred adult, listening to music, performing a favourite routine, or playing with a desired object that provides specific sensory stimulation.

A list of preferred activities and reinforcers should be developed for a student with input from the family and others who know the student well. These reinforcers can then be used to motivate the student to learn new skills. Tables 4.2 and 4.3, and a reinforcer survey are included as examples.

Behaviour shaping is incorporated in various instructional strategies, such as

- Pivotal Response Treatment
- Natural Environment Teaching
- Incidental Teaching



SUGGESTED READING

How to Teach Pivotal Behaviors to Children with Autism (Koegel et al. 1989)

Pivotal Response Treatments for Autism: Communication, Social and Academic Development (Koegel and Koegel 2006)

Table 4.2: Reinforcers (Sample)

For a student who likes	Sample Reinforcers Available in School Environments
to read or be read to	<ul style="list-style-type: none"> • hearing a few pages of an exciting book after a task is completed, or reading it alone • listening to taped books or viewing CD-ROM stories • listening or watching a tape of themselves reading • dictating while someone scribes or keyboards their words or phrases • having access to particular books available to them only after a particular task
to draw	<ul style="list-style-type: none"> • copying line drawings or illustrations on topics of special interest • illustrating daily schedules or social stories • colouring a part of a picture each time a task is completed until the whole picture is coloured • illustrating posters for the library or other school area
to use mechanical skills	<ul style="list-style-type: none"> • playing with cause-and-effect toys • having access to material that can be put together, such as construction blocks • building models, especially ones with moving parts • reading books or watching videos that explain how things work
to be in control	<ul style="list-style-type: none"> • getting to choose activities or order of task being the caller, instruction-giver, cue-giver, or “banker” in games such as Lotto, Junior Monopoly, or guessing games • ringing an old-fashioned bell at the school door to signal other students to come inside • being a “detective” by decoding a message or reading questions on cards and then looking for the answer • making trivia-style questions for classmates on a classroom unit or on a topic of their choice • doing worksheets that require finding and correcting errors
to socialize or engage verbally with adults	<ul style="list-style-type: none"> • “checking in” frequently with teacher or educational assistant, verbally or non-verbally • discussing topics of their choice with people of their choice during scheduled times of the day • being involved in non-academic tasks with favourite adults, such as setting up and taking down gym stations, shelving library books, unpacking and storing supplies, tidying up staff room, helping the teacher with classroom maintenance, etc. • participating in activities that involve travelling around the school and interacting with many people, such as collecting recycling or call-back sheets, delivering material to classrooms, etc.

Reinforcer Surveys

When planning reinforcers for instruction and behaviour interventions, teachers and others need to know the preferences of students. The following can be used by the family and school to record the student’s preferred activities, sensory stimuli, edibles, social reinforcers, etc. Such information changes, and it should be frequently revised to reflect current likes and dislikes of the student.

Sample Reinforcer Survey A

Likes and Dislikes

Student name:		Date revised:
Likes	Dislikes	Indifferent
Activities:	Activities:	Activities:
Sensory stimuli:	Sensory stimuli:	Sensory stimuli:
Edibles:	Edibles:	Edibles:
Social reinforcers:	Social reinforcers:	Social reinforcers:

Source: Adapted with permission from *Teaching Students with Autism and Developmental Disorders* (Seip 1996).

Sample Reinforcer Survey B

Name: _____

Date: _____ School: _____

Use the checklists below to indicate preferred items.

Sensory and Social Reinforcers

- applause
- attention from specific individuals
- back rub
- being left alone
- eye contact
- high five
- hugs
- jumping
- rocking
- smelling items (e.g., stickers)
- smiles
- stim time
- swinging
- tickles
- twirling
- verbal praise
- _____
- _____
- _____
- _____

Activity Reinforcers

- bike riding
- computer
- drawing
- free time
- going for a walk
- listening to music
- making choices
- outside activities
- painting
- playing with toys
- puzzles
- reading / being read to
- snack time
- social activities
- watching television
- _____
- _____
- _____
- _____

Tangible Items

- candy
- cereal
- chips
- cookies
- drinks
- fruit
- games
- snacks
- stickers
- toys
- _____
- _____
- _____
- _____

Areas of Interest

- | | | |
|---|------------------------------------|----------------------------------|
| <input type="checkbox"/> airplanes | <input type="checkbox"/> dinosaurs | <input type="checkbox"/> numbers |
| <input type="checkbox"/> animals | <input type="checkbox"/> letters | <input type="checkbox"/> science |
| <input type="checkbox"/> buses | <input type="checkbox"/> machines | <input type="checkbox"/> shapes |
| <input type="checkbox"/> cars | <input type="checkbox"/> maps | <input type="checkbox"/> trains |
| <input type="checkbox"/> computers / computer games | <input type="checkbox"/> math | <input type="checkbox"/> trucks |

Favourite places to go: _____

Favourite movies: _____

Favourite songs: _____

Favourite cartoon characters/celebrities: _____

Dislikes

Noises: _____

Activities: _____

Fears: _____

Foods: _____

Animals: _____

Other dislikes: _____

Structuring the Learning Environment

TEACCH: *Teaching and Education of Autistic and related Communication handicapped Children* is an evidence-based intervention approach that is the foundation for programming for students with ASD. It employs a strategy called “structured teaching.” The principles of structured teaching include

- understanding autism
- developing an individual program plan
- structuring the physical environment
- using visual supports to make the sequence of daily activities predictable and understandable
- using visual supports to make individual tasks understandable

Planning and Presenting Tasks at an Appropriate Level of Difficulty

Students with ASD may be particularly vulnerable to feelings of anxiety and frustration if they cannot perform assigned tasks. It is important to critically examine the components of the task that may be problematic for the student. For example, how was the instruction given to the student, was the task broken down into manageable steps, was it a new task, was the end of the task clearly defined, was the task at the appropriate level of difficulty? Increasing the level of difficulty gradually and providing the necessary learning supports (particularly with visual information rather than solely verbal explanations) will enable the student to develop skills and will help minimize the student’s frustration. It is critical to design a curriculum at the student’s developmental level. There must be ongoing evaluation and assessment to ensure that students continue to learn and reach their potential.

Table 4.3 is an example of how an activity can be adapted for the student’s level.

Table 4.3: Adapting Classroom Activities

Classroom Activity: “Math Minute” Activity Sheet	
Level	Example
Level 1: No adaptation	<ul style="list-style-type: none"> • The student with ASD completes the same activity sheet and under the same conditions as classmates.
Level 2: Same activity with adaptation	<ul style="list-style-type: none"> • The activity sheet contains fewer questions. • No time limit is enforced. • The student is given a calculator. • A pencil grip is used. • A peer or assistant records answers for the student. • The activity sheet contains different questions; e.g., no carrying questions. • Manipulatives are used.
Level 3: Parallel or alternate activity involving the same subject the assignment involves	<ul style="list-style-type: none"> • matching numbers • completing a dot-to-dot activity sheet • patterning activities • tracing numbers • completing a number puzzle
Level 4: Alternate functional activity (embedded in routine)	<ul style="list-style-type: none"> • The student uses a picture task analysis to gather materials for one of the activities listed above. • The student makes purchases and calculates cost and change after addressing money skills in class. • The student counts heads during attendance for math class. • The student counts how many math activity sheets the class requires. • The student distributes activity sheets to selected peers.

Source: Adapted by permission from Alberta Learning 2003, 51.

Structured Teaching Approach

For students with a small repertoire of activities and limited willingness to work within an adult-directed routine, the structured teaching approach developed by TEACCH can be used, as in the following example:

Six-year-old Sue has ASD and significant developmental delay. She has very limited language comprehension and is non-verbal. She has no experience in a classroom environment and resists interference with her desire to roam around the classroom by falling to the floor or running and throwing a tantrum.

Reinforcers identified from observation are

- *sweet cereal, potato chips, grapes*
- *stacking up objects and knocking them down*
- *rhythmic rock music*
- *inserting objects into small spaces*
- *deep pressure to shoulders*

The teaching routine developed for part of her day is as follows:

- *Instructor spends time in relationship-building activities so that Sue trusts her and sees her as a source of concrete and social reinforcers.*
- *Instructor shows Sue a picture of a table to indicate “Work Time” in the visual schedule and guides her to it as necessary.*
- *Instructor seats Sue at a table against a wall, and sits next to her.*
- *Instructor shows Sue material in a container (simple block pattern card and blocks), models its use, and points to a pile of blocks next to a container, saying “your turn” or using a gestural cue.*
- *If necessary, instructor provides hand-over-hand support so Sue completes the task.*
- *Instructor reinforces Sue’s performance of the task. Instructor lets Sue engage in a preferred activity for two or three minutes after setting a timer.*
- *Instructor warns “almost finished” with words and/or sign, and then “finished” when the timer rings. Instructor puts all materials away quickly.*
- *Instructor tells Sue to “check the schedule,” and guides Sue as necessary. Sue marks “Work Time” as finished. The instructor guides Sue to the picture for the next activity.*

The instructor gradually expands “Work Time” by adding more containers and more tasks in containers and making the tasks in containers more complex or longer in duration. Tasks are chosen because they address the outcomes in Sue’s IPP.

Pacing Tasks at the Student's Level

Students with ASD often need more time to process information than typically developing students. Providing extra time to complete activities and allowing for an appropriate amount of time between instructions and expected responses gives students with ASD greater opportunity to succeed at their tasks.

Providing Concrete Examples

Students with ASD learn by seeing and doing. When possible, it is good to use concrete examples to supplement oral instructions. For example, in demonstrating a project such as making a Father's Day card, the teacher can show students what the finished product might look like while explaining the steps in how to make it. Abstract ideas and conceptual thinking can be taught by using specific examples and by varying the examples so that the concept is not accidentally learned as applying in only one way.

Introducing New Tasks in a Familiar Environment When Possible

Students with ASD often resist attempting new activities or learning new skills. When introducing something to a student with ASD for the first time, it is often helpful to do so in a familiar environment. When it is not possible to introduce unfamiliar tasks in a familiar environment, supports such as pictures, video, or social stories may help prepare the student for the task.

Planning for Transitions

Students with ASD frequently have difficulty with the unknown and fear the unpredictable. As a result, transitions are often difficult and can result in increased anxiety and inappropriate or resistant behaviours. Transitions for students with ASD should therefore be carefully and thoughtfully planned. Whether the student is moving between classrooms, schools, or different areas in the same room, it is a good idea to prepare the student well in advance of the change. It is also important to prepare any people who may be receiving the student. Transition issues are generally similar regardless of whether the transition is large or small; however, additional time and preparation might be necessary for larger transitions. A student moving between classrooms, for example, will need to get used to a new room and possibly new people; a student moving between schools will need to adjust to a whole new building and its rules and expectations.



SUGGESTED READING

For resources to support hands-on learning in teaching concepts, see *Autism and PDD* (Mulstay-Muratore 2001)



SUGGESTED READING

For a detailed transition checklist and discussion, see "Setting Demands" and "Transition Planning for the Student with Asperger Syndrome" in *Asperger Syndrome and Adolescence* (Myles and Adreon 2001, 46–49 and 121–35).

For a discussion of post-school transitions, see "Planning for Life after School" in *Asperger Syndrome: A guide for Educators and Parents* (Myles and Simpson 1998, 97–113).

Autism and Transition to Adulthood (Waehman, Smith, and Schall 2008)

Department of Education
Supporting Student Success Series

- *The Program Planning Process: A Guide for Parents* (2006)
- *Transition Planning for Students with Special Needs: The Early Years through to Adult Life* (2005)


SUGGESTED READING

See “Organize and Structure Events in Time” and “Organize and Structure Events as Routines” in *Understanding the Nature of Autism* (Janzen 2003, 178–86; 188–94).



A Time Timer.

Using Consistent Cues or Routines to Signal Transitions

When cues or routines are consistently repeated, it becomes easier for a student with ASD to become familiar with a schedule, anticipate new activities, and prepare for making transitions. For example, a student who hears the same song before a certain activity every day may begin to associate that song with stopping what he or she is doing and moving to the area where the new activity will take place. The words “almost done” may become a cue that the present activity is nearly finished and a new one will begin soon. Cues and routines become familiar with repetition.

The use of a Time Timer can also be an effective visual cue to signal the end of an activity.

Individualized Visual Daily Schedules

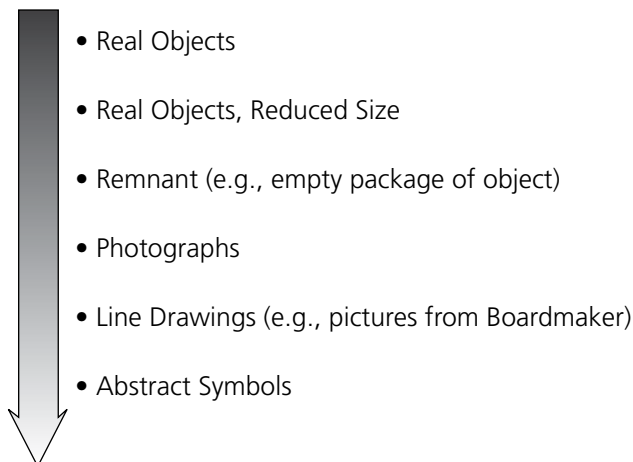
Students with ASD need schedules as a part of the classroom structure. Many students have problems with sequential memory and organization of time. Receptive language difficulties can also make it difficult for students to understand what they should be doing. Besides giving direction to everyone for certain time periods of the day, a schedule can help a student organize and predict daily and weekly events. This lessens anxiety about not knowing what will happen next. Besides showing what activity will happen during a time period, a schedule can aid students in transitioning independently between activities. Their schedule lets them know where they should go next. Also, students with low initiative may be more motivated to complete a difficult or less preferred task if they see on their schedule that it will be followed by a more enjoyable task or activity.

The concept of “finished” is difficult for many students with ASD. A schedule teaches this important concept. It is critical that the student manipulate and interact with his or her schedule by removing a picture, checking an item on a list, etc., to understand that each activity is finished.

Hierarchy of Visual Schedules

When using visual supports it is important to first consider what type of visual the student will be able to understand or relate to. Visuals are initially selected at the student's level or lower, changing as the student becomes more capable. See hierarchy below.

Concrete



Abstract

In the case of the visual schedule, the visuals used for the schedule may change over time however a schedule in some form should always be maintained. The aim is to move students to more abstract and portable schedules. Schedules are always individualized based on a student's cognitive abilities, needs throughout the day, strengths and interests.

Schedules can also vary in length, horizontally or vertically, and complexity:

1. single item
2. first/then (e.g., picture of hand-washing followed by a picture of a snack)
3. three or four items on the schedule
4. one-third of the day (e.g., morning to recess)
5. half-day schedule
6. full-day schedule

Once a format is decided on, a student will need to be explicitly taught to use the schedule. Schedules are critical support to building independence and life skills.

Some students might require specific tasks on their main schedule to be broken down into steps through the use of a mini-schedule. For example, the daily schedule may indicate that a student is to wash his or her hands. The student might need a further mini-schedule located near the sink that breaks down and sequences the steps necessary to perform the task.

The individualized schedule for a student with ASD should fit comfortably into the overall classroom schedule. The teacher should vary tasks to prevent boredom, and alternate activities to reduce anxiety and possibly prevent some inappropriate behaviours. For example, the teacher could alternate familiar, successful experiences with new or less preferred activities. Large group activities may be alternated with opportunities for calming down in a quiet environment. Incorporating physical activity and exercise throughout the day is helpful. Initially, staff can direct the student to the schedule when it is time to change activities, which should smooth the transition times.

Independent Work Stations

Tasks selected for an independent work station are those that have been taught by the teacher until mastered by the student. At this point, the student moves to an individual work station, where work tasks for specific skills are set up in work systems that are comprehensible by the individual with ASD.

These work systems are visually structured sequences that provide opportunities for independent practice of previously taught skills, concepts, or activities.

Four important pieces of information that support the student in understanding the task are provided visually:

1. what activities to complete
2. how many activities to complete
3. when the work is finished
4. what will happen when the work is finished

Tasks may be physically displayed in baskets, files, or folders. The “work” to be completed is placed to the student’s left. The student completes tasks independently and places the materials in a finish basket, bin, folder, or binder to his or her right. On completing work, the student refers to his or her individual schedule to transition to the next activity. Work tasks are changed frequently as the student progresses. These tasks should never be used as busywork and must not be over-used in place of balanced educational programming.

Checklists

Checklists describe in step-by-step fashion what students must do to complete a task. Students with ASD often experience difficulty with processing oral instructions and sequences. Checklists offer students a “roadmap” through a task or activity, allowing them to navigate an assignment without getting lost. The use of checklists promotes independence.

Teaching Flexible Thinking

Providing Opportunities for Choice

Students with ASD often have a limited ability to communicate, and strategies for providing choice will have to be developed on an individual basis. Regardless of which strategies are used, it is essential that the student learns how to make choices. Many parts of the student’s life may necessarily be highly structured and controlled by adults, and the student might not have many opportunities for making choices. Sometimes a student consistently chooses one activity or object because he or she does not know how to choose another. Until the student grasps the concept of choice, choices should be limited to preferred and non-preferred activities. More elaborate choices can then be presented. Open-ended choices (e.g., “What would you like to drink?”) will not help to develop the student’s skill at making choices but instead could be a source of anxiety or frustration. A more successful strategy would involve asking whether the student prefers orange juice or milk, for example.

Choice-Making Tools

Students with ASD often experience difficulty with choice-making. Materials such as choice boards will help students develop choice-making skills in a motivating and natural context. The symbols and layout of choice boards can be adjusted according to individual levels of ability.

Summary: Teaching Tools

The following chart summarizes the teaching tools detailed thus far in this section.



SUGGESTED READING

See “Making Choices and Requests” and “Protest and Rejection Skills” in *Solving Behavior Problems in Autism* (Hodgdon 1999, 125–50).

The Eating Game: Get Awesome Meals Every Day (Nichol 2009) is a unique planning kit based on recommendations made in *Eating Well with Canada’s Food Guide* (Health Canada 2007). It is the ideal starting point for making healthy food choices.

Summary of Teaching Tools: Strategies to Use Across Settings

Breaking Things Down into Manageable Pieces	<ul style="list-style-type: none"> • do task analysis • break verbal instructions into small steps • use discrete trial training
Supporting Independence	<ul style="list-style-type: none"> • understand prompt hierarchies • encourage independent effort and incorporate proactive measures to reduce potential prompt dependence
Modifying Behaviours	<ul style="list-style-type: none"> • use behaviour shaping • use meaningful reinforcement • provide precise positive feedback • pace tasks at student's level
Structuring the Physical Environment	<ul style="list-style-type: none"> • plan and prevent tasks at an appropriate level of difficulty using concrete examples and hands-on activities • introduce new tasks in a familiar environment when possible • plan for transitions • use consistent cues or routines to signal transitions • use schedules • make independent work stations • make checklists
Teaching Flexible Thinking	<ul style="list-style-type: none"> • provide opportunities for choice • use choice-making tools
Organizing	<ul style="list-style-type: none"> • highlight important information • organize teaching materials and situation to highlight information • post classroom rules

Additional Strategies

Highlight Important Information

The ability of students with ASD to focus on important information can be affected by a number of factors, including environmental distractions, a lack of interest in the material, or an inability to interpret cues that emphasize key pieces of information. As a result, time can be wasted and learning opportunities may be lost.

It is essential to be aware of whether students with ASD are able to focus on critical information. It may be necessary to help them identify what is important by

- using a highlighter to identify key words or concepts
- providing summaries (written or pictorial) of lessons or concepts
- providing questions to develop reading comprehension

Organize Teaching Materials and Situations to Highlight Information

Organizing the environment and using visual aids such as graphic organizers can help a student attend to pertinent information. The teacher should remove extraneous materials from the desk or table before attempting to teach a new skill and present only the text the student will read, rather than the whole book.

Post Classroom Rules

Classroom rules can be outlined in brief statements or illustrations that provide concrete information about

- structure and routines of the classroom
- personal space
- required behaviour (for example, raising hand)
- movement within the classroom

Know the Student and Maintain a List of Strengths and Interests

Family members and caregivers can provide valuable information about what a student knows and does at home or in the community. Educators likewise can provide information about the student's strengths and interests in school. Together, these interests and strengths can be incorporated into instruction and used for reinforcing successful learning and appropriate behaviour.



SUGGESTED WEBSITES

For articles by Temple Grandin about developing talents, and helping students with ASD choose the right job and manage the transition to the world of work, see www.autism.com/ind_choosing_job.asp.


SUGGESTED READING

Developing Talents
(Grandin and Duffy 2004)

Just Give Him The Whale
(Kluth and Schwartz 2008)

Develop Talent and Interest Areas

If a student with ASD demonstrates a particular interest or strength in a specific area (e.g., art, mathematics, computers), the teacher should provide opportunities for the student to develop further expertise in that area. The ability to develop and indulge in talents and interests not only provides enjoyment for the student, it creates opportunities for success, strengthens existing skills, and improves confidence, all of which contribute to a strong foundation for building new skills.

Waylon is a grade 5 student with ASD who is extremely interested in computers; he shows little interest in interacting with his classmates and resists written assignments. The students in grade 5 use the “New Word Game” as a strategy to construct and confirm meaning during each novel study. Before reading, each student writes down a word for which he or she does not know the meaning; after reading, he or she looks in the dictionary and writes the meaning that fits the context of the story. The students then challenge each other to provide the correct meaning for each word, and then post words that no one can define on the bulletin board. Waylon’s teacher has put him in charge of the “New Word Game” database. After each chapter, Waylon is given time to update the class database with words he and his classmates have defined; he is also responsible for helping his classmates if they have difficulty accessing the database and helping them develop their own databases.


SUGGESTED READING

The STAR Program
(Arick et al. 2004)

Direct and Broaden Interests into Useful Activities

The repetitive patterns of behaviours, interests, and activities that are a primary characteristic of ASD can often be incorporated into instructional activities. Incorporating a student’s interest into instructional strategies may increase his or her attention and help to facilitate learning.

The Teaching Process

Connecting Actions with Specific Reinforcers

Typically developing students learn that exploring their physical and social environment results in a particular consequence. They learn to repeat actions associated with pleasant consequences thereby connecting their actions to reinforcements. They understand that their actions can elicit verbal and non-verbal expressions of pleasure or displeasure from other people.

Many students with ASD explore their environment in limited ways and do not learn to connect their actions with specific reinforcers. They may not understand non-verbal and verbal expressions of pleasure from adults, or

they may relate them to actions of their own. They may learn a repertoire of challenging behaviours because those behaviours lead to predictable adult responses.

To connect an action to a specific reinforcer, a student with ASD must learn that “first I do this and then I get that.” When the student understands the first/then connection, it will be possible to teach him or her more effectively. The use of a first/then card with visual symbols at the level of student understanding can be an important tool in teaching. Following a less preferred activity with a preferred one (i.e., first math then computer) may help maintain student engagement with a task.

Teaching Interaction

Students with ASD need to learn to recognize and understand other people’s positive social responses. The attention and approval of another person can become a powerful social reinforcer that helps a student attend to his or her environment and co-operate with adult expectations.

Students with ASD need to learn that

- other people (school staff, family) will be able to interpret them to the outside world, and the outside world to them
- people can be more than a useful tool
- interaction with other people can be fun and enjoyable

For students who have difficulty engaging with other students or adults at school and who have a narrow repertoire of activities they enjoy, it is important to build time into their daily schedule to work on outcomes that target interaction and engagement with others. Select a time in the student’s day when he or she is able to associate pleasure with another’s company.

Teaching Joint Attention

Joint attention is an important component of social development acquired by typically developing children within the first year. Joint attention refers to the child’s capacity to coordinate his attention between a person and an object. It occurs when the child is able to follow the gaze of another person to the object the person is looking at. This skill is critical for the development of both language and social communication skills because it helps the young child connect the adult’s actions and words to the object being named. Without this connection, language is difficult to learn. As the child gets older, more sophisticated joint attention skills, such as pointing and shared eye contact, are acquired. These more sophisticated skills contribute to increased language learning and social communication.



SUGGESTED READING

For a discussion of preliminary research into relationship-focused intervention with children with ASD, see “Using Relationship-focused Intervention to Enhance the Social-Emotional Functioning of Young Children with Autism Spectrum Disorders” (Mahoney and Perales 2003).



SUGGESTED READING

Pivotal Response Treatments for Autism (Koegel and Koegel 2006)

Many students with ASD do not acquire joint attending skills as young children, indeed this deficit can persist into adulthood. As a result engaging in eye contact and the reciprocal, coordinating interaction of social communication is difficult for them. Sharing information with another person using eye contact can be a source of confusion and anxiety for a student with ASD. To reduce this confusion and anxiety, students with ASD may avoid eye contact with people in their environment and lose many opportunities for learning new skills (in particular, social and communication).

Teaching Focus

Students with ASD who have poor comprehension of language, especially of concepts and abstractions, often miss large parts of instruction while trying to process other parts. Some students who are very distractible or have sensory sensitivities need to use a lot of emotional and physical energy to cope with overload and to attend to instruction.

Stressors can include

- the need to attend to and process visual and auditory input simultaneously
- the need to process language that is too abstract, has multiple possible meanings, is figurative, or is shaded by emotional tone or non-verbal communication
- the need to adjust to different physical settings and to different adults many times daily
- tactile discomfort created by room temperature, clothing, paints, play dough
- strong smells from the science, art, or lunch room, pizza or popcorn days, chemicals used to clean, perfumes, and cosmetics
- close physical proximity to peers in groups, lines, gyms, the vicinity of lockers
- sounds or noises beyond students' control in classrooms, hallways, bathrooms, gym, assemblies, dances; bells and fire drills; clicking fluorescent lights; bubbling fish tanks

Exhaustion from trying to screen distractions and pay attention may be the cause of irritability, outbursts, or complete shutdowns in students with ASD, especially as the day progresses.

Some suggestions:

- Let the student look first and listen later, or look/feel/manipulate first and listen later.
- Experiment with an object (e.g., fidgets) in the student’s pocket (or clipped to a belt or attached to a desk).
- Keep the student’s work area uncluttered.
- Organize information on the whiteboard neatly, with straight lines and ample blank space to minimize distractions.
- Give the student frequent movement breaks to keep stimulation at an optimum level.
- Help the student learn to tolerate noise, touch, and proximity to others.
- Let the student wear earplugs or earphones in class to muffle noise.
- Break tasks into smaller chunks and reinforce more frequently.
- Develop an “alerting” signal to tell the student when to pay close attention.
- Use verbal and gestural “highlighting” to identify important material.
- Incorporate materials or topics of perseverative interest into instruction.
- Provide a low-stimulation area for seat work, such as a carrel or a desk facing a blank wall.
- Teach the student to recognize overload and ways to screen distractions.
- Plan proactive ways for the student to indicate when he or she is overloaded (for example, with verbal language, printed words, or pictures to point to).

Very distractible and distracting students might need to spend some of their learning time in a setting that provides minimal distractions and maximum ability for adults to contain the student in one place for table-top activities and to manage challenging behaviours when they occur.

Teaching Imitation

Typically developing students learn many skills by watching and spontaneously imitating others, whether the activity is using a spoon, naming the letters of the alphabet, or operating a DVD player. Many students with ASD have poor spontaneous imitation skills because they tend to experience difficulty with

- eye-hand or bilateral coordination
- motor skills
- motivation
- attention

A note on setting:
The more distractible and impulsive the student, the more important it is to minimize distractions and maximize the chances of successful learning and effective reinforcement.

In order for a student with ASD to learn how to learn, or to learn new skills, it is critical that the student is able to attend to gestures and demonstrations, and to watch and imitate what they see. For many students with ASD, especially those with poor auditory skills, “look and imitate” will be the primary avenue for lifelong learning of motor, self-help, and vocational skills.

A Step-by-Step Process for Teaching Imitation

- Choose a distraction-free environment.
- Use visual/auditory/tactile strategies to get the student’s attention.
- Let the student look at, touch, and manipulate materials to satisfy the need to touch and explore, and to feel less anxious about the newness.
- Move materials out of reach and use consistent verbal/visual cues such as calling the student’s name and saying “Do this.”
- Do a one-step action quickly, such as stacking one block on another or drawing a line to connect two dots.
- Give the student material to first try on his or her own.
- If the student does not produce the desired response, try again by saying “Do this” and following through with hand-over-hand support if required.
- Praise and reward any success.
- Be sure the concept of “being finished” is clear to the student. (For example, if drawing lines with a marker, have five markers in the container, and discard them one by one after using them. When there are no markers left, the task is finished).
- Gradually fade prompts and make imitation tasks more complex. Students with ASD can also practise imitation in casual situations and settings by imitating activities such as throwing bean bags through hula hoops.

If a student is learning to imitate actions required to finish a project, the student may need to see the project finished first or watch the steps of the process several times before understanding what is expected. Experiment to see what works.

Some students with ASD might act impulsively in a teaching situation by performing a behaviour before instructions are completed. Do not reinforce this behaviour. For those students, learning to wait before acting will increase their potential to learn new skills.

Activities that require the student to listen and repeat simple instructions before acting (if communication skills allow), to look before acting, or to complete some kind of task before acting will help the student learn to wait. Examples of such activities include

- adding particular shapes to construction blocks
- imitating patterns with a variety of colours, shapes, and objects

- following verbal or written directions to find objects; following instructions that increase gradually in complexity
- watching a bubble float to the floor before stamping on it
- watching a flashlight beam travel and stop on a particular object before the object is taken or named
- counting to a specific number before initiating an action (running, shooting a basketball, pushing a truck)

Teaching a New Skill or Activity

Once the team has progressed through the multi-step process of understanding ASD, getting to know the individual student, identifying learning outcomes, acquiring knowledge of general instructional strategies to teach a student with ASD, and preparing the student to participate in the learning process, the team is in a position to attempt to teach a variety of new skills or activities.

A student with ASD might experience difficulty learning new skills for a variety of reasons. For example, a student with ASD might

- resist anything new
- be unable to focus attention
- have difficulty watching and imitating
- not connect actions to reinforcers
- be so interested in a part of an object (for example, the spinning wheels on a scooter board) that he is unable to learn how to use the object in a functional way
- have fine and gross motor difficulties that interfere with performing certain skills

The Process for Teaching a New Skill or Activity

The process for teaching a new skill or activity is as follows:

1. Observe the student.
2. Prioritize and prepare.
3. Teach the new skill or activity.

1. Observe

The student should be observed in an environment with many choices for activities. This could be a self-contained area out of the classroom. Even older, more able students with good school, computer, and communication skills might have a limited repertoire of activities and difficulty learning new ones. Provide activities designed to appeal to much younger students as well as to their chronological age group.

Some questions to ask:

- What activities does the student enjoy (visual, auditory, tactile, gross motor)?
- Does the student choose age-appropriate activities or those for younger children?
- How does the student explore?
- Can the student watch and imitate others' actions?
- Does the student try to get adult attention or approval? How?
- What kind of adult interaction works best (quiet/animated, verbal/non-verbal)?
- What sensory sensitivities does the student show?
- What are possible primary reinforcers (for example, food or drink)?
- Does the student understand “first/then” (doing something to get something desirable)?

2. Prioritize and Prepare

At this stage

- choose an activity or skill to teach
- break it into small, manageable bits
- select materials that motivate the student
- select reinforcers
- select the most appropriate environment for teaching

While gains occur, most students with ASD will tend to learn at a slower rate or pace. It is important to identify those skills or activities that will be most meaningful in the future or will be a foundation for the development of later functional, real life skills. For example, for students who like to be active but do not have good motor abilities, developing skill with balls—from rolling or bouncing playground balls to shooting baskets or kicking a soccer ball—will also give them a way of socializing with their peers. Another student who is older, with good verbal skills but weak motor and social skills might benefit from learning to play familiar card or board games that can later be done with peers. For a very distractible student or one with weak motor skills, a beginning activity might be to drop one block into a large coffee can, or to push down on a top and watch it spin. For a student with more advanced skills, a beginning activity might be a connector tube construction toy or a board or card game.

It might be necessary to work in a small room or at least an area that can be partitioned. For table-top activities, arrange a table with two chairs so that the adult sits between the student and the door, making running away less likely. Minimize distractions in the room.

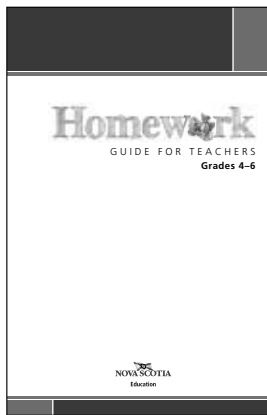
3. Teach the New Skill or Activity

- Show the student the activity and allow student to select a reinforcer.
- Begin with the first step of the task-analyzed sequence.
- Use words, gestures, or physical cues (in whatever combination is appropriate for the student) to communicate “first do the task, and then get the reinforcer.”
- Trial and error will show how to adjust the sequence for students who cannot tolerate touch, or who cannot process verbal prompting while trying to do a motor action. If the student resists, try to persevere over several sessions; resistance may be a reflexive reaction to anything new.
- Prompt as required for success.
- It might be necessary to start with a full hand-over-hand prompt to maximize the student’s success and your opportunity to reinforce.
- Remember to fade to a lesser physical prompt as appropriate, such as moving from hand-over-hand to touching the elbow.
- Reinforce the student’s performance.
- Initially, reinforce every correct response, even if you have provided complete physical support. Always pair concrete reinforcement with social reinforcement (such as verbal praise, high-five, head-rub, or whatever students have shown you they like).
- Gradually shape the reinforcement so that the student is doing more, or staying on task longer, to get his or her reinforcer.

Note: When the student has mastered the activity with the instructor, involve another person to ensure generalization of the skill across environments. Depending on the task, plan for the student to practise the skill in the physical presence of the other person, during parallel play, while sharing materials, or waiting and turn taking. It might be necessary to go back to more frequent reinforcement and shorter sessions until the student learns to manage, and then to enjoy, the activity as part of a social experience.


SUGGESTED READING

Homework Guide for Teachers,
grades 4–6, 7–9, 10–12
(Nova Scotia Department of
Education 2011)
[https://sapps.ednet.ns.ca/
Cart/items.php?CA=1&UID=
20120503202318142.
134.45.148](https://sapps.ednet.ns.ca/Cart/items.php?CA=1&UID=20120503202318142.134.45.148)



4. Homework

Source: Adapted by permission from the Ontario Ministry of Education, 2007.

Homework can be a complex issue for students with ASD and their families. Teachers and parents/guardians need to work together to determine what is appropriate. Ideally homework should focus on consolidating and practicing known information rather than introducing new concepts. Although it is always important to keep in mind the student’s cognitive level, it bears keeping in mind that high functioning students with ASD or those with Asperger’s syndrome can also find homework difficult due to some of the challenge inherent in having an ASD. Difficulty planning, organizing, prioritizing, managing time, or generating new ideas (executive function skills) can have a significant impact on successful completion of homework. Stress and anxiety can also play a role in the ability to handle assignments in school and at home. Sometimes the issue is related to inflexible thinking on the part of the student who cannot understand why work from school work should cross over into the home environment, which has been a place reserved for other activities.

Strategies such as a homework timetable or planner, use of a timer, keeping assignments concrete, breaking the homework down into manageable units, and offering breaks can help to make the experience more positive. Sometimes teachers and parents/guardians may decide that homework is not a reasonable expectation for the student for a period of time.

These are some additional strategies to help with homework:

- Reduce the number of questions to be answered.
- Provide assignments that are geared to individual interests.
- Change the writing expectation (e.g., shorter answers, computer-generated responses, allow for a scribe).
- Present a task sequence through video modelling or demonstration.
- Have the student listen to a story and draw a picture (if appropriate).
- Provide games such as cards (to reinforce mathematics and social skills).
- Provide students with opportunities for homework assistance at school.

Strategies to Address the Characteristics of ASD

Strategies for Communication Development

Expanding the communication skills of students with ASD can be one of the greatest challenges for teachers and families. Most people are unaware of the complexity of normal communication because children develop these skills automatically, usually by the age of three or four. Many students with ASD have not developed the skills they need for spontaneous communication and must therefore be taught them. It is a priority to help students with ASD develop communication skills so that they can

- express their wants and needs
- interact socially
- share information
- express emotions
- protest or escape aversive situations

Children with ASD need to learn that when they communicate good things happen. Programs to facilitate the development of communication may begin in structured settings. However, promoting generalization and facility in using language requires that interventions take place in natural settings. Functional language skills are best taught in the social context where they will be used and where they have real meaning. The classroom and school environments provide a wealth of opportunities for developing functional communication within social contexts, and promoting generalization. However, opportunity alone will not address the communication needs of the student with ASD. The specific skills requiring instruction and strategies for developing the targeted skills must be identified.

The program planning team identifies communication outcomes for the student with ASD. The planned interventions are based on the strengths and challenges of the student. The speech-language pathologist can assist in assessment of communication skills and suggest strategies tailored to the unique needs and characteristics of the student.

Here are some general suggestions to assist with communication:

- Make communication purposeful.
- Focus on developing interaction and communication in the environments in which the child participates (e.g., classroom, playground, gym).
- Keep in mind that you are modelling speech as well as trying to communicate with the student.
- Use vocabulary appropriate to the student's level of comprehension.
- Regulate the pace of speech depending on the needs of the individual.

Strategies for Communication Development:

1. learning to listen
2. developing oral language comprehension
3. developing oral language expression
4. developing social language and conversation skills
5. shaping echolalia
6. providing augmentative or alternative communication

- Choose familiar, specific, and concrete words, and repeat as necessary.
- Use language that is clear, simple, and concise, remembering that figures of speech, irony, or sarcasm confuse the student with communication difficulties.
- Consider the use of partial or complete verbal prompt—a sentence completion model for example. After asking the student a question, such as “What do you want?” provide the student with the beginning of the response, “I want ...”
- Use school routines to build opportunities for everyday communication.
- Allow time for the student to process the information. A good rule of thumb is to allow five seconds for a message to be processed. It may be necessary to talk more slowly or to pause between words. The pace of speech depends on the ability of the individual student.

1. Learning to Listen

Students with ASD need structured lessons on how to access oral information. Reinforcing listening efforts may be necessary rather than assuming that listening is an expected and automatic behaviour. Breaking listening down into components for the student and reinforcing each component might be helpful.

For example,

- teach the student to
 - face the speaker
 - look at one spot (which does not mean they must make eye contact)
 - place hands in a planned position
- praise, or otherwise reward, each step

Some teachers use visual supports along with structured lessons when teaching the student to listen. For example, teachers may use social stories with pictures or picture symbols. These are also reinforced with a printed list of steps, placed on the desk.

2. Developing Oral Language Comprehension

Use visual cues to aid comprehension or oral speech. Visual cues may help obtain and maintain the student’s attention. Accompanying spoken language with relevant objects, pictures, and other visual cues can help with comprehension. Some students with ASD use reading to support oral comprehension rather than the expected reverse of using oral language to support reading, making reading instruction more significant for these students.

**SUGGESTED READING**

Assessment of Basic Language and Learning Skills (Partington and Sundburg 2007)

When working with students who are higher functioning, it is easy to assume that they understand information, particularly if they are able to repeat it. Even with good recall, the student might not grasp the intended meaning. Checking for comprehension is essential.

A common statement made by adults living and working with individuals with ASD is “He understands everything I say.” However, it is easy to overestimate how much the individual understands because of the routine language being used, gestures that accompany the message, additional communication supports, environmental cues, and the ability of the person to learn routines.

3. Developing Oral Language Expression

Students with ASD might not develop typical oral language, but most do develop some form of communication. People involved with a student need a thorough knowledge of the student’s form of expression and may need to adjust their expectations for communication. For students with limited oral expression, teachers and families should accept limited verbal attempts and non-verbal behaviour as communicative. A customized communication dictionary is a very useful tool in which staff and parents/guardians can document what the student says and what is meant, along with planned adult responses to language attempts. (See appendices G and H.)

Students with ASD who have oral language might not easily add to their working oral vocabularies. Teachers and parents/guardians will have to teach new vocabulary in a variety of contexts using a visually based approach.

Students need to be taught that

- they can use words to communicate wants and needs (make requests)
- words have different functions; for example, the word “ball” can be used as a request, as a label, or as a simple imitation
- there are different ways of saying the same thing

Students who rely on pictorial representations to communicate need to learn that a drawing or representation has a name, that gesturing to or exchanging the picture has a positive result in some way (i.e., it can give direction or tell someone what to do). Understanding this concept is essential if visual systems are to provide meaningful communication.

Pivotal Response Training (PRT) is a behavioural intervention based on the principles of Applied Behavioural Analysis that teaches expressive language, play, and social skills in naturalistic contexts. PRT attempts to increase spontaneous language and interaction by using toys and materials that are selected to be highly motivating.

One of the goals of this intervention is to increase responsiveness to learning opportunities throughout the day and generalization of skills across environments.



SUGGESTED WEBSITES

For information about Social Stories and Comic Strip Conversations, see www.thegraycenter.org.

4. Developing Social Language and Conversation Skills

Virtually all people with ASD have difficulty with pragmatics, the interpretation and use of language in social situations. 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.

Many people with ASD have difficulty understanding subtle social messages and rules and have problems interpreting the non-verbal communication of others, such as facial expressions, gestures, or body position.

Students will need direct teaching and opportunities for social interactions and community-based interactions to practise the skills.

Direct teaching could target the following areas of social language:

- starting a conversation
- staying on topic
- interrupting a conversation
- exiting a conversation
- taking turns at appropriate times in conversation
- using body language
- matching voice to the person and situation
- utilizing personal space
- understanding and using figurative language (e.g., idioms)
- expressing feelings
- asking and answering questions
- using appropriate greetings



SUGGESTED READING

For more information, see "Assessment and Intervention Strategies for Children Who Use Echolalia" (Rydell and Prizant 1995).

Social language skills can be taught by

- teaching and practising in one-on-one situations, then in small groups, and subsequently in larger groups
- modelling
- providing environmental cues
- utilizing visual strategies
- providing concrete rules
- presenting in a visual format by writing down rules or incorporating them into a Social Story or Comic Strip Conversation (Gray 1993)
- providing feedback on performance

- analyzing video
- using role-play
- using numerous commercially available materials (e.g., board games, cards, activity books, software)

5. Shaping Echolalia

Some students with ASD demonstrate echolalia, the literal repetition of words or phrases from language of other people. Young children use echolalia as part of normal language development. In ASD, some learners seem to stop developing at this level of language growth. Echolalia can be either immediate or delayed. The student might repeat what was just heard or repeat it later, sometimes many months or years later.

Immediate echolalia can be used as a teaching tool. The echolalic speech phrase can be shaped by using the student's echoic ability to help them produce appropriate responses. For example, when a student echoes back questions, the teacher can shape the response by modelling the appropriate response and reinforcing the use of the appropriate response when the student echoes it. This type of strategy is highly individualized, and it is recommended that the teacher consult with a speech-language pathologist for specific suggestions for the individual student.

Delayed echolalic utterances may have no obvious meaning for the listener. Students with ASD frequently repeat television commercials word for word. To understand the function of language behaviour, it is helpful to think of it as a chunk of language that has been stored without regard for the meaning. A situation or emotion can trigger the use of the speech, even if it seems to have no connection to the situation. It is important not to assume that the student understands the content of the echolalic speech being used.

When possible, try to determine the situation that has elicited the speech and prompt the appropriate language to use for that situation. In one example, when a student echoed a script from a television cola advertisement, this meant that the student was thirsty. The teacher tested this possibility by verbally prompting with a statement such as "You feel thirsty and want a drink." Sometimes families and teachers never figure out a logical connection for delayed echolalic utterances. In that case it is still important to provide the student with simple language they can use for the situation.


SUGGESTED READING

See Appendix B: *Autism and Assistive Technology*.

Refer to *Assistive Technology* (Nova Scotia Department of Education 2006) for further information on SETT and the WATI.


SUGGESTED WEBSITES

See the *Special Education Technology British Columbia* site: www.setbc.org

SETT Framework:

Student: abilities, strengths, needs

Environments: physical settings, available resources

Tasks: activities and situations in which the student will be expected to communicate

Tools: strategies and devices the student needs to communicate within environments and tasks

6. Providing Augmentative or Alternative Communication

Some students with autism are non-verbal or have limited verbal expression that is not sufficient to express their wants and needs in a functional way. These students benefit from the use of assistive technology—more precisely, in the area of an augmentative or alternative communication system. Augmentative or alternative communication (AAC) systems are techniques and strategies used to enhance or support a person's ability to communicate (oral or written). AAC systems range from low tech—those not requiring a power source—to high tech—those systems that require a power source such as computerized devices. There is no evidence to suggest that an augmentative or alternative communication system interferes with speech development, but rather that it can help support speech and language development.

Two widely used approaches to guide decision making about assistive technology are the SETT framework (Student, Environment, Tasks, Tools), developed by Joy Zabala (1995) and the Wisconsin Assistive Technology Initiative (WATI).

The SETT Framework can help in the decision-making process to determine the best assistive technology to support student participation and achievement. Using the organizational structure of SETT, school teams can develop a profile of student strengths and challenges, identify the environments where the system will be used, and determine the academic and life situation tasks in which the student will be involved. Once these areas have been assessed, decisions can be made regarding what assistive technology or augmentative communication systems to consider. It is important to review the SETT framework information for each student to ensure that the information guiding decision making is accurate and current.

There are no prerequisites necessary to start using AAC. Communication begins with interaction, someone wanting to purposefully interact with another. Basic augmentative or alternative communication system intervention includes behaviours, gestures, co-operative actions, and sounds. It does not depend on complex systems or devices, and it is not necessary to use only one system. The primary goal of an augmentative or alternative communication system is to enable the user to communicate interactively in the most effective and efficient manner across environments.

When considering an augmentative or alternative system of communication it is helpful to keep in mind four areas of competence: operational, functional, strategic, and social (Zabala November 2004/January 2005). Operational competence refers to the skills that a student will need to operate any device or system. Functional competence refers to the underlying skills

the student needs to know to use the selected device successfully, for example the underlying language skills. Being able to identify when to use the system or device and to do so independently is strategic competence that students need to learn. Finally, social competence, the ability to use an augmentative system to engage in social exchange in real life situations is of critical importance to developing meaningful and productive social relationships.

It is important to consider a student's cognitive ability, visual and motor skill, and language ability when deciding on a particular system:

- **cognitive ability to comprehend symbols:** If symbols are too abstract, the student might not be able to use the system. A student may use symbols of differing levels of complexity in the same system, particularly as concepts taught at a concrete level are learned, making the use of more abstract symbols possible.
- **vision and visual skills:** The student must be able to see the symbols in the system. The student must also be able to visually scan the symbols and visually track the movements of others.
- **motor skills:** The use of AAC requires a range of motor movement and muscle activity. This includes the muscles required for speech as well as the larger muscles required to point, grasp, and reach. Difficulties with the function of these muscles, if not accommodated, will have a negative impact on the success of the AAC system.
- **current level of language and communication development:** AAC is a way of communicating; it does not replace the underlying skills the student needs to communicate.

Based on the above considerations, a decision about the student's particular AAC system is made. Depending upon the student, a multi-modal approach may be taken with the student using more than one means to communicate. For some students a single approach may be best.

- **vocal:** vocalizations, speech, or word approximations (e.g., saying ooh, ah)
- **gestural:** facial expressions, body language (e.g., eye gaze, pointing, sign language, pulling adult toward object)
- **symbolic:** object, photograph, picture symbol, communication display, drawing, writing, picture exchange communication system (PECS)
- **Voice Output Communication Aid (VOCA):** AlphaTalker, GoTalk, DynaWrite

A speech-language pathologist, or professionals with expertise with ASD and AAC, can provide important information and recommendations for AAC. The program planning team assigns responsibility for supporting the student in learning to use the system. Parents/guardians are key players in implementing communication systems, as the system, where possible,

should be used both at school and at home. The teacher has a pivotal role in implementing the communication system in the classroom setting, providing opportunities for interactive communication and supporting the student's communication efforts.

The **Picture Exchange Communication System (PECS)** is a form of augmentative/alternative communication for individuals with autism and other communication challenges. PECS teaches the individual to spontaneously initiate communication, a well recognized deficit area for many individuals with ASD by requesting highly motivating items or activities. The student exchanges a picture card with a “communicative” partner who immediately honours the request. Over time the student learns to discriminate pictures and to structure and organize language through the use of a sentence strip. Advanced language concepts are introduced so the student can make the message clearer; for example “I want the big red ball.” The student is introduced to different sentence starters such as “I see” or “I hear” to facilitate commenting. Some individuals using PECS maintain this system as their primary means of communication, some move on to speech, and others may move on to more high-tech aided devices or voice output systems.

Table 4.4: Strategies for Communication Development

Skill	Strategy
Learn to listen	<ul style="list-style-type: none"> • provide structured lessons in listening • break down listening into behaviour components and reinforce each component
Develop oral comprehension	<ul style="list-style-type: none"> • use visual aids (photographs, pictures, objects, etc.) • use gestures with oral communication • pair written language with oral communication
Develop oral expression	<ul style="list-style-type: none"> • reinforce attempts to communicate • provide structured instruction of new vocabulary supported with visual aids • help the student understand that everything in the environment has a name • provide classroom situations in which comments are elicited • seize teachable moments to elicit communication using natural reinforcers with natural settings • use alternative/augmentative communication systems for expression when needed

Table 4.4 (continued)

Skill	Strategy
Develop social language and conversation	<ul style="list-style-type: none"> • model appropriate skills; have other students model desired skills • provide opportunities for structured-play interactions • use discussions of routines to practise skills • teach students the correspondence between behaviours and thoughts • encourage and reinforce informal conversation • use prepared scripts to teach social conversations • teach rules for social discourse • target conversation by breaking down skills to include <ul style="list-style-type: none"> – initiating a conversation – interrupting a conversation – exiting a conversation – staying on topic – turn taking – body language
Shaping echolalia	<ul style="list-style-type: none"> • use immediate echolalia to model more-appropriate language • determine the function of the delayed echolalia and appropriate language to replace
Providing AAC	<ul style="list-style-type: none"> • determine whether an AAC system is appropriate • determine the AAC system best suited to the student communication system • refer to <i>Assistive Technology</i> (Nova Scotia Department of Education 2006)

Strategies for Promoting Social Interaction

One of the defining characteristics of ASD is impairment in social interaction and social skills. Students with ASD do not automatically learn the rules of interaction with others, and they are unable to follow these unwritten rules of social behaviour.

Social skills development is an essential curricular area for students with ASD, and a crucial component of any intervention plan for changing problem behaviours. In order to help students, it is necessary to carefully assess their social competencies to determine which social skills must be directly taught.

To develop social skills, students need 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 inclusive environments provides this access to peer models and social opportunities.

Strategies for Promoting Social Interaction:

1. direct instruction
2. prompting
3. structured play
4. peer support
5. social skills groups
6. inclusive leisure groups
7. friendship development
8. social stories
9. cognitive picture rehearsal
10. self-management skills

Access to models and opportunities to develop social skills are not usually enough. Students with ASD need explicit teaching to develop social skills and understanding of social situations. A variety of promising practices support students with ASD in developing social skills.

A note on teaching social skills: It is impossible to separate the development of social and relationship skills from other areas of development, such as adaptive skills, self-help skills, behaviour management, and, perhaps most importantly, communication skills. As a result, strategies for developing social skills are embedded in other strategies throughout Section 4.



SUGGESTED READING

For activities to develop non-verbal communication skills, see *Helping the Child Who Doesn't Fit In* (Duke and Nowicki 1992).

Teaching Your Child the Language of Social Success (Duke, Nowicki, and Martin 1996).

1. Direct Instruction

Social skills are best learned in the context of natural routines, where opportunities are available to make choices, solve problems, and use functional communication and social skills. The development of reciprocal social relationships depends on the inter-relationship of factors such as the number, type, setting, and distribution of social interactions in which the student is involved. However, the natural activities of the day do not typically offer enough opportunities either to teach those lessons that others learn without instruction or to practise the complex skills required to establish strong social skills.

Direct instruction is a good way to develop social play, peer-group participation, social communication, school interactions, and self-management. Direct skill instruction

- identifies social skills that have to be developed
- determines the steps required to build those skills
- provides practice in a variety of settings

Social thinking is critical to developing good social skills. Social thinking is hardwired at birth. It is the social knowledge that we intuitively possess and that we continue to develop as we go through life. It is what helps us consider other people's points of view and their social behavior. Social thinking is the underpinning to social skills development.

Michelle Garcia Winner has developed the social thinking treatment approach. Social thinking teaching techniques are most beneficial for persons with high functioning autism or Asperger's syndrome. This approach delves deeper than teaching social *response* patterns. These strategies are designed to teach individuals

- how their social minds work—why they react they way they do
- how their behaviours make others feel

- how to adapt to other people and situations
- how their behaviours affect their ongoing relationships with others

Critical social skills for instruction include

- **understanding and using non-verbal communication:** Gestures, facial expressions, body language, tone of voice, and other non-verbal communications of meaning and feeling can be taught using visuals, role-playing, rehearsal, and discussion.
- **waiting:** Visual cues such as objects, pictures, and written words can provide concrete information to make waiting less abstract and more specific to the situation.
- **taking turns:** Turn-taking can be taught through the use of social stories and by using a picture or pictograph to cue the student. It may also be necessary to provide some instruction and rehearsal in turn-taking activities.
- **making transitions:** Using social stories and providing warning with visual cues, such as symbols that are understood by the student, can help the student make the transition from one activity to another. Transitions can be particularly difficult if the student has not completed the activity; the student may need to be prepared for the possibility of having to finish later.
- **changing the topic in conversation:** Some students might stay on one topic and appear unable or unwilling to talk about anything else. Staying with one behaviour or topic in this way is referred to as perseveration. Visual rules, established time limits, and setting a time and place to engage in a favourite topic may help in teaching students when they need to end or change the topic.
- **completing tasks:** It may help to teach students to use environmental cues, such as observing and following the behaviour of other students, to know when an activity is finished. It may also help to use a timer and to teach methods for checking their own work.
- **initiating an action:** Social stories, combined with photographs or pictures, can be particularly useful for teaching a student how to approach others, ask for something, get into a game, say hello, and leave a situation if upset.
- **being flexible:** Visual supports can be used to explain changes in a concrete way. If sequences, schedules, or picture routines are used, a specific picture or symbol can be removed or crossed out and another put in its place.
- **being quiet:** Visual supports may be helpful in teaching the specific behaviours for being quiet and for teaching rules for specific situations.



SUGGESTED READING

The Autism Social Skills Picture Book (Baker 2003b)

Social Skills Training For Children and Adolescents (Baker 2003a)

Think Social! (Winner 2005a)

2. Facilitating Interaction through Prompting

In this approach, the teacher or other adult prompts the student to engage in an interactive behaviour that, if it occurs, is responded to positively by others. The teacher provides the student with verbal prompts to engage in the interactive behaviour. If the student interacts, the teacher provides praise and encouragement; if the student fails to respond, the teacher repeats the verbal prompt and may also provide a physical prompt.

This helps students with ASD increase their level of social interaction. However, excess use of prompts can disrupt ongoing social exchanges, resulting in brief, sometimes stilted interactions. It is always important to have a plan in place to fade out the prompts introduced to teach the student a skill. Otherwise, students can be time dependent on them, initiating and responding only when instructed.



SUGGESTED READING

Inside Out (Winner 2002)

Peer Play and the Autism Spectrum (Wolffberg 2003)

Thinking about You, Thinking about Me (Winner 2005b)

3. Structured Play / Social Skills Training Groups

Structured integrated play groups can provide opportunities for younger students with ASD to interact with their peers and can create a natural environment for incidental teaching of social skills. Play groups provide natural situations in which students with ASD use language to express wants, practise being near other children, and imitate social interactions between typical peers. Older students with ASD may benefit from systematic social skills instruction within a small-group structured format.

4. Peer Support

Peers can assist students with ASD in developing social skills. With peer support, socially competent students are taught how to initiate and encourage social interactions with their peers with ASD in natural settings. Students with ASD become more aware of peers, and reliance on adult prompts is reduced.

Peers are taught how to use specific prompts to initiate and maintain interaction with a classmate with ASD. They can role-play with adults until they have learned strategies successfully, and then they are cued by adults as they interact with their peers with ASD. They may also need help communicating with the student.

In preparation for their role in helping a student with ASD develop social skills, peers should be taught how to

- get the attention of the student with ASD
- present choices of different activities or materials to maintain motivation
- model appropriate social behaviour

- reinforce attempts by the student with ASD to use target social skills
- encourage and extend conversations between themselves and the student with ASD
- encourage social turn-taking

Peers should be praised and encouraged for their efforts, just as the student with ASD is reinforced for demonstrating specific social skills.

Opportunities for meaningful contact with peers may include

- involving the student in shared learning arrangements
- pairing the student with buddies when walking down the hall, on the playground, and during other unstructured times
- varying peer buddies across time and activities to prevent dependence on one person
- involving peers in providing instruction
- arranging cross-age peer supports/buddies by assigning an older student to assist the student with ASD
- pairing peers and students with ASD at special school events such as assemblies and clubs
- facilitating involvement in after-school or extracurricular activities

5. Social Skills Groups

Students with ASD may benefit from social instruction within a small-group structured format. A variety of social skills training programs and resources are available.

Research in social skills indicates that it is important to identify whether the social skill difficulty is a matter of performance, in other words the student not having sufficient opportunity to practice a skill he or she knows how to do, or a matter of skill acquisition where the student has not yet learned the skill required. It is therefore important to individualize social skill programming to make sure there is a good match with the social skills program and the actual student deficit.

Social skill programming generally includes the following:

- identifying the skill components, and when they are used
- modelling the skill
- introducing role-play
- providing opportunities to practise
- providing strategies for generalization

One program that has been successful in developing friendship skills for adolescents with high functioning autism or Asperger's syndrome is PEERS, Program for the Education and Enhancement of Relationship Skills, developed



SUGGESTED READING

Super Skills (Coucouvanis 2005)

Building Social Relationships
(Bellini 2006)

Social Skills Training for Children and Adolescents with Asperger Syndrome and Social-Communications Problems
(Baker 2003a)

The Social Skills Picture Book for High School and Beyond
(Baker 2003c)

The Social Skills Picture Book: Teaching Play, Emotion, and Communication to Children with Autism (Baker 2001)

The Social Success Workbook for Teens (Cooper 2008)

Joining In! A Program for Teaching Social Skills (Murdock and Khalsa 2003)

Social Skills Solutions (McKinnon and Krempa 2002)

by Dr. Elizabeth Laugeson (2010). This evidence-based program contains lessons on entering and exiting conversations, finding and sharing common interests, arranging and having successful get-togethers, and handling rejection or bullying.

6. Inclusive Leisure/Play Groups

Inclusive leisure/play groups can provide opportunities for students with ASD to interact with their age peers and to create a natural environment for incidental teaching of social skills. Play/leisure groups provide natural situations in which students with ASD use language to express wants, practise being near other students, and imitate social interactions between other peers.



SUGGESTED READING

Social Skills for Teenagers with Developmental and Autism Spectrum Disorders: The PEERS Treatment Manual (Laugeson and Frankel 2010)

7. Supporting the Development of Friendships

Teachers and parents/guardians may facilitate further social interaction through

- helping the student join school clubs with support as needed
- teaching the student to observe other students and follow what they do
- encouraging co-operative games
- modelling how to relate to the student
- educating other students in the class
- encouraging potential friendships
- providing enjoyment at break times
- helping the student to understand emotions through direct teaching of how to read faces and body language
- responding to cues that indicate different emotions



SUGGESTED WEBSITES

For more information on how to write social stories, see *The Gray Center*: www.thegraycenter.com

8. Social Stories

Another method for teaching social skills is the use of social stories, a strategy developed initially by Carol Gray. A social story is written to provide accurate social information around a specific situation, and is individualized for the student. Typically, a social story *describes* the situation in terms of the relevant social cues, the appropriate responses for the student, and the perspective of others.

The story can be used for a variety of purposes, including

- teaching appropriate behaviours and social skills (e.g., how to say hello to a friend)
- introducing changes and new routines
- explaining reasons for the behaviours of others
- teaching situations for specific social skills (assemblies, fire drills, etc.)
- assisting in teaching new academic skills

Social stories can be created by parents/guardians, teachers, and other service providers. To be effective, a social story should

- describe a situation from the perspective of the student
- direct the student to the appropriate behaviour
- be in the voice of the student (i.e., from the “I” perspective)
- be written at the student’s cognitive level

The process begins with identifying the student’s needs through observation and assessment. Once a difficult situation is identified, the person chosen to write the story observes the situation and tries to understand the perspective of the student in terms of what is seen, heard, and felt. The story is then written at an appropriate comprehension level, from the perspective of the student, and includes descriptive, directive, perspective, and affirmative statements as follows:

- **Descriptive sentences** provide information on the setting, activity, and people involved. The majority of sentences are descriptive.
- **Directive sentences** are positive statements about the desired response for a given situation.
- **Perspective sentences** provide a description of the possible reactions of others.
- **Affirmative sentences** stress important common points.

Additional sentences are sometimes used:

- **Control sentences** may be developed with the student to help him or her remember what to do.
- **Co-operative sentences** describe what others may do to assist the student.

The following formula provides a good rule of thumb for the content of a social story:

- One directive (Dr) sentence for every 2 to 5 descriptive (Ds) and/or perspective (P) sentences.
- Symbols, drawings, or photographs can be included in the story to support meaning for the student.

Example:

My Turn on the Computer

It is fun using the computer in class. (Ds)

Most people like to have a turn on the computer. (Ds)

Our teacher will tell me when it is my turn. (Dr)

She will tell me when my time on the computer is finished. (Dr)

That’s okay, because I know I can use the computer again the next day. (Ds)

I take turns so that everyone can learn using the computer. (P)

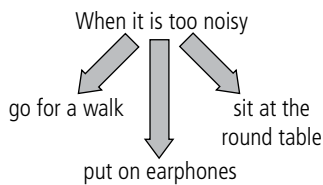
When I wait for my turn on the computer, everyone will be happy. (P)

The 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 the relevant story daily.
- If the student does not read, the story can be read aloud or recorded.
- To incorporate modelling, the story can be videoed. The story is read aloud on a video, with one page on the screen at a time.

9. Cognitive Picture Rehearsal

Cognitive picture rehearsal can be used to teach a sequence of skills that will enable a student to recognize and control his or her own stress, resolve his or her own problems, and re-engage him- or herself in appropriate activity. The scripts used to introduce self-control routines are based on a functional analysis of problematic situations. Scripts or stories are presented as a sequence of behaviours in the form of pictographs with an accompanying script. The student is guided through repeated practice of the sequence of behaviours and relaxation strategies.



SUGGESTED READING

Power Cards: Using Special Interests to Motivate Children and Youth with Asperger Syndrome and Autism (Gagnon 2001)

"Cognitive Picture Rehearsal" (Grodén and LeVasseur 1995)

The Incredible 5-Point Scale (Buron and Curtis 2003)

See "Strategies that Promote Self-Awareness, Self-Calming and Self-Management" in *Asperger Syndrome and Difficult Moments* (Myles and Southwick 1999, 61–90)

For activities to develop non-verbal communication skills, see *Helping the Child Who Doesn't Fit In* (Duke and Nowicki 1992)

Teaching Your Child the Language of Social Success (Duke, Nowicki, and Martin 1996)

10. Self-Monitoring/Self-Management Skills

The ultimate goal for all students, including those with ASD, is to increase independent participation with effective social skills in a variety of environments. To increase independence in higher-functioning students with ASD, students are taught self-monitoring procedures in which they manage their own behaviour in order to earn positive reinforcement. Studies have shown that in the process of collecting their own self-monitoring data, the desired behaviour increases. The accuracy of the self-monitoring may not be as important as the process and the awareness it builds in the students.

The process for teaching self-management skills includes

- defining the target behaviour that the student will self-monitor
- identifying reinforcers
- creating a self-monitoring method for the student to collect data (for example, a chart, stickers, or some kind of low-tech counter device)
- teaching the student the target behaviour and how to use the self-monitoring method to record the performance of the behaviour
- increasing the student's independence by gradually replacing adult intervention with self-managed student behaviour

Developing specific social skills enables the student with ASD to interact with others in a variety of settings and facilitates the development of social opportunities and relationships. However, students who demonstrate basic social skills with adults can still have difficulty establishing connections and

maintaining interactions with peers. Students who primarily interact with teaching assistants will not have the opportunity to develop social skills within the school community. Therefore opportunities for peer interaction need to be planned for.

Many students with ASD have special interest areas such as dinosaurs, weather, or game shows, or are interested in specific characters or events, such as Thomas the Tank Engine or the Titanic. These can be used as part of a “first/then” contingency or the students’ reinforcement program.

Activities, Interests, and Behaviours

Restricted and repetitive behaviours such as rocking and spinning may serve an important function for the student with ASD. For example, a student might demonstrate these behaviours to

- block out unpleasant sensory stimulation (e.g., loud noises, bright lights)
- get adult attention
- avoid certain tasks, situations, or people
- self-regulate his or her emotional state

It may not be a good use of instructional time to eliminate a particular behaviour, considering all the skills a student typically needs to learn. Often, if a student is prevented from exhibiting one type of behaviour, another will take its place because the student has an underlying need to perform the behaviour.

While many such behaviours cannot be totally eliminated, there are strategies that help to lessen their impact on the student and the student’s learning:

- reduce or replace the repetitive behaviours
- help the student learn to manage distractions
- take advantage of the student’s interest for instruction
- use the student’s restricted interest or repetitive behaviour as reinforcement at prescribed times



SUGGESTED READING

Self-Help Skills for People with Autism: A Systematic Teaching Approach (Anderson et al. 2007)

Table 4.5: Strategies for Behaviour

Reduce or replace repetitive behaviours	<p>For reducing or replacing repetitive behaviours, consider</p> <ul style="list-style-type: none"> • teaching an alternative behaviour that is related but more socially acceptable • providing a variety of sensory experiences during the day • trying to divert the student’s attention to another activity when the behaviour is happening • negotiating when and where repetitive behaviours are acceptable—designated times (and settings) to perform the behaviours may reduce the need to engage in it • gradually reducing the amount of time allotted for the behaviour—increase the amount of time between scheduled times for repetitive behaviours • using the level of repetitive behaviour to assess the student’s level of stress and teaching the student more appropriate ways to manage it • allowing the student to engage in the behaviours to calm down in an emergency situation
Help the student learn to manage distractions	<p>Students with ASD may be taught to recognize sources of distraction and learn to manage them. For example, a student may</p> <ul style="list-style-type: none"> • use earplugs or headphones to reduce the impact of background noise • move to a desk in an area of the classroom that is free of visual distractions • approach an adult for assistance
Take advantage of the behaviours for instruction	<p>There are ways to take advantage of the behaviours for instruction:</p> <ul style="list-style-type: none"> • If the student uses the repetitive behaviour to calm down, it may be appropriate to teach other methods of relaxation that provide the same sensory feedback. For some students, it may be appropriate to find another source of stimulation that can satisfy the sensory need. • For a student interested in numbers, put numbers on the steps of tasks or on surprise envelopes or containers to be opened. • A student interested in collecting licence plates can do a project on provinces or states or different makes and models of cars. • A student who collects facts and statistics and loves game shows can create a trivia game with questions and answers on a classroom unit, and be the quiz master when the game is played in class. • Sometimes, the behaviours may be used to motivate the student. Students with ASD who like to rock their bodies or spin objects can do a task and then enjoy the sensation for a brief time. Those who like to line up objects can tidy shelves in the library. Those who like to complete puzzles can earn pieces for tasks and have a few minutes to add pieces to the puzzle between subjects.

Strategies for Teaching Functional Skills

A fundamental outcome of schooling is that students acquire the skills they need to function as independently as possible in the world. This outcome could be even more important for students with ASD because they often have significant difficulties in acquiring independent functioning skills.

Program planning teams should coordinate the planning of instruction for functional skills so that instruction at both home and school is consistent and efficient. Some of these skills involve personal areas of an individual's life, so sensitivity and care are required in planning with parents/guardians or other caregivers.

1. Teaching Self-Care and Domestic Skills

The same kinds of instructional strategies used to teach communication or social skills can be applied to instruction in the areas of self-care (e.g., visual strategies, social stories). Students with ASD may need direct instruction in personal hygiene, grooming, and dressing. Toileting can require significant planning and instruction. Planning meals, food preparation, and even eating may be an appropriate part of a student's program. Household skills required for living independently (e.g., doing laundry, caring for clothing, and cleaning) may be taught or reinforced in the school program.

2. Teaching Functional Academics

Being able to apply the basic academic skills of reading, writing, and mathematics to real-life situations is another important area of functional skill development for many students with ASD.

In the reading domain, it is important for students to

- recognize their names
- use calendars and schedules
- decode common signs (e.g., washroom signs)
- follow written or picture sequences (e.g., recipes, task steps)
- use maps
- match pictures and objects on a shopping list

Functional writing skills include

- being able to sign one's name
- being able to copy from models
- having the skills to construct basic lists (e.g., shopping lists)

Strategies for Teaching Functional Skills:

1. teaching self-care/ domestic skills
2. teaching functional academics
3. teaching vocational skills
4. teaching leisure skills
5. teaching community skills



SUGGESTED READING

Two recommended resources to assist with program planning are FACTER and TTAP.

FACTER: Functional Assessment and Curriculum for Teaching Everyday Routines (Arick 2004)

TTAP: TEACCH Transition Assessment Profile (Mesibov 2007)

There are several functional skills that can be taught within the mathematics domain. They include

- being able to combine coin values: counting change, handling money, budgeting
- being able to hand out materials with one-to-one correspondence: ensuring there are enough placements for everyone at the table
- grouping objects into sets of predetermined size: placing five sheets in each package
- using measuring tools: measuring cups, rulers, scales
- understanding quantitative concepts: more/less, same as, bigger than, etc.

Students also need to learn how to communicate personal information, such as their names, birth dates, addresses, and phone numbers.

3. Teaching Vocational Skills

Students with ASD may require instruction in basic skills needed for the world of work. These skills are broad and overlap with all other areas of development. They include

- being punctual and reliable in attendance at work site
- following a job routine and completing duties as assigned
- understanding task completion
- following safety procedures
- responding appropriately to persons in authority
- completing clean-up routines
- dressing in appropriate work attire and using appropriate grooming
- using job-site leisure time appropriately (lunch, breaks)



SUGGESTED READING

Developing Leisure Time Skills for Persons With Autism (Coyne, Nyberg, and Vandenburg 1999)

4. Teaching Leisure Skills

Education programs for students with ASD often include a recreational component in recognition of the fact that these students might need help in developing leisure activities. For some individuals whose disabilities preclude future employment, leisure activities make up a significant part of their daily routine as adults.

Participation in leisure activities can vary from full to partial participation, depending on the needs of the individual. Finding ways to plan for meaningful partial participation is a challenge facing families and schools.

Leisure activities include

- sports and Special Olympics
- arts activities (e.g., music)
- attending performances (e.g., theatre, movies)

- nature activities (e.g., camping, hiking)
- participating in organized groups (e.g., Scouts)
- attending social events (e.g., dances)

Developing activities that can be enjoyed at home is important. Students may need to support finding and learning activities such as

- using a television, stereo, and DVD player
- caring for pets
- playing games, such as video games and cards
- crafts, such as models or sewing
- using a computer

5. Teaching Community Skills

Safety is a major concern for many students with ASD and must be considered when planning for independence in the community.

Possible areas for consideration in planning community skills instruction include

- using public transportation
- finding community services such as pools, recreation centres, banks, drug stores, and grocery stores
- managing pedestrian rules and understanding traffic
- using public facilities such as washrooms
- using restaurant skills such as choosing and ordering food
- using postal and banking services
- attending community functions

Table 4.6: Summary: Suggestions for Teaching Students with ASD

Instructional Approaches	
Structured teaching	<ul style="list-style-type: none"> • understand the culture of ASD and focus on the person not the deficit • structure the physical environment by providing clear boundaries and demarcation of areas • use visual schedules for the day, individual activities, transition • establish work systems so the student understands what to do, when it is finished, and what to do next • provide visual supports for instruction to provide clarity and organization • establish routines
Visual supports	<ul style="list-style-type: none"> • post daily schedules • create individual mini-schedules • create visual representations of steps in personal or class routines • provide activity checklists • create choice boards • post classroom rules, with illustrations or symbols • create visual representations of steps in personal or class routines • provide visual cues to support oral information or teacher directions
Applied behavioural analysis	<ul style="list-style-type: none"> • focus on observable behaviours that can be measured and tracked down over time • break down complex tasks or skills into their component steps • use discrete trial teaching format • select target skill, teaching methods, and consequences to individual students • use principles of positive reinforcement • carefully structure the learning environment
Activity-based instruction	<ul style="list-style-type: none"> • use engaging activities of interest to the student • use natural environment instruction • use meaningful and natural environment reinforcers • plan teaching opportunities embedded in the context of naturally occurring activities

Strategies to Support Instruction	
Engineer the environment and teach for success	<ul style="list-style-type: none"> • provide meaningful and natural reinforcers • plan for transitions and prepare the student for change • provide a structured learning environment • break tasks into component parts and teach each component • use behaviour shaping strategies • provide opportunities for choice • use simple oral instructions supported by visual cues • pace tasks at the student's level • allow adequate time for students to process information • use concrete examples and hands-on activities when teaching • highlight relevant information • teach independence • employ student's strengths, talents, and preferred areas of interest when teaching • plan tasks at an appropriate level of difficulty • teach calming strategies and provide areas for relaxation • provide opportunities for meaningful contact with peers • consider the impact of sensory factors
Strategies for Communication Development	
Learn to listen	<ul style="list-style-type: none"> • provide structured lessons in listening • break down listening into behaviour components, and reinforce each component
Develop oral comprehension	<ul style="list-style-type: none"> • use visual aids (photographs, pictures, objects, etc.) • use gestures with oral communication • pair written language with oral communication
Develop oral expression	<ul style="list-style-type: none"> • reinforce attempts to communicate • provide structured instruction of new vocabulary, supported with visual aids • help students understand that everything in the environment has a name • use desired objects or activities to encourage expression • provide classroom situations in which comments are elicited • use alternative/augmentative communication systems for expression when needed

Strategies for Communication Development (continued)	
Develop social language and conversation	<ul style="list-style-type: none"> • model appropriate skills, and have other students model desired skills • provide opportunities for structured play interactions • use discussions of routines to practise skills • teach students the correspondence between behaviours and thoughts • encourage and reinforce informal conversation • use prepared scripts to teach social conversation • teach rules for social discourse • target conversation by breaking down skills to include: <ul style="list-style-type: none"> – initiating conversation – interrupting a conversation – exiting a conversation – staying on topic – taking turns – recognizing body language
Strategies for Promoting Social Interaction	
Develop social skills	<ul style="list-style-type: none"> • use social stories • actively teach components of key social skills • provide planned practice of skills • use picture cues and cognitive picture rehearsal • use peer support • use video modelling • use social skills training groups • support the development of friendships
Strategies for Teaching Functional Skills	
Teach functional skills	<ul style="list-style-type: none"> • self-care and domestic skills • functional academics: <ul style="list-style-type: none"> – reading – writing – mathematics • vocational skills • leisure skills • community life skills

Strategies that Address the Associated Features of ASD

1. Unusual Patterns of Attention

As outlined in Section 2, students with ASD often demonstrate unusual patterns of attention. This can have a major impact on communication, social development, and academic skills; therefore, understanding and addressing attention and motivation issues as part of the program planning process is critical.

The following are examples of strategies that may help teachers address attention/motivation difficulties:

- Ensure that information and activities are presented in a clear, structured, and unambiguous format.
- Focus on and emphasize the most relevant information.
- Incorporate special areas of interest and focus attention on a specific task.
- Use concrete, functional objects/items to motivate the student.
- Chose incentives that will have a positive sensory impact on the student.
- Provide frequent, specific feedback and re-direction.
- Provide timed work sessions/activities.
- Break down assignments into manageable chunks.
- Use visual organizers.

2. Unusual Responses to Sensory Stimuli

Environmental stimuli can be very problematic for students with ASD. A student may be hypo-sensitive (under-reactive) or hypersensitive (over-reactive), or both, to different stimuli. These unusual responses can contribute significantly to difficulties such as

- behavioural outburst
- poor attention
- heightened anxiety
- socialization issues
- impaired motor planning
- poor eating habits
- safety issues
- sleeping

Note: It is important to involve an occupational therapist when developing a plan to manage sensory issues. An occupational therapist can assess sensory responses as well as recommend and assist in implementing strategies to address this area of need.

Strategies that Address the Associate Features of ASD:

1. unusual patterns of attention
2. unusual responses to sensory stimuli
3. motor performance and planning difficulties
4. anxiety



SUGGESTED READING

Building Bridges through Sensory Integration (Yack, Sutton, and Larochele 1998)

Table 4.7: Understanding Sensory Behaviours

Sensory Domain	Hyposensitivity (seeking behaviour)	Intervention Strategies	Hypersensitivity (avoidance behaviour)	Intervention Strategies
Visual	The student likes to look at spinning objects, flicks fingers, rocks, is attracted to lights.	Schedule times in the day for the student to have access to visually stimulating materials.	The student closes eyes, rubs eyes, is attentive to details, has good visual memory.	Maintain visually well-organized environment, ensure visual clarity within tasks.
Auditory	The student enjoys noisy environment, machines, running water, flushing, loud music.	Provide headphones for listening to musical instruments, environmental sound CDs.	The student makes repetitive noises, avoids specific sounds, is a light sleeper.	Provide headphones to block out sounds; encourage student to listen to soft, peaceful music; provide a quiet workplace.
Tactile (touch)	The student likes to touch people and things, bumps into others, and may be self-injurious, and has little reaction to pain.	Provide items with a variety of tactile qualities (e.g., koosh ball, sand, water, velvet, satin).	The student may tolerate a limited number of fabrics, resists physical contact, and may be upset by crowds.	Accommodate clothing issues to the extent possible; respect personal space and comfort level.
Olfactory (smell)	The student may try to smell people and things.	Provide a book or box with smells (spices, flavouring, etc.) as a reward or leisure activity.	The student avoids people and places that have an odour.	Provide access to a different location or maintain a scents free policy.
Gustatory (taste)	The student may ingest inappropriate objects, likes strong tastes, may focus on particular foods.	Schedule specific times for food to be eaten, do not focus on food variety as a necessity, consider nutritional value.	The student prefers bland foods, has active gag reflex, tastes foods cautiously.	Consult with the parents/guardians to see if a nutritionist or other professional is involved.
Vestibular (balance and movement)	The student enjoys and needs movement and may enjoy spinning, jumping, and bouncing.	Provide opportunities for gross motor activity and access to equipment (trampoline, rocking chair, etc.).	The student may have low muscle tone, avoids gym equipment and movement, and has difficulties with balance.	Obtain input from an occupational therapist if necessary, to assist in creating a strength-building program; provide opportunities for movement.
Proprioceptive (awareness of the body and its special boundaries)	The student seeks deep pressure, asks for or seeks hugs, walks on toes, grinds teeth or chews inedible things.	Consult with an occupational therapist regarding items to provide pressure (weighted vest, stress ball, etc.), schedule physical activities (jumping, running, etc.), accommodate need for tight-fitting clothing.	The student has poor body awareness, avoids pressure, appears to be clumsy and weak.	Provide opportunities for swimming and other exercise.

Outlined below are some suggested strategies to address both hyposensitive and hypersensitive responses to sensory stimuli.

It is important that these strategies are not inadvertently used to reinforce the inappropriate behaviour, thereby increasing the undesirable behaviour.

Table 4.8: Tactile Sensory Domain Strategies

Hyposensitive	Strategies
<ul style="list-style-type: none"> • does not seem to notice touch of others 	<ul style="list-style-type: none"> • identify the type and frequency of sensory input needed by the child throughout the day
<ul style="list-style-type: none"> • touches other people and objects to get information • seeks deep touch, such as bear hugs, back rubs, and rough play 	<ul style="list-style-type: none"> • teach social rules around the consistencies of touch, using social stories, video, and role-playing • provide opportunities for sensory exploration/ experiences in structured settings through heavy work and play
<ul style="list-style-type: none"> • wants to touch surfaces with a strong feedback (e.g., hot, cold, rough, sharp) 	<ul style="list-style-type: none"> • teach safety rules around touch • look for alternatives
<ul style="list-style-type: none"> • frequently puts things into mouth (e.g., licks objects, chews clothing) 	<ul style="list-style-type: none"> • redirection • social stories • provide opportunities for oral stimulation (crunching ice, chewing gum, blowing bubbles)
<ul style="list-style-type: none"> • seems unaware of “mess” on face or hands or fails to adjust clothing (e.g., shoes on the wrong feet, socks falling off) 	<ul style="list-style-type: none"> • use a mirror to provide visual feedback • use social stories to teach functional routines for proper personal care, e.g., napkins
<ul style="list-style-type: none"> • high pain threshold, unaware of danger because of low response to pain 	<ul style="list-style-type: none"> • use social stories, comic strip conversation, and video to call the student’s attention to injurious behaviour
Hypersensitive	Strategies
<ul style="list-style-type: none"> • touch defensive: does not like to be touched, especially light touch or touch while unable to see the other person 	<ul style="list-style-type: none"> • sensitize everyone in the student’s environment to the issues of oversensitivity to touch • identify and teach the student ways to comfort him- or herself (e.g., relaxation techniques, deep pressure or touch)
<ul style="list-style-type: none"> • has difficulty lining up because of fear of being touched 	<ul style="list-style-type: none"> • identify adaptations for reducing the student’s stress by alternating first and last in line, using hallways and lockers at uncluttered times
<ul style="list-style-type: none"> • avoids strong tactile and textural elements <ul style="list-style-type: none"> – task examples: playing with play dough, hand washing, tooth brushing, food preparation – material examples: seams and labels on clothing; wanting to be barefoot or refusing to be barefoot, wearing long sleeves in the summer to prevent feeling of air on skin 	<ul style="list-style-type: none"> • use social stories to explain the need for specific outdoor wear • work with parents/guardians to ensure clothing is comfortable (e.g., tags removed, wearing socks inside out)

Table 4.9: Auditory Sensory Domain Strategies*

Hyposensitive	Strategies
<ul style="list-style-type: none"> • does not distinguish speech from other environmental sounds (e.g., does not respond to name being spoken, does not seem tuned in to auditory events) 	<ul style="list-style-type: none"> • use game situation to help recognize and respond to name • sensitize the student to sources of sounds in the environment • use visuals and rules to support learning • develop a prompt system specific to the student's strengths and challenges; for example, <ul style="list-style-type: none"> – use touch to direct the student to the speaker – use few words to give directions, wait for the student to process; supplement with gestures or visuals – use vocal highlighting such as animation, tone of voice, or volume to alert the student to particular sounds
<ul style="list-style-type: none"> • creates constant sounds as if to stimulate self (e.g., humming) 	<ul style="list-style-type: none"> • use a social story to teach about humming, when to hum, how to control humming; reward/reinforce for no humming
<ul style="list-style-type: none"> • uses voice that is too loud or too soft or with a typical rhythm 	<ul style="list-style-type: none"> • use audio and video recording to teach volume control of voice, and supplement with visuals (e.g., volume gauge, social stories about indoor and outdoor voices)
Hypersensitive	Strategies
<ul style="list-style-type: none"> • overacts or reacts unpredictably to everyday environmental sounds; for example, <ul style="list-style-type: none"> – becomes anxious in anticipation of perceived unpleasant sounds – holds hands over ears – responds physically as if sound is a threat 	<ul style="list-style-type: none"> • use gradual desensitization to increase tolerance for sound • warn of noises coming, such as bell, fire drill • give frequent breaks from noisy settings and teach the student to recognize his or her sensory overload • adjust the environment
<ul style="list-style-type: none"> • has difficulty looking and listening at the same time 	<ul style="list-style-type: none"> • gradually teach listening and looking at the same time, start in a one-on-one setting

*Ensure hearing has been assessed.

Table 4.10: Visual Sensory Domain Strategies*

Hyposensitive	Strategies
<ul style="list-style-type: none"> cannot distinguish figure-ground relationships (e.g., cannot find the book that is “right in front of him or her”) 	<ul style="list-style-type: none"> teach the student to find small objects or items in busy pictures (e.g., I Spy books) increase contrast by using a dark mat to count objects, circle problems to be done, highlight areas on a page provide slant boards for reading/writing surfaces
<ul style="list-style-type: none"> has difficulty with eye-hand coordination and changing focus (copying from board or overhead) 	<ul style="list-style-type: none"> teach the student to scan and to highlight and to locate instructions, keywords, and answers to questions on an activity sheet or other reading materials teach the student to read content on the board for meaning, and transfer notes—“read then write” provide a copy of the “far point” (the image on the screen) at a “near point” (his or her desk) for copying identify the optimum amount of work to present visually at one time
<ul style="list-style-type: none"> has difficulty with spatial awareness (bumps into people or objects instead of moving around them, can’t judge distance) 	<ul style="list-style-type: none"> explicitly teach from an appropriate distance, at arm’s length, and practise “find your path” in one-on-one or small-group settings, design activities that require navigating through obstacle courses
<ul style="list-style-type: none"> may stare intently at people or objects 	<ul style="list-style-type: none"> teach student to shift attention visually rather than fixating, via modelling, role-playing, social stories, etc.
Hypersensitive	Strategies
<ul style="list-style-type: none"> blocks field of vision to avoid light/glare or excessive movement 	<ul style="list-style-type: none"> using behavioural techniques, provide reinforcement each time the student ignores visual distractions, focuses on tasks, looks directly at the speaker, etc. provide occasional breaks from visually stimulating settings (e.g., draw the blinds and turn off the lights periodically, provide a low-stimulatory work area such as a study carrel, desk facing the wall, out-of-class setting)
<ul style="list-style-type: none"> responds physically as if the movement of people or objects is threatening 	<ul style="list-style-type: none"> use visual strategies to organize work, student’s belongings, and environment, and to increase reliance on environmental prompts
<ul style="list-style-type: none"> avoids looking directly at people or objects, prefers to use peripheral vision 	<ul style="list-style-type: none"> for young students, hold an object the student likes and bring it toward the side of your head, close to your eyes to help them tolerate/make eye contact

*Ensure vision has been assessed (including depth perception).

Table 4.11: Vestibular (Balance) and Proprioceptive (Body Awareness) Sensory Domain Strategies

Hyposensitive	Hypersensitive
<ul style="list-style-type: none"> • seems to need constant movement, can't sit still 	<ul style="list-style-type: none"> • over-reacts to or avoids movement activities such as running, changing direction, or coordinating actions with other people (e.g., avoids sports, tires easily)
<ul style="list-style-type: none"> • may take excessive risks, or seeks out stimulating motor activities (e.g., spinning) 	<ul style="list-style-type: none"> • seems to be fearful when movement is expected, muscles seem tense, may lock joints
<ul style="list-style-type: none"> • may deliberately bump or crash into objects or people 	<ul style="list-style-type: none"> • seems to become physically disorientated easily, avoids activities such as somersaults, leaning over sink or table, bending to pick up something from the floor or to tie shoes
<ul style="list-style-type: none"> • may use too much pressure to pick up or hold objects, tie laces, print, touch a pet, hit computer keys, manipulate switches, turn doorknobs 	<ul style="list-style-type: none"> • may use too little pressure to pick up objects or hold materials, tie laces, print, press computer keys
<ul style="list-style-type: none"> • may have difficulty with bilateral task, such as using scissors and knife and fork 	<ul style="list-style-type: none"> • if muscle tone is low, leans on others for support as if they were furniture, "W-sits" on floor to stabilize, props head on hands at desk or table, flops rather than sits, always wants to lean against wall if standing
<ul style="list-style-type: none"> • may have difficulty with motor planning, including smooth coordination of desired gross or fine motor movement or of speech 	<ul style="list-style-type: none"> • may have difficulty with motor planning, including smooth coordination of desired gross or fine motor movement or of speech
Array of Strategies	
<ul style="list-style-type: none"> • The program training team should consult a physical education teacher for activities to improve strength, stamina, balance, coordination, motor planning, and awareness of body in space. • Seat the student at a desk/chair that is appropriately sized to ensure that feet are on the floor and elbows rest on a tabletop that is slightly inclined if possible. • Assess whether active movement before sedentary activity improves the student's tolerance and attention. • Use frequent activity breaks, even within the classroom, such as handing out materials or shelving books. 	

Table 4.12: Taste and Smell Sensory Domain Strategies

Hyposensitive	Strategies
<ul style="list-style-type: none"> eats a limited variety of foods 	<ul style="list-style-type: none"> consult with parents/guardians and nutritionists to develop ways to desensitize the student to a wider variety of foods “The Eating Game” by Jean Nichol (2009) uses picture communication symbols and <i>Canada’s Food Guide</i> to help people make choices about meal preparation
<ul style="list-style-type: none"> gags, refuses food has difficulties with oral hygiene spits out foods and medications 	<ul style="list-style-type: none"> consult with an occupational therapist to identify ways to desensitize mouth area and improve function of teeth, gums, cheeks, and lips consult with a psychologist for a desensitization program
<ul style="list-style-type: none"> is smell defensive—will avoid places (such as art or science classrooms) or people with strong odours reacts to odours that other people may not notice (the smell of coffee on someone’s breath) or odours that other people usually like, flowers, perfume, air freshener 	<ul style="list-style-type: none"> place items with “pleasant” smells in pocket-sized containers or saturate handkerchiefs that the student might access to override unpleasant smells
Hypersensitive	Strategies
<ul style="list-style-type: none"> wants food constantly 	<ul style="list-style-type: none"> ensure the student has been assessed for related conditions (medical/biological consideration) teach rules about eating without permission
<ul style="list-style-type: none"> licks objects or people in the environment sniffs objects and people in unusual ways or wants to stand close to others in order to smell them 	<ul style="list-style-type: none"> consult with an occupational therapist to identify ways to improve function of teeth, gums, cheeks, and lips
<ul style="list-style-type: none"> high threshold for bad tastes, so doesn’t avoid dangerous substances has PICA (mouths or eats non-food substances such as rocks or paint) 	<ul style="list-style-type: none"> teach recognition of hazard icons and keep all dangerous substances locked away

3. Motor Performances and Planning Difficulties

As discussed in Section 2, individuals with ASD demonstrate variation in motor planning and motor skill abilities. Motor planning refers to the ability to develop an idea of what to do, construct a plan to carry out that idea, and subsequently organize and execute the motor task. Some individuals with ASD have dyspraxia, which is a motor planning disorder. Children with ASD can experience difficulties initiating, sustaining, switching, or combining motor movements. They typically do not get the practice to develop motor skill due to their limited exploration and interaction with the environment. Motor imitation, for example, is a well documented deficit in children with ASD.

Daily tasks such as moving through the school require motor planning. Problems in motor planning can also be evident in difficulty with speech production and the structuring and organizing of language communication.

Students with ASD can take longer to learn unfamiliar routines or routines with multiple steps. This is evident in learning daily living skills such as dressing, learning social games, or doing physical activities that have complex actions. Most children have weakly developed gross motor skills and will require additional programming and interventions. Children with ASD frequently have fine-motor deficits, with problems in paper, pencil, and cutting tasks or in manipulating small objects (e.g., buttons, snaps). These problems can make it very difficult for students to complete written assignments.

Some children with ASD can be well coordinated in motor skills. For example, their gross motor skills may be exceptional and they might be able to balance and climb with ease. However, many of these students do not recognize danger in their actions. Programming and services for students with dyspraxia should address provisions for environmental adaptations as well as target outcomes for remediation. However, there are some instances where weak motor skills are best compensated for through assistive technologies.


SUGGESTED READING

Learn to Move, Move to Learn!
(Brack 2004)

Smart Moves (Hannaford 1995)

Direct instruction using task analysis and visual cues to illustrate the steps and sequence of actions are essential components of enhancing motor performance.

The following are examples of strategies for addressing motor performance and motor planning difficulties.

- Analyze academic and cognitive tasks to identify ways in which to reduce or minimize fine motor demands through compensation (e.g., use of templates, scribing).
- Examine the role of assistive technology as part of the program planning process.
- Provide direct instruction based on task analysis and supported by visual cues to illustrate the steps and sequence of actions/routines/activities.
- Work collaboratively with involved outside agency professionals such as occupational therapists.
- Work with the school physical education teacher to design programming for adaptive physical education.
- Build in frequent opportunities for practice so motor planning becomes automatic.
- Use visual supports to depict the steps in a particular motor sequence.

4. Anxiety

Many people identify anxiety as a major feature of ASD, as discussed in Section 2.

Sources of anxiety are highly individual and often unique to students with ASD. Some common causes include

- difficulty communicating
- transitions and changes in routines and settings
- environmental factors such as noise or movement
- inability to understand and meet social expectations
- fear of failure
- inability to meet academic expectations
- lack of appropriate programming
- lack of familiarity with the environment or task

A functional behaviour analysis should be conducted to better understand the sources of anxiety.

Ensure the availability of a safe place to go to where the student can have opportunities for successful social interactions with peers and adults throughout the day, and where there are designated staff member(s) for the student to go to.

Ensure that the student has an appropriate communication system and knows how to use it. Stress is reduced when the student can interact with those supporting him or her using an appropriate augmentative or alternative communication system.

Assume that the student understands an expectation only when he or she can demonstrate understanding and capability. Give clear, brief instructions using demonstrations or modelling whenever possible. Help the student understand the “why” of the situation, using social stories or role-playing when applicable.

Check comprehension of instructions or conversations:

- Restate what the student has conveyed to you by paraphrasing or demonstrating your understanding.
- Seat the student next to someone who is a good “buddy.” Teach students how to communicate to their buddies when they need help. (Also teach the other student how to respond appropriately to his or her peer with ASD.)



SUGGESTED READING

To help young students manage anxiety using visual techniques, see *The Incredible Five-Point Scale* (Buron and Curtis 2003).

“Relaxation, Guided Imagery and Visualization Techniques,” in *How to Reach and Teach ADD/ADHD Children* (Rief 1993, 125–29)

Useful resources from Dr. Tony Attwood:

- *Cognitive Behaviour Therapy to Manage Anger* (2004)
- *Exploring Feelings: Anger* (Attwood 2004a)
- *Exploring Feelings: Anxiety* (Attwood 2004b)
- *The Cat Kit: Cognitive Affective Training* (Attwood, Callesen, and Moller Nielsen 2008)

Note: Fact-based assignments are more likely to be successful than tasks that require creativity, imagination, or empathy.

Ensure that task expectations are appropriate:

- Support the student to complete tasks and meet expectations at his ability level to give him or her a sense of accomplishment and confidence.
- Ensure that tasks have a clear beginning, middle, and end and that reinforcers are clear and provided as frequently as necessary.
- Debrief after each success. What was done correctly?
- Help the student set reachable goals (e.g., copy three sentences that are dictated).
- Adjust the length or difficulty of tasks so they can be completed in a manageable period.
- Provide breaks when necessary, but ensure that the student returns to finish the task.

Use written or graphic cues to remind the student of tasks and expectations; for example,

- how many times to write each spelling word
- raise hand for help, put hand down and cover ears when it is too noisy
- “I don’t understand”
- “I need help”
- “What do I do when I’m finished?”



SUGGESTED READING

Smart Moves (Hannaford 1995)

Adjust activity levels to match the student’s needs:

- Be sensitive to the impact of tiredness, under-stimulation, low muscle tone, or too much sedentary time without breaks.
- It may be necessary to establish a calm, quiet area that can help students manage sensory or emotional overload.
- Regular periods of exercise and gross motor activities several times a day can provide active play and physical contact for students who seek this type of stimulation.
- Movement can be incorporated into the classroom by giving a student reasons to be out of his or her desk.



SUGGESTED READING

For suggestions to manage typical sources of anxiety within a school day, see *Asperger Syndrome and the Elementary School Experience* (Moore 2002, 132–50)

Provide a structured, predictable environment:

- Strategies that provide structure in one environment can be used in other environments (home, school, community).
- Explicitly teach students to be flexible and to tolerate small variations in routine in order to learn to adapt to everyday life (e.g., substitute teacher and rearranging classroom furniture).

Provide a customized visual daily schedule to teach independent functioning:

- Use the schedule consistently with the student.
- Direct the student’s attention to the schedule by gesture, when necessary, and ensure that the student learns to use the schedule with increasing independence.

Plan for transition to teach the student to manage change. Tools include

- visual schedules
- verbal reminders
- social stories
- timers

Help the student to recognize and manage his or her own anxious or overstimulated state. Ask the student to

- name two or three of the feelings in his or her body
- take a series of deep breaths, holding and releasing them
- count slowly to a particular number
- visualize something pleasant or visualize his or her body returning to a calm state
- refer to a picture, or written cue cards, to remind him or her what to do
- read or repeat a verbal script for calming and reassuring him- or herself
- express his or her feelings by drawing
- store preoccupations on an imaginary computer disk and not think about them again until a specified time or task has been completed
- write worrisome things on paper and store them in a special box for that purpose

Handle verbalized anxiety calmly and move on:

- Avoid inadvertently reinforcing the student's preoccupations with too much reassurance or discussion, or by letting the student use the repetitive worry as a way to avoid tasks.
- Provide a brief, matter-of-fact response (visual support may be needed), and then move back to the task or change the subject.

There are ways to take advantage of the behaviours for instruction:

- If the student uses the repetitive behaviour to calm down, it may be appropriate to teach other methods of relaxation that provide the same sensory feedback. For some students, it may be appropriate to find another source of stimulation that can satisfy the sensory need.
- For a student interested in numbers, put numbers on the steps of tasks or on surprise envelopes or containers to be opened.
- A student interested in collecting licence plates can do a project on provinces or states or different makes and models of cars.
- A student who collects facts and statistics and loves game shows can create a trivia-type game with questions and answers on a classroom unit, and be the quiz master when the game is played in class.
- Sometimes, the behaviours may be used to motivate the student. Students with ASD who like to rock their bodies or spin objects can do a task and then enjoy the sensation for a brief time. Those who like to line up objects can tidy shelves in the library. Those who like to complete puzzles can earn pieces for tasks and have a few minutes to add pieces to the puzzle between subjects.



SUGGESTED READING

The Incredible 5-Point Scale
(Buron and Curtis 2003)



SUGGESTED WEBSITES

The Zones of Regulation at
www.zonesofregulation.com
(Kuypers 2011)

Section 5: Supporting Students with ASD and Their Challenging Behaviours

Developing Strategies that Support Achievement of Student Outcomes

In 2005, the Nova Scotia Department of Education launched the Positive Effective Behavioural Supports (PEBS) initiative designed to help schools implement school-wide systems of behavioural supports for students, and to develop their own specific school codes of conduct. (See *Provincial School Code of Conduct*, Nova Scotia Department of Education 2008a.)

PEBS should serve as a framework in which program planning teams develop outcomes to ensure that students requiring secondary or tertiary prevention have their challenges addressed.

PEBS focuses on a system approach model of behavioural support that

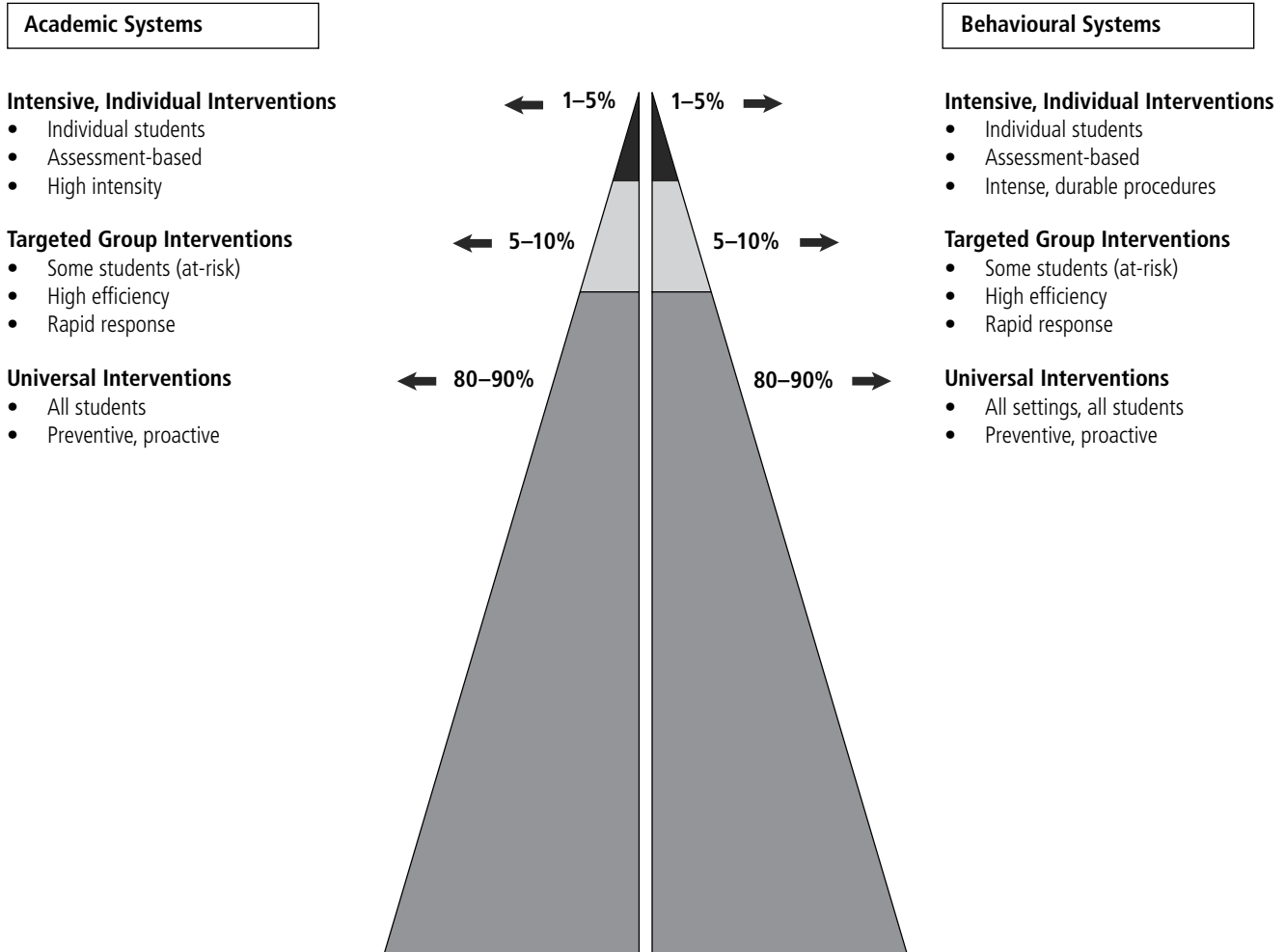
- establishes a consistent school-wide approach to addressing behaviour and discipline
- actively promotes a positive school climate
- teaches and reinforces expected behaviours for all students in known and consistent ways
- emphasizes proactive and preventive strategies to reduce inappropriate behaviours
- focuses on social skill development
- establishes targeted interventions to meet the individual needs of students
- encourages an approach that considers dealing with academic and behavioural supports simultaneously



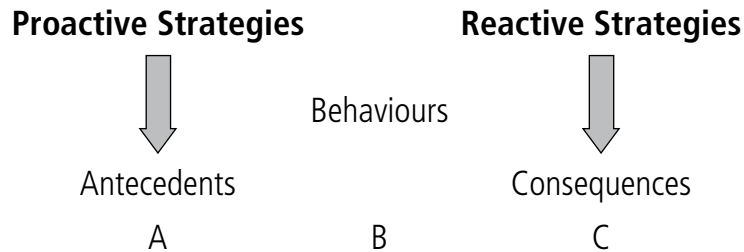
SUGGESTED READING

See Appendix E: Behavioural Supports for Students with ASD and Appendix F: Components of an Individual Program Plan with Behavioural Outcomes.

Designing School-Wide Systems for Student Success



Strategies for supporting students with challenging behaviours fall into two broad categories:



The program planning team's goal is to develop outcomes and to select proactive and reactive strategies to reduce or eliminate challenging behaviour.

Students with ASD can demonstrate some unusual and challenging behaviours and might not always respond to traditional methods of intervention. To implement effective instructional activities, it is necessary to focus on simultaneously managing the student's behaviour and providing appropriate curricula for each student with ASD.

Inappropriate behaviours are often the primary concern of teachers and parents/guardians because they disrupt both the learning of the student and other students in the class and the harmony in the family. A systematic plan, outlined in the behavioural component of the student's individual program plan, is necessary for changing behaviour while engaging the student in meaningful learning experiences and activities. As with all other components of a student's IPP, behavioural outcomes should be based on an understanding of the primary characteristics and associated features of ASD as well as knowledge of the strengths and challenges of the individual student.

Understanding that all behaviour has a function is essential in developing a successful intervention plan. Planning is achieved through a collaborative problem-solving process involving the significant people in the student's life, including parents/guardians, principals, classroom teachers, special educators, and others, as appropriate.

Problem solving for challenging behaviours should include

1. identifying the behaviour for intervention
2. identifying the function of the behaviour and the contributing factors or setting events
3. identifying an appropriate alternative replacement behaviour
4. developing strategies for changing, shaping, and monitoring behaviour
5. developing the behavioural outcomes of the IPP
6. evaluating the behavioural outcomes of the IPP

Making Sense of a Behaviour

Ask this question: "If the behaviour could talk, what would it say?" For example, when a student with ASD refuses to take turns with playground equipment, is the behaviour saying, "I don't know how to take my turn," or "I don't know how to play other games at recess, so this is all I want to do"?

The answer to the question of what the behaviour is trying to say often leads back to the difficulties and challenges the student faces from ASD.

1. Identifying the Behaviour for Intervention

Identify and describe the behaviour in measurable, objective terms, including

- where the behaviour occurs
- when it occurs
- the frequency, intensity, and duration of the behaviour

Example: *He hits any person sitting beside him, with hand open and excessive force, after loud noises, etc., rather than “he hits.”*

Determine whether or not the behaviour

- is potentially harmful to the student or others
- interferes with the student’s learning or the learning of others
- is socially inappropriate and may result in negative reactions or avoidance by peers and adults
- limits opportunities for experiences in the community

Note: The student might display more than one challenging behaviour. Expecting to change all behaviours at the same time may not be reasonable, and priorities for intervention will need to be established.

2. Identifying the Function of Behaviour and the Contributing Factors or Setting Events

The function or purpose of a particular behaviour is not always obvious, and one behaviour may serve multiple functions. The behaviour might be habitual. Collect information about the student, including his or her behaviour, curricular demands, environment, and consequences of the behaviour, to determine the function of the behaviour and what factors are maintaining it.



SUGGESTED READING

See Appendix G: Behaviour Observation and Data Collection Chart for Determining the Function of Behaviours.

Functional Behaviour Analysis

A functional behaviour analysis is the process of identifying the function(s) that a specific behaviour serves for the individual. It is based on the premise that all behaviour serves some purpose. It provides a foundation for developing the behavioural outcomes of the IPP. The success of the plan depends more on instructional and proactive strategies than on reactive strategies.

The purpose of the behaviour may be one or more of the following:

- to gain attention
- to gain access to something tangible
- to escape or avoid an unpleasant or confusing situation
- to gain or avoid a sensory consequence
- to self-regulate when overwhelmed or anxious

To determine the underlying contributing factors, conduct a thorough analysis of the behaviour and the context in which it occurs, and consider these and other factors:

- when and where the behaviour occurs
- the frequency and intensity of the behaviour
- what is happening just before the behaviour
- what is going on in the setting when the behaviour occurs
- who else is involved or near the student
- response of staff and other individuals

The process of collecting the information for a functional assessment includes investigating factors, as outlined in the following chart.

Investigating Factors Influencing Behaviour

Student Factors	External Factors	Antecedents of Behaviour	Consequences Affecting Frequency of Behaviour
<ul style="list-style-type: none"> • health concerns • responses to sensory stimuli • any recent changes in the student's life • cognitive skills • social interaction skills • repertoire of communication skills • problem-solving skills • likes and dislikes • fears and frustrations • attention span • learning style 	<ul style="list-style-type: none"> • impact of physical environmental factors (e.g., noise, lighting) • structure, routine, and predictability in schedule and activities • nature of instruction • impact of setting • impact of others 	<ul style="list-style-type: none"> • events/situations immediately prior to behaviour • events/situations occurring well before behaviour but having impact on the behaviour (these are sometimes called setting events) 	<ul style="list-style-type: none"> • events following the behaviour that increase or decrease frequency (e.g., time-out, attention, something tangible/edible, praise)
<p>The information that has been collected must then be analyzed to</p> <ul style="list-style-type: none"> • determine the relationship between the setting events and the environment conditions in which the behaviour occurs • identify patterns (e.g., what is triggering the behaviour, what is maintaining it, and what purpose it serves for the student) • identify possible reinforcers 			

Source: Adapted by permission from Manitoba Education, Citizenship and Youth, 2005.

3. Identifying an Appropriate Alternative Replacement Behaviour

Once the function of a behaviour has been determined or hypothesized, it is possible to identify a more appropriate behaviour that can serve the same purpose. For example, if a student pushes materials on the floor to avoid a task that is too difficult, the student might need to be taught another, more acceptable way to express his or her need. These more appropriate behaviours might not be in the student's repertoire. The focus of the behaviour interventions is instruction. The outcome is to increase the student's use of a more appropriate means of achieving the same purpose. The new replacement behaviour is usually a more effective way to communicate or interact with other people, and it may be a more appropriate means of seeking sensory stimulations or for reducing anxiety.

It should be assumed that the student has the skills necessary to engage in the new replacement behaviour. Systematic instruction and reinforcement are necessary. In most situations, teaching of the new behaviour will have to be combined with other positive programming strategies.

4. Developing Strategies for Changing, Shaping, and Monitoring Behaviour

Proactive strategies focus on factors that precede (and possibly cause) a challenging behaviour. Inappropriate 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 occurrence can be minimized by making environmental changes.

Environmental Considerations

- decreasing sensory stimuli if feasible
- incorporating sensory activities, if appropriate, into the student's daily routine
- making changes in physical arrangements, such as seating
- providing a clear and predictable schedule
- scheduling calming-down times or exercise breaks before difficult situations
- alternating more difficult and demanding tasks with those that are easier and more enjoyable
- providing choices
- providing access to favourite activities or peers
- having a place where the student can go to relax
- providing an object to use as a distraction when in transition (e.g., allow the student to carry a ball or picture of a ball to the gym)

Positive Behavioural Support

Providing 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 inappropriate behaviours.

Positive Behavioural Interventions

- teaching communication skills using a form of communication appropriate to the abilities of the student
- directly teaching social skills
- identifying functions of maladaptive behaviours and teaching more appropriate replacement skills or behaviours
- providing visual supports to clarify instructions and teach new concept and skills
- using social stories to teach behaviour for situations that pose a problem
- providing clear expectations for behaviour using appropriate visual cues to help the student understand what is expected
- providing a clear schedule and using it to prepare the student for transitions between activities and for any changes that might occur
- teaching the student to make choices, and providing opportunities for choice within the schedule
- providing instruction at a level appropriate to the student
- monitoring the student's response to the environment and adapting it to reduce the likelihood of anxiety responses before they happen
- reinforcing appropriate behaviour with reinforcers that are meaningful to the individual student
- teaching relaxation techniques
- teaching physical exercise activities
- fading prompts to increase independent functioning

Positive Reinforcement Strategies

The purpose of positive reinforcement is to *increase* learning of a particular behaviour. Something is introduced or removed from the situation contingent upon a specified behaviour, to *increase* the likelihood that behaviour will occur again under the same conditions. Students with ASD may lack internal motivation or may not respond to social praise in an appropriate manner. It is therefore often necessary to develop an incentive or reinforcement system to motivate them. Motivation is a key to learning. It may be helpful to ask, "What is the payoff for participating in this activity?" If there are no obvious payoffs from the student's perspective, it may be necessary to devise one.

In order to be effective, selected reinforcers or rewards must be appealing and motivating to the student. However, what is motivating for one student might not be motivating to another. The appeal of a specific reward might



SUGGESTED READING

The Incredible 5-Point Scale
(Buron and Curtis 2003)

The Zones of Regulation
(Kuypers 2011)



SUGGESTED WEBSITES

The Zones of Regulation at
www.zonesofregulation.com

wane over time, so it could be necessary to rotate or change rewards on a regular basis. Some students respond positively when they know exactly what they are working for, while others are more motivated by earning surprise rewards. It is often effective to present a menu of reinforcers and allow students to select the ones they would like to work for.

There are several types of reinforcers. They include

- material or tangible reinforcers—providing students with desired items
- activity/privilege reinforcers—providing students with opportunities to engage in preferred activities
- social reinforcers—providing students with positive attention

When delivering a tangible or activity reinforcer to the student, it is important to pair that reinforcer with social praise.

A **token economy** system of reinforcement of desired behaviour can be set up. Tokens, which are any items that can be counted and that a student finds meaningful, are earned by the student for completion of tasks or other appropriate behaviour. Earned tokens are then “cashed in” for designated reinforcers known to increase behaviours for that student, such as tangibles (food or other desired objects) or preferred activities (time on the computer, use of a portable audio player, or access to a favorite person).

Reactive Strategies

Reactive strategies focus on what happens after a behaviour occurs.

Consequence-Based Interventions

Positive behaviour strategies focus on increasing student competence and making any necessary modifications to physical setting, materials, and instruction. They are the most successful in facilitating long-term behavioural change. However, to maintain order and safety in the classroom, designing a planned reaction to a behaviour is essential.

Everyone involved with the student must be prepared to respond to specific behaviours in a consistent way and with the same consequences. Likewise, all adults who interact with the student with ASD should have skills and knowledge about behavioural principles.

In general, there are three major types of planned responses:

- planned ignoring of the behaviour
- redirection
- removal from the reinforcement (time out) for inappropriate behaviour.

Ignoring the behaviour, or giving the least amount of attention that is safe, may be appropriate for minor behaviours. If gaining attention is the motivation for the behaviour, reacting to it might actually increase rather than decrease it. The student may need to be taught directly how to gain attention, wait for turns, or attain other social interaction skills. Ignoring may be difficult to implement in a classroom setting, particularly if the behaviour is disruptive to the learning of the student or the other students. Teachers should ensure that the student is not being inadvertently reinforced by other sources, such as peer attention. At the same time, we must be cognizant of giving attention to the appropriate behaviours.

Redirection is the vital component of any behaviour intervention plan. If a behaviour is unacceptable, the student needs to know what is expected instead, and the expectations need to be communicated clearly. The use of visual cues is often helpful. Redirection is used in combination with positive behavioural strategies. The student will need to be taught the more appropriate alternative behaviour and provided with opportunities to practise and rehearse this behaviour.

Removal from reinforcements is sometimes referred to as “time-out.” Time out can be an effective behaviour management strategy incorporated into an overall plan to promote the development of desirable behaviours. Because removal from the learning environment is a restrictive and serious form of intervention, it should be used only when less-restrictive interventions have proved ineffective. Time-out should always be used cautiously. The process should be carefully documented and the data shared with the school administration and the program planning team.

It is important to note that many students with autism spectrum disorder prefer to be isolated. As such, some students may purposely engage in negative behaviours to avoid group situations and structured tasks. Generally speaking, time-out consequences are only effective when students feel that they are missing out on positive experiences during the time-out.

Time-out procedures should be clearly outlined in the student’s individual program plans and communicated to them, to their parents/guardians, and to administrators. Teachers should seek permission from administrators and obtain the written consent of the parents/guardians prior to implementation. It is critical to evaluate the effectiveness of the procedure on a regular basis.

Consequences such as time-out should never be used in isolation. It is important to develop a comprehensive behaviour management plan that is a component of the student’s IPP, involving positive behavioural supports to motivate students to display appropriate behaviours and refrain from less desirable behaviours.



SUGGESTED READING

Guidelines for Use of Designated Time-Out Rooms in Nova Scotia Schools (Nova Scotia Department of Education 2010)

Guidelines for the Use of Physical Restraint (Nova Scotia Department of Education 2011)

Time away is different from time-out. Before an inappropriate behaviour occurs, we might be able to recognize signs of anxiety or upset in a stressful situation. It may be necessary for the student to leave the situation to calm him- or herself before any redirection or teaching of alternative behaviours can occur. This approach can be combined with positive behavioural strategies, such as teaching students to recognize when they are becoming anxious and to appropriately and independently remove themselves from the situation before they lose control of their behaviour. Because the Nova Scotia public school system supports an inclusive model, removal from the learning environment is a serious form of intervention. It should be discussed throughout the program planning process, used cautiously, and carefully documented.

Shaping Behaviour

Teaching the new acceptable behaviour may involve shaping the behaviour so that approximations of the desired behaviour are reinforced. Once the student is reinforced for an approximation of the desired behaviour, reinforcement is only provided for closer approximation.

For example, if the goal is for a student to stay on task for 15 minutes, the following shaping procedure might be used:

Desired behaviour = 15 minutes on mathematic tasks

- student is reinforced for 2 minutes of on-task behaviour
- student is reinforced for 4 minutes of on-task behaviour
- student is reinforced for 6 minutes of on-task behaviour
- student is reinforced for 10 minutes of on-task behaviour
- student is reinforced for 12 minutes of on-task behaviour
- student is reinforced for 15 minutes of on-task behaviour

Response Protocol

Anticipating the potential for a crisis and planning proactively is critical for success. Some students with ASD can become agitated, and a crisis can occur. In these cases, a planned response protocol, understood by all staff working with the student (and where appropriate, the other students), is necessary.

The response protocol should

- deal with out-of-control behaviours that pose a risk of injury to the student or others (interventions focus on safety)
- defuse the behaviour (interventions focus on preventing future problem behaviours and keeping the student on task)
- support the student after the behaviour (interventions focus on re-establishing routines, including a re-entry plan, which may be to a specific activity, the classroom, or school)

The plan should include

- a description of the signals that indicate that a crisis situation is developing (as identified in the functional assessment)
- a strategy for preventing injury for the student, peers, and staff in all settings in which the crisis might occur
- a list of steps in the intervention to match each step of the escalating behaviour problem
- things to do and things not to do
- provision of appropriate training for staff who will carry out the plan, with opportunities to practise the interventions needed for the plan
- record keeping, for monitoring use of the crisis plan and evaluating its effectiveness

5. Developing the Behavioural Outcomes of the IPP

When the team has identified a student's inappropriate behaviours, the contributing factors, desired alternative behaviours, and annual and specific behavioural outcomes of the individual program plan are then developed. As identified in Section 3, program planning teams should ensure that the individualized outcomes are

- directly connected to the student's priority needs
- measurable
- reflective of expectations of the student's achievement over the course of one school year
- consistent with the program planning team's vision for the student and relevant to the student's vision for him- or herself
- supportive of appropriate inclusion
- written in precise, clear, and unambiguous language
- supportive of building independence
- reflective of the task analyzes necessary to identify the prerequisite skills and incremental steps involved

Training for staff in non-violent crisis intervention for autism is highly recommended.

The program planning team is assigned the responsibility to monitor the achievement of student outcomes. The teacher is responsible for ensuring the consistent implementation of the instructional and assessment strategies outlined in the student's individual program plan.

6. Evaluating the Behavioural Outcomes of the IPP

Part of the program planning process involves evaluating interventions on a regular basis. When evaluating the effectiveness of the plan, consider whether

- the intervention is implemented consistently
- the interventions should continue for a longer period of time
- adjustments have to be made
- the target behaviour is maintained by other factors that were not accounted for
- reinforcers are still effective
- new strategies should be considered

Summary: Suggestions for Managing Challenging Behaviour

Carrying out a Functional Analysis of Behaviour

- Identify the behaviour for intervention.
- Carefully describe the behaviour.
- Identify antecedents to the occurrence of the behaviour.
- Identify consequences—what happens in the environment after the behaviour.
- Measure the frequency and intensity of the behaviour.
- Identify an appropriate alternate behaviour that could fulfill the same function.
- Plan and carry out instruction to teach the alternative behaviour.

Strategies For Changing Behaviour

Environmental Changes/Considerations

- Remove distracting or anxiety producing stimuli.
- Change features of the environment that cause sensory overload for the student.
- Arrange the classroom to maximize structure and minimize opportunities for inappropriate behaviours.
- Provide time away for relaxation.

Positive Behavioural Interventions

- Use proactive, instructional approaches whenever feasible
- Directly teach appropriate behaviours.
- Positively reinforce appropriate behaviours.

- Shape behaviour by reinforcing succeeding approximations.
- Select reinforcers that are meaningful to the individual student.
- Provide reinforcement through token economy.
- Provide opportunities for time away and relaxation throughout the day.

Consequence-Based Interventions

- Establish a response protocol.
- Use planned ignoring.
- Redirect the student by communicating the desired behaviour.
- Remove whatever is reinforcing the inappropriate behaviour.
- Use time-out that is carefully documented.

Section 6: Asperger's Syndrome

Recognizing Asperger's Syndrome

According to the DSM-IV-TR (American Psychiatric Association 2000), the student diagnosed with Asperger's syndrome (AS) must meet the criteria for social impairment, repetitive activities, and age of onset, but have normal cognition and early language development. Some argue that language acquisition is normal; however, Wing (1981) notes the presence of deficits in the use of language for communication in some of her case studies. Therefore, language acquisition may be typical, but the pragmatic use of language might not be typical.

While students who are significantly impaired by ASD are typically identified before school entry, those with AS might not be identified until well after entering school. Students with AS can appear to be self-sufficient and independent children who are bright, verbally sophisticated, and show early interest in letters, numbers, and facts. The child's difficulties with social interaction and communication, rigidity, and anxiety might not become apparent until later.

It is sometimes difficult for parents/guardians and teachers to accept that the child whom they have seen as exceptionally skilled and capable requires student-specific support.

Students with AS typically appear to demonstrate odd or inappropriate behaviours. This often ostracizes them within their peer group. These students often choose to interact with adults or isolate themselves by undertaking independent activities of interest to them.



SUGGESTED READING

"Valuable Asperger's Resources," page 211

Learning and Behavioural Characteristics of Students with Asperger's Syndrome

ASD is characterized by a qualitative impairment in social interaction. People with AS may be interested in relating to others but do not have the skills and may approach others in unusual ways. They frequently lack understanding of social conventions and can appear socially awkward, have difficulty with empathy, and misinterpret social cues. Because people with AS have difficulty appreciating other people's points of view and lack the knowledge regarding rules of social communication, they may become belligerent or appear rude. They often have the same difficulties as individuals with ASD in understanding that other people have their own perceptions, thoughts, and feelings.

People with AS are poor incidental social learners and need explicit instruction in social skills.

Language/Communication

Although students with AS usually speak fluently by the time they enter school, they often have problems with the complexities of language, including

- pragmatics (the use of language in social contexts)
- semantics (multiple meanings)
- prosody (the pitch, stress, and rhythm of speech)
- understanding and using non-verbal communication

It is often difficult for adults and peers to understand how a child can have strong language skills and sound very capable yet show severe difficulties in completing class work or interacting socially. It is easy to interpret this inconsistency as willful non-compliance or deliberate attention-seeking behaviour.

Students with AS may have better expressive than receptive language skills. They may be able to use sophisticated vocabulary—which they have memorized as individual words or in chunks and learned to use in appropriate contexts—yet fail to understand words used in everyday conversation and instructions. Even a student whose language skills are typically strong will show reduced ability to understand and to communicate when anxiety or emotions run high.

Their well-developed verbal fluency can mask underlying comprehension deficits. People with AS tend to be concrete and literal in their interpretation of language. One should not assume that because people with AS can restate information they understand it. They may not easily make connections about ideas or generalize information to new situations.

A common characteristic of people with AS is that they have trouble carrying on social conversations. They may have advanced vocabularies and talk incessantly about favorite subjects, but a given topic might be somewhat narrowly defined and the person with AS might have difficulty switching to another topic or engaging in conversation with peers.

People with AS might have problems communicating with others because they do not naturally learn the rules of conversation. They might

- interrupt or talk over the speech of others
- make irrelevant comments
- have difficulty initiating and terminating conversations
- use speech characterized by a lack of variation in pitch, stress, or rhythm
- use pedantic or overly formal speech, particularly as they reach adolescence
- stand too close when talking to someone
- stare
- use unusual body posture or body language
- fail to understand gestures and facial expressions of others

Cognition

Students with AS are typically of low-average to above-average intelligence and can appear quite capable. Many students with AS are relatively proficient in their knowledge of facts and may have extensive factual information about a subject that absorbs them. However, they may have problems using that information appropriately in the social context of school. They may demonstrate relative weaknesses in comprehension and abstract thought as well as in social cognition.

Consequently, they often experience some academic problems, particularly with

- reading comprehension
- problem solving
- organizational skills
- concept development
- making inferences and judgments
- spatial ability
- executive functioning (planning, organizing time or task, monitoring performance, and starting and stopping)

- applying knowledge and skills across environments
- distinguishing reality from fantasy
- perceiving danger



SUGGESTED READING

For information on Asperger's syndrome and girls see:

Asperger's and Girls (Attwood et al. 2006)

Girls Under the Umbrella of Autism Spectrum Disorders: Practical Solutions for Addressing Everyday Solutions (Ernsperger 2007)

Pretending to be Normal: Living with Asperger's Syndrome (Holliday-Willey 1999)

Girls Growing up on the Autism Spectrum: What Parents and Professionals Should Know about the Pre-Teen and Teenage Years (Nichols 2008)

Aspergirls: Empowering Females with Asperger Syndrome (Simone 2010)



SUGGESTED WEBSITES

www.help4aspergers.com—site by Rudy Simone, published author and person living with Asperger's syndrome

www.autismwomensnetwork.org—providing information and support to women with Autism across the lifespan

Asperger's Syndrome and Girls

Some researchers have suggested that the prevalence of Asperger's syndrome in girls is higher than previously thought and that its presentation may be somewhat different from that in boys (Attwood 2006; Ernsperger 2007). The ratio of boys to girls was thought to be around 10:1, however estimates now suggest 4:1 or as high as 2.5:1 (Hill 2009). Gender differences may play a role in that societal attitudes regarding male and female behaviour may result in different expectations and perceptions.

Girls with Asperger's syndrome tend to be diagnosed later than boys, often not until the later elementary years or even into adulthood. This has implications for access to early intervention programs and appropriate educational and behavioural supports. Boys with AS tend to display more aggression in response to confusion, frustration, or anger, which brings them to the attention of medical and educational professionals earlier. Girls on the other hand tend to be more passive. Their social and emotional differences may be interpreted as immaturity, unfriendliness, a mood disorder, obsessive compulsive disorder, or general disinterest. It is not uncommon for girls to receive the diagnosis of Asperger's syndrome or ASD secondarily after other diagnoses have been made.

Girls on the higher end of the spectrum have fewer special interests, better superficial social skills, better language and communication skills, and less hyperactivity and aggression than boys (Gillberg and Coleman 2000). While intense special interests are common for males and females with Asperger's syndrome, the interests of girls tends to be more conventional, for example dolls, stuffed animals, horses, and other female oriented interests. They may also have a greater tendency to have imaginary friends. This fascination may continue long after same-age peers have moved on to other interests serving to separate the girls with AS socially from their peers.

Girls have also been reported to be better able than boys to mimic surface social behaviours of others to camouflage their difficulties in social situations. Liane Holliday-Willey in her book *Pretending to be Normal: Living with Asperger's Syndrome* (1999) says "My mother tells me I was very good at capturing the essence and persona of people. At times I literally copied someone's looks and their actions ... It was as if I became the person I was emulating."

In the early elementary years, girls may be supported by caring female peers who can help them with social situations. By junior high, play-based interactions are replaced with social conversation and girls with AS can find it difficult to keep up with the more complex social dynamics. It is during this time that girls with AS may become withdrawn, anxious, or withdraw from social events thereby setting themselves apart from their peers. It is also during this time that girls may be subjected to being bullied. Issues such as emotional regulation, self-awareness, and understanding one's emotional experience are important for girls and women on the autism spectrum. Further research into the gender gap in Asperger's syndrome needs to be done to ensure that all individuals with an autism spectrum disorder receive the support that they need to fully realize their potential.

In Summary

Students with AS often have

- difficulty with cognitive flexibility (e.g., their thinking tends to be rigid) and adapting to change or failure; they might not readily learn from their mistakes
- difficulty understanding social situations, making social judgments, or engaging in reciprocal communication when interacting
- difficulty with coordination; the affected areas can include locomotion, balance, manual dexterity, fine motor skills (e.g., handwriting, printing), rapid movements, rhythm, and imitation of movements
- difficulty responding to sensory stimuli; they might be hypersensitive or hyposensitive to some stimuli and might engage in unusual behaviours or repetitive behaviours to obtain a specific sensory stimulation
- issues concerning attention; students diagnosed with AS might be inattentive and easily distracted
- problems with anxiety; anxiety is a significant problem for students with AS; the student might have difficulty understanding and adapting to the social demands of school; appropriate support and explicit teaching of stress management techniques can help alleviate some of the stress

Strategies for Teaching Students with Asperger's Syndrome



SUGGESTED READING

Useful resources by Michelle Garcia Winner:

Sticker Strategies: Practical Strategies to Encourage Social Thinking and Organizing (2001)

Inside Out: What Makes the Person with Social Cognitive Deficits Tick? (2002)

Thinking About You, Thinking About Me (2005b)

Think Social! A Social Thinking Curriculum for School-Age Students (2005a)

Worksheets! For Teaching Social Thinking and Related Skills (2004)

Social Behaviour Mapping (2007)

You are a Social Detective (Winner and Crooke 2008)

Superflex: A Superhero Social Thinking Curriculum (Madrigal and Winner 2008)

Superflex: Takes on Glassman and the Team of Unthinkables (Madrigal and Winner 2009)

Socially Curious and Curiously Social (Winner and Crooke 2009)

Some of the strategies for teaching students with ASD may benefit students with Asperger's syndrome: consider the unique needs of the individual student, provide support, and build on the student's strengths.

One body of work that is well suited to supporting the unique needs of students with AS and high-functioning autism (HFA), is that of the speech-language pathologist Michelle Garcia Winner. She has termed the phrase "social thinking," which refers to the ability to regulate one's behaviour in a social situation by understanding the points of view, emotions, thoughts, beliefs, prior knowledge, and intentions of others (perspective taking).

Winner has developed a curriculum to support teachers and speech-language pathologists when attempting to develop and enhance perspective taking and communication skills in youth with AS and HFA. The following steps are taken directly from the *Social Thinking* website, www.socialthinking.com. Readers are encouraged to explore this valuable website and use the materials developed by Winner and her colleagues. (Most of the materials are listed on the Nova Scotia Authorized Learning Resources database.)

The Four Steps of Perspective Taking:

1. When you come into my space, I have a little thought about you and you have a little thought about me.
2. I wonder "Why are you near me?" "What is your purpose for being near me?"
3. Since we have thoughts about each other, I wonder what you are thinking about me.
4. To keep you thinking about me the way I would like you to think about me, I monitor and possibly modify my behaviour to keep you thinking about me the way I want you to think about me.

The Four Steps of Communication:

1. Thinking about others and what they are thinking about us.
2. Establishing a physical presence.
3. Thinking with our eyes.
4. Using language to relate to others.

Summary of Classroom Strategies for Students with Asperger's Syndrome

The following chart identifies some specific learning difficulties and suggests possible classroom strategies. Also, refer to Appendix H for tips on teaching individuals with ASD who have high-functioning skills.

Summary of Classroom Strategies for Students with Asperger's Syndrome

Learning Difficulty	Classroom Strategies
Difficulties with language <ul style="list-style-type: none"> • tends to make irrelevant comments • tends to interrupt • tends to talk on one topic and to talk over the speech of others • has difficulty understanding complex language, following directions, and understanding intent of words with multiple meanings 	<ul style="list-style-type: none"> • teach appropriate opening comments in a conversation • 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- and video-recorded 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 or she does not understand
Insistence on sameness	<ul style="list-style-type: none"> • prepare the student for potential change, wherever possible • use pictures, schedules, and social stories to indicate impending changes
Poor concentration <ul style="list-style-type: none"> • is often off task • is distractible • may be disorganized • has difficulty sustaining attention 	<ul style="list-style-type: none"> • provide frequent teacher feedback and redirection • break down assignments into steps • use visual organizers • provide timed work sessions • reduce homework assignments • seat at the front of the classroom • use non-verbal cues to get attention
Poor organizational skills <ul style="list-style-type: none"> • has difficulty keeping papers in binders or organizing personal effects (i.e. locker, desk, personal space) • has poor time management • may appear to be "messy" 	<ul style="list-style-type: none"> • use individual schedules and calendars • maintain lists of assignments • help the student use to-do lists and checklists • place pictures on containers • use picture cues in lockers or locker schedule • use instructional organizers • explicitly teaching organizational strategies (e.g., colour coding) • have an adult act as a mentor and regularly check with the student at the beginning and end of every school day

Learning Difficulty	Classroom Strategies
<p>Poor motor coordination</p> <ul style="list-style-type: none"> • has difficulty with fine and gross motor tasks • appears awkward or clumsy • has unusual gait • has poor balance 	<ul style="list-style-type: none"> • adapt or modify the amount of writing required • involve in fitness activities; student may prefer fitness activities to competitive sports • provide extra time for tests • consider the use of assistive technology for written assignments, as students may be more skilled at using a keyboard
<p>Academic difficulties</p> <ul style="list-style-type: none"> • poor number sense • has difficulty in comprehension in all areas • has difficulty generalizing learning • has difficulty with analysis, inferencing, and problem solving • has difficulty completing assignments • may do well at math facts, but not problem solving 	<ul style="list-style-type: none"> • do not assume that the student has understood simply because she or he can restate 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 and webs • break tasks down into smaller steps or present in another way • provide direct instruction as well as modelling • show examples of what is required • use outlines to help the student take notes, organize, and categorize information • avoid verbal overload • capitalize on strengths (e.g., memory) • do not assume that student has understood what she or he has read—check for comprehension, supplement instruction, use visual supports
<p>Emotional vulnerability</p> <ul style="list-style-type: none"> • may have difficulty coping with the social and emotional demands of school • is easily stressed because of inflexibility • is prone to anxiety • often has low self-esteem • may have difficulty tolerating making mistakes • may be prone to depression • may have rage reactions and temper outbursts • may be verbally aggressive or belligerent • may be at risk for teasing and bullying 	<ul style="list-style-type: none"> • provide positive praise and tell the student what she or he does right or well • teach the student to ask for help • teach techniques for coping with difficult situations and for dealing with stress, such as relaxation strategies and self-regulation • use cognitive rehearsal • provide experience in which the student can make choices • help the student identify and understand her or his behaviours and reactions of others • educate other students • use peer supports such as buddy system and peer support network • explicitly teach students how to recognize their own reactions to stress and anxiety

Learning Difficulty	Classroom Strategies
<p>Impairment in social interaction</p> <ul style="list-style-type: none"> • has difficulty understanding the rules of social interaction • may be naive • interprets what is said literally • has difficulty reading the emotions of others • lacks tact • has problems with social distance • has difficulty understanding "unwritten rules"; may apply them rigidly once learned • lacks awareness of personal space • has difficulty understanding non-verbal cues, body language, facial expressions • may impulsively act and speak 	<ul style="list-style-type: none"> • 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 challenges in social interaction • use other students as cues to indicate what to do • encourage co-operative 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, co-operation, and sharing • teach students how to monitor their own behaviour • structure social skills groups to provide opportunities for direct instruction on specific skills and to practise actual events • use Comic Strip Conversations (Gray 1994), social stories, and scripting to teach conversation skills related to specific problems • teach relaxation techniques and have a quiet place to go to relax • model and practise appropriate personal space
<p>Restricted range of interest</p>	<ul style="list-style-type: none"> • limit perseverative discussions and questions • set firm expectations for the classroom, but also provide opportunities for the student to pursue his or her own interests • incorporate and expand on interest in activities

Learning Difficulty	Classroom Strategies
<p>Sensory sensitivities</p> <ul style="list-style-type: none"> • may be sensitive to sound, touch, taste, light intensity, colours, or aromas • has difficulty with sensory issues in various settings (e.g., music, gym, hallways) • reactions to sensory input may be hyposensitive or hypersensitive, depending on time, situation, and context • sensory reactions can be delayed 	<ul style="list-style-type: none"> • 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 headphones if noise or reaction is very extreme • teach and model relaxation strategies and use of diversions to reduce anxiety • provide opportunities and space for quiet time and self-regulation • arrange for independent work space that is free of sensory stimuli that bother the student • adjust lighting as necessary • encourage a scent-free environment • systematically build tolerance to sensory experiences • provide prior notification of sensory input (e.g., fire bells, assemblies)

Section 7: Transition Planning

Transition Planning for Students with ASD

Careful transition planning for passage from one stage to another for students with ASD is pivotal to success. Transition outcomes are the result of the program planning team's collaboration. Transition outcomes are measurable statements identifying programming, services, and personal expectation. Students with ASD frequently have difficulty with the unknown and the unpredictable, which might make it hard for them to take in information, determine what the expectations are, and then generate appropriate responses. As a result, transitions are often difficult for them and can result in increased stress, anxiety, and inappropriate or resistant behaviours.

Transition planning for students with ASD should be thoughtfully and systematically conducted, ensuring that the knowledge and understanding of ASD is used. Transition is defined as entering into the school system, movement between activities and settings throughout the day, and movement from grade to grade, from school to school, and from school to adult life. An individual transition plan, based on the student's strengths, needs, and aspirations should be developed for each student with ASD (Nova Scotia Department of Education 2005). This transition plan is written as part of the student's individual program plan and is subject to the same guidelines (Nova Scotia Department of Education 2008b).

As change is part of life, it is not possible to provide a program and environment free from transitions and change. The goal is to help the student cope with changes and adapt to a variety of settings. In doing so, schools should consider adapting the environment, as appropriate, to meet the needs of the student with ASD. Stress and anxiety can often be decreased and inappropriate behaviours prevented or reduced. Refer to the list at the end of this section for suggestions of strategies that may assist in transition planning.



SUGGESTED READING

Transition goals and strategies should be developed through a meeting of the program planning team. For more information about the transition process, see *Transition Planning for Students with Special Needs: The Early Years through to Adult Life* (Nova Scotia Department of Education 2005).

Schools and parents/guardians should plan well in advance for the child's entry into primary. February of the preceding school year is a good time to begin this process. A range of support services for the child and family may have already been in place before primary.

Not all children with ASD entering school have had the same preschool experiences. Some children may have been in a preschool or child-care program, or a home or private therapy program, receiving child management services through early intervention or may have been enrolled in an Early Intensive Behavioural Intervention program (EIBI).

Prior to the student's entry into primary, a program planning team will be convened and a transition plan will be developed for the student.

Transition into the School System

Parents/guardians often seek reassurance that the child's support (e.g., visual schedule) from the preschool years will continue in grade primary. Although some supports may be carried over into the school system, parents might need assistance in understanding that there may be differences between previous services and school-based support. The program planning team meeting allows sharing of strengths, challenges, and aspirations and consensus building around outcomes. It helps the school and board plan resources for the next school year. Available services can be explained to the parents/guardians, who may wish to visit the classroom and talk to the teacher.

The student should also have a visit or several visits to the new setting to begin to become familiar with the new environment. For some students, a gradual introduction to the new school in the year before they enter primary may ease this challenging transition. Another strategy is to take pictures of the school, including grounds, entry, classroom, bathroom, etc., and to review these with the child frequently or to visit the school over the summer months.

Strategies to Help with Transitions between Activities and Settings

Some students with ASD experience difficulties in adapting to routine changes between activities and settings. To minimize anxiety about change, the student should be given ample warning before any transition. Strategies include using schedules, providing a signal as a warning of a change, and using social stories.

Schedules

A schedule is a visual support used to inform the student of the sequence of events and activities to occur in a specified time frame. The schedule should be reviewed with the student, giving a description of what to expect (e.g., first _____, then _____, etc.). This can be done at the beginning of the day as well as at the transition times.

Schedules vary in complexity and length and should be tailored to the ability of the individual student. Print, picture symbols, photographs, or objects can be used to depict activities. Implementing a method that indicates the completion of an activity, such as turning over a picture card or crossing out an activity, is helpful.

Many available resources further explore the strategy of using schedules. A number of these can be found in the Resources section at the end of this document.

Providing a Signal as a Warning of a Change

A schedule might not be sufficient to prepare the student for change. Some students require a consistent symbol, or an object that will be used in the next activity or setting, to help them understand what is coming next. For example, as lunchtime approaches, students can be shown their lunch boxes or bags.

When preparing to move from the class to the library, the student can carry a book as a reminder of the purpose of the change. Using a watch, clock, or timer may help the student to understand time periods and when changes will occur.

Using Social Stories

Social stories, especially when accompanied by photographs or pictures, are effective in preparing some students for change, particularly for new situations and unfamiliar activities. Visual cues used in combination with verbal instructions can help the student to understand what is expected. (For more information, see Section 4.)



SUGGESTED READING

For a detailed description of how to develop and implement schedules, see Section 4, pages 74–76.



SUGGESTED READING

The New Social Story Book
(Gray 2010)

Transitions within the School

Preparing for the annual transition between grades in school involves both the student and the receiving teachers. Preparation for transition should begin in early spring for the fall. The same kinds of issues arise when students are moving to a new class in the school or to a new community where they will enter a new class. Preparing for these transitions should be addressed through the program planning process.

The receiving teachers need information about

- the student's strengths and challenges
- the individual program plan
- ASD
- the educational implications of the student's learning style
- instructional strategies
- curricular adaptations
- methods for maintaining appropriate behaviour
- communication

Teachers might need training in

- characteristics of students with ASD
- sensory and motor issues
- communication issues and strategies
- visual strategies
- functional behaviour analysis
- social skills instruction
- behaviour change strategies
- positive behaviour supports

Preparing a short video of the student, with the parent's/guardian's documented permission, and presenting it to the receiving teacher is a creative strategy for providing information for school staff. Of course, the receiving teacher(s) may want to visit the student in the current classroom environment in order to observe

- the student's behaviour in the current classroom environment
- successful adaptations and modifications to the environment, curriculum, and support systems
- the visual systems used to support the student
- current instructional strategies that are effective for the student
- the student's level of participation in the activities and social life of the class

**SUGGESTED READING**

The Comprehensive Autism Planning System (CAPS)
(Henry and Myles 2007)

Current staff can do a great deal to make the transition to the new class work more smoothly by making sure that the transition is seen in a positive light and pairing the move with preferred things. For example, familiar furniture or objects from the current classroom can be taken along. The current teacher and the receiving teacher can work together to plan preferred activities in the new setting. As with any future events, students with ASD need to know what to expect. Preparing a calendar that clarifies when there will be visits to the new setting and when the student will move to the setting can help with the transition.

Students can be prepared for the new classroom setting by showing them videos or photographs of the new teacher and classroom. Prepare a small scrapbook that the student can refer to over the summer. The student may make visits to the future classroom, facilitated by the current teacher.

School board personnel may be involved in the program planning process at transition times to provide consultation on programming, supports, and services.

Transitions between Schools

The suggestions for easing transitions between classrooms are applicable to planning for transitions between schools. Additional time and preparation may be required to allow the student to adjust to a new building. If the transition is from elementary to secondary school, the student will need to learn about changes in the way the school operates. For example, the student needs to be prepared for the number of teachers that she or he will have, and the various locations for instruction.

The student should be able to visit the school on a number of occasions, if possible. If the student is particularly resistant to change, new aspects can be introduced slowly through a process of desensitization and rehearsal. For example, the initial visit may 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 other classrooms.

Providing the student with a video or photo album of the new school and written information (appropriate to the student's academic level) may help the student prepare for the change. Key people that the student can talk to or go to for help should be identified ahead of time. Peers can be enlisted to assist the student in making adjustments to the new school and possibly accompany the student to various locations in the school.

Becoming familiar with the student is important for the receiving school. Information sessions, printed materials, and involvement in the IPP team increase the receiving school's knowledge about the student and her or his diagnosis.

When students move to new settings for part of their educational program, (e.g., work placement), students with ASD will need to be taught the skills they need in the new setting.

Some of the skills and knowledge the student needs to learn to prepare for transition to new settings include

- independence in getting to the new setting
- rules in the receiving setting that are different from the current one
- social skills needed for the new setting
- strategies for navigating through the new setting
- ways to keep possessions organized in the new setting
- where to go for help, if needed
- appropriate ways to interact with others in the new setting

Transition planning from secondary school to adult life should begin as early as possible, certainly by age 14.



SUGGESTED READING

Inclusive Programming for High School Students with Autism or Asperger's Syndrome (Wagner 2009)

Career Training and Personal Planning for Students with Autism Spectrum Disorders (Lundine and Smith 2006)

Preparing for Life (Baker 2005)

A Consultative Collaborative Process

Planning the transition requires consultative collaboration through the program planning process. It is important that parents/guardians, school personnel, and representatives from community agencies and support services consider long-term planning since future goals and plans help direct programming throughout high school.

Areas that need to be considered:

- employment options
- post-secondary training/education options
- income support opportunities
- residential options
- transportation needs
- medical needs
- community recreation and leisure options
- maintenance of family/friend relationships
- advocacy/guardianship
- sexuality
- self-help, personal care, hygiene
- safety needs
- student's strengths, interests, and aspirations

The desired post-high school outcomes will frame the outcomes of the IPP and set the direction for the day-to-day activities.

The initial questions to ask are: What does the individual want to do and have the ability to do in the next few years? In the next 10 years? By the time she or he is 30 years old? What skills will be required for her or him to achieve these outcomes?

The role of the school personnel in helping the student prepare for transition out of the school system is to participate in the program planning process and to continue to provide opportunities for the student to develop skills for work and independent living consistent with the student's strengths and challenges.

The range of expectations depends on the student's ability and needs. For example, some students with ASD may plan to go on to further education or training following secondary school. Consequently, there will be a greater emphasis on academic preparation in addition to work experience and 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 can prepare the student for transition by

- providing a variety of community-based learning experiences to help the individual determine preferences
- providing on-the-job preparation once preferences have been established
- encouraging participation in extracurricular activities and social events
- encouraging volunteer work
- helping develop a resume
- training in social skills for the job place
- teaching appropriate dress and hygiene
- training in self-management (e.g., organizational skills, stress/anxiety management)
- teaching functional academics, such as banking, time, cooking, etc., appropriate to the ability level of the student
- training in the use of public transportation

Summary

In this chapter, we have reviewed ways of supporting students with ASD through the various transitions they encounter while entering, moving through, and exiting the public school system and entering the community. Assistance through these phases is essential to enable students to cope with changes and for maximizing the potential for independence.

Strategies that May Assist in Transition Planning

- Receiving school staff, who will be involved with the student, visits the student to observe the student in his or her current environment.
- The student will visit the new teacher(s)/school/work placement setting.
- Administration should make every effort to identify the receiving teacher(s) prior to the end of the school year.
- Take photographs/video of the next setting to develop a book or social story. Photographs could include
 - the new setting (school/workplace/residence)
 - the door(s) the student will be using
 - the hallway
 - the locker
 - transportation mode student will be using
 - new staff/teachers
 - people that the student may know or be in contact with
 - new objects of interest in the environment
 - the bathroom
 - other locations the student may be assessing (e.g., playground)
- Review of the book or social story periodically by the parents/guardians.
- Scheduling to meet the needs of the student (staggered/delayed entry to the school/class, work shifts).
- Consider and make plans for recess and lunch coverage, if necessary.
- Make an independent schedule as quickly as possible.
- Discuss physical plant needs of school, grade, work placement, residence.
- Consider staff needs of next setting (e.g., professional development).
- Review physical plant for potential danger and safety issues.
- Receiving school/workplace staff may attend the program planning meeting prior to the actual transition.
- Ensure that the bus driver is made aware of the particular needs of the student with ASD.

Appendices

Appendix A: Sample Adaptation Planning Form

What is the class doing?

↓

Can _____ participate without adaptations?

↓

No

Facilitated under these adaptations/conditions

When these resources are adapted:

When these other students help:

When an adult helps:

↓

What can _____ do that is related to what the class is doing?

Source: Adapted by permission from Alberta Learning, 2003.

Appendix B: Autism and Assistive Technology

Source: Adapted by permission from Barbara Welsford, 2007. "Autism and Assistive Technology."

Background

Assistive technology (AT) is defined as any service, strategy, and/or device that supports and enhances the functional capability of an individual with a disability. The use of various assistive technologies with students with autism offer opportunities of inclusion and increased functional capabilities in many different environments. Assistive technology is used to support individuals with autism in a number of areas including expressive communication, social interaction, motivation, attention, organization, and academic and independent living skills. Care must be taken through assistive technology assessments to make an appropriate match between the user and the device, software, and other technology to ensure positive outcomes for the student. The SETT framework (Zabala 1995) is a useful means to do this. An appropriate match between a student and technology considers the overall profile of the user, the environment where the technology is to be used, the tasks we are asking the user to achieve, and identification of available technology. Assistive technology assessments involve a team approach including an assistive technology specialist, speech-language pathologist, autism specialist, occupational therapist, teacher, parents/guardians, and primary users.

Examples of Assistive Technology for Students with ASD

These are some examples of technology supporting students with ASD. The list is by no means exhaustive. Assistive technology is an extremely broad field and there is a great deal of diversity amongst individuals with an autism spectrum disorder. The development of handheld devices and tablet computer technology, such as Apple's iPod touch and iPad, have provided portable options for students requiring assistive technology. There are numerous applications (apps) that can be downloaded on these devices to support student communication and learning across a variety of areas.

Communication

- augmentative and alternative communication devices (from single cell to dynamic 32+ message cell devices)
- basic photo albums
- Boardmaker software
- Proloquo2go
- PCS Symbols
- Say It Sam (handheld communication device)

- talking photo albums
- text to speech software on a standard laptop (primary user must have literacy skills and some keyboard knowledge with single digit input or two-handed access)
- visual schedules

Social Interaction

- Model Me Kids for iPod Touch and iPad
- Clicker 5
- digital cameras
- digital video
- Emotions
- Picture This
- Powerpoint

Motivation

- Classroom Suite by IntelliTools
- Clicker 5 including digital ebooks with video
- digital cameras
- highlighting and voice recording
- iPad/iPod Touch
- Kurzweil with bubble notes
- movie making software (iMovie, Movie Maker PC)
- Powerpoint
- ReadPlease (free text to speech download)
- text to speech and audio recording
- video
- visuals and animation
- voice recording
- WYNN Wizard

Attention

- Choose it Maker 2 activities
- Classroom Suite
- Clicker 5
- Cloze Pro
- highlighting
- Kurzweil with bubble notes
- movie making software
- Powerpoint
- sticky notes
- voice notes

Academic and Access to Literacy and Written Communication

- adapted mouse
- alternate mouse
- Bigkeys keyboard
- Calendar Maker
- Choose it Maker 2 activities
- Classroom Suite
- Clicker 5
- Cloze Pro
- digital images
- Edmark Learning Series
- Intellikeys keyboard
- iPad/iPod Touch
- Kurzweil scanned books and documents
- math software
- personal digital assistant (PDA)
- portable keyboards with text to speech output
- text to speech software
- touchscreen

Organization

- appropriate APPS including Visual Timer
- calculator
- calendar
- digital maps
- functional living apps including Balance (portable bookkeeping)
- iPad/iPod Touch
- lecture notes
- music
- personal digital assistant (PDAs)
- to do lists
- visual organizers including schedules

Independent Living Skills

- Boardmaker
- iPad/iPod Touch
- List maker software
- mapping APPS
- PCS symbols
- personal digital assistant (PDA)
- portable keyboards with voice output
- visual schedules
- voice recorders

Alternate Access

- alternate keyboards including expanded keyboards, mini keyboards, on screen keyboards
- alternate or adapted mice
- touch screens

For more information on assistive technology to support students with ASD contact the school-based autism specialist, speech-language pathologist, and assistive technology specialist.

Appendix C: Communication Dictionary

Communication attempts made by students with autism may be misunderstood or mistakenly ignored. These attempts can be analyzed and recorded in an individualized interpretation dictionary that all people interacting with the student can use. People can refer to the dictionary to help them understand and interpret the student’s communication. Planned responses that support language development are assigned to correspond to each attempt, while still acknowledging the attempts. At the same time, caution should be exercised not to reinforce inappropriate behaviours, even if they are effective communication attempts.

What the student does	What it might mean	How adults will respond
Reaches for food item	asking for the food item	say “want (food item)” and give the student a small sample of the item
Says the utterance “Boochm”	asking for computer time	point to picture of a computer on a pictoboard, and say “computer”; allow access to computer
Falls prone on the floor	protesting or refusing	do not respond to the protest, help student to stand up, saying “stand up,” and continue task (Acting on this protest could reinforce this maladaptive behaviour. Teach appropriate protest communication at another time, and reinforce.)

Interpretation Dictionary

Student Name: _____

What the student does	What it might mean	How to respond

Appendix D: Home-School Communication Book

Teachers and families may decide that a home-school communication system should be implemented. Information recorded by the teacher and family should be valuable information to use in instruction, management of behaviour, or personal care of the student. Teachers and parents/guardians can work together to make a brief list of key questions that should be answered, and agree on the frequency that they should be answered and how the communication will travel back and forth. The form should be designed specifically for the student. The following example is adapted from an individualized communication book for a grade 3 student.

Daily Comment Log

Date: _____

From home: _____ (signed)

Are there any recent developments or upcoming events that the school should be aware of?

Circle **Yes / No**

Comments: _____

From school: _____ (signed)

Activity	Comment
Circle	
Music/Art	
Language Arts	
Mathematics	
Physical Education	
Social Studies/ Science	
Other	

Comments: _____

Appendix E: Behavioural Supports for Students with ASD

Source: Reproduced by permission from Manitoba Education, 2005.

Social Interaction: Won't play with others		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> isolates self within classroom (for example, takes toys or materials to corner and turns away from others) or <ul style="list-style-type: none"> seems to watch others playing but doesn't join in; resists adult intervention 	<ul style="list-style-type: none"> oriented more to objects rather than people due to <ul style="list-style-type: none"> – desire for repetitive sensory experience – limited communication skills – lack of social experience or <ul style="list-style-type: none"> little or no drive to be involved with people or <ul style="list-style-type: none"> lacks communication or initiation skills to join others(s) in play or shared activities (especially common with more able students who have always preferred computers or video games to peers) 	<ul style="list-style-type: none"> Observe materials/activities student chooses independently. In low-distraction setting, teach student to use and to enjoy activities/materials in parallel with an adult and to use material in different ways (for example, use different sizes of balls in different settings and in different ways). For older/more able students, teach age-appropriate activities such as board games or card games, trading cards, collecting sports statistics, scrapbooking, etc. Introduce turn-taking with one other adult. Introduce one student at parallel play. Introduce one student at interactive play. Take familiar activity and familiar playmate into classroom setting. <p>Note: Expect that this may take a long time and many trials.</p>

Social Interaction: Difficulty with recess		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> isolates self on playground by walking alone, or standing by the door, or wanting to talk to an adult 	<ul style="list-style-type: none"> does not know how to do playground activities or how to use equipment <p>or</p> <ul style="list-style-type: none"> is overwhelmed by noise and movement <p>or</p> <ul style="list-style-type: none"> needs “down time” away from demands for social interaction, listening and task demands 	<ul style="list-style-type: none"> Teach him or her to do activities and to use equipment one-to-one on the playground at times other than recess, and gradually introduce a few other familiar students. Try finding a more quiet area of the playground for the student and a few peers to play, rather than needing to be in the middle of many other students. Consider assigning recess buddies or an older student to play a predetermined and pre-taught activity with the student for all or part of recess. See <i>Taming the Recess Jungle</i> (Gray 1993b). Allow the student to choose time to be alone at recess to escape from classroom stress.
<ul style="list-style-type: none"> resists going outside for recess 	<ul style="list-style-type: none"> dislikes any change of setting <p>or</p> <ul style="list-style-type: none"> does not know how to enjoy him- or herself at recess <p>or</p> <ul style="list-style-type: none"> overstimulated by a setting where others dress for recess; anxious about using stairs, temperature, or air movement outside, and/or noise and movement at recess 	<ul style="list-style-type: none"> See Section 7: Transition Planning for a discussion of preparation for transitions. Pre-teach activities to be done at recess. It may be possible to desensitize the student to changes in outdoor weather. Coping with outside may be so stressful for the student that the time is better spent using outdoor recess time to address some other IPP goals. Let the student leave class early to put on outerwear alone or with adult support if necessary.

Social Interactions: Laughs when other are sad		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> laughs inappropriately when others are hurt or sad or <ul style="list-style-type: none"> seems to deliberately provoke or hurt others to see reaction 	<ul style="list-style-type: none"> finds demonstration of pain or emotion in others overwhelming and/or confusing, reacts from anxiety or distress or <ul style="list-style-type: none"> provokes a reaction in a cause-effect way for the satisfaction of being able to control; can't understand that the emotions and perspectives of others are different from his or her own 	<ul style="list-style-type: none"> Depending on the student's level of receptive communication and cognitive skills, take every opportunity in casual situations to explain the emotional reaction of another student; give the vocabulary and explain the reasons (for example, "He is crying because he fell and hurt his knee on the gravel. See, his eyes are closed tight and his face is scrunched up tight like this (adult model), and he isn't smiling? That's the way someone looks who is sad.>"). Label the student's emotions for them when the response happens; use a mirror. For deliberate provocation of others, keep reactions neutral and use rules for "how to talk to other kids".

Social Interaction: Over-personalizes		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> over-personalizes, interprets reactions from others when they are tired or upset as personal rejection (for example, "She is mad at me: she is not my friend anymore."); becomes very upset and/or non-compliant and aggressive 	<ul style="list-style-type: none"> almost certainly does not understand the cues of facial expression and body language that communicate emotional state; inclined to be self-focused, not understanding that others have reactions for reasons that involve him or her 	<ul style="list-style-type: none"> Explain situations clearly using words/graphics/Comic Strip Conversations, etc. Role-play these situations; give the student words to ask how someone is feeling (for example, "You don't look happy. Can I do something to help? Are you mad at me?" "Did I do something wrong?"). Help the student learn and practice a verbal script to reassure him- or herself when these situations occur. Refer to the References section for books by Duke and Nowicki, and Winner.

Social Interaction: Corrects behaviour of others; tattles		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> corrects behaviours of others; tattles 	<ul style="list-style-type: none"> rule bound; uses rules to understand how the world works and what he or she is expected to do; has difficulty understanding "exceptions" and "sometimes" and understanding why the adult is not dealing with the rule violation immediately 	<ul style="list-style-type: none"> Explain the situation, social rules, and exceptions of others clearly, using words/graphics/Comic Strip Conversations, etc. Role-play in a one-to-one or small-group setting. Try reversing roles so that the student can see how he or she reacts when he or she is constantly corrected. Regarding tattling: teach the rule that you tell an adult about another person if the other person is doing something that might hurt him or her, or someone else, might damage something. Practise through role-playing. Teach each rule to the entire class so the student sees that the rule applies to everyone.

Social Interaction: Obsessed with someone		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> obsessed with a specific person in a positive way (for example, wants to play or talk with him or her constantly; wants exclusive attention from him or her) the student may have difficulty focusing on anything else if this person is present 	<ul style="list-style-type: none"> stuck in the developmental phase common to many children ("This is my mommy" or "He or she is my friend and you can't play with him or her.") <p>or</p> <ul style="list-style-type: none"> has no positive interaction with any other person; does not know how to connect with others 	<ul style="list-style-type: none"> Help the student to add to the repertoire of activities and peers with whom he or she is comfortable and has fun, so he or she can enjoy more than one person. Use a social story to explain rules of friendship and turn-taking. Work outside the classroom for some periods of time to help the student get "un-stuck."
<ul style="list-style-type: none"> obsessed with a specific person in a negative way (for example, aggressive on sight; tries to damage person's belongings; says that person and/or person's family is a threat when they are not) 	<ul style="list-style-type: none"> patterned, repetitive behaviour, sometimes common to persons with ASD 	<ul style="list-style-type: none"> For negative obsession, use visual approaches (print/graphics/photos) to provide positive script about the other person. For a time, try to structure the student's time to reduce contact with the other person in order to break the old pattern and established new ones. <p>Note: For negative obsession, ensure that the student does not have an opportunity to hurt the other person or damage his or her belongings. Reassure the other person that he or she has done nothing wrong.</p>

Social Interaction: Over-reacts to birthday parties		
Action	Possible Reactions	Strategies
<ul style="list-style-type: none"> upset when another student has a birthday party in class (insists on blowing out candles, wanting presents, etc.) 	<ul style="list-style-type: none"> has no understanding of what the celebration means, or of the passage of time and that everyone has one birthday per year, that he or she will have another birthday party at some future time, etc. 	<ul style="list-style-type: none"> Use social stories, role-playing, and visual and verbal explanation as appropriate to explain the rituals, the calendar, etc. Role-play appropriate behaviours in one-to-one setting, perhaps with drawings or stuffed animals taking different roles; then add one or two other students to the role-play. Practice ahead of time, so he or she knows what will happen, what he or she is to do or say, etc.

Social Interaction: Wants to win		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> refuses to play any game unless guaranteed he or she can win or <ul style="list-style-type: none"> gets extremely upset unless his or her work is "the best" 	<ul style="list-style-type: none"> is rigid and rule-bound or <ul style="list-style-type: none"> is anxious about social status; has low self-esteem or <ul style="list-style-type: none"> sees life as a win/lose, or success/failure with no middle ground 	<ul style="list-style-type: none"> Explain that people play games to enjoy the interaction, as well as to win. Teach flexibility and tolerance for meeting benchmark goals rather than always aiming at perfection, or comparing him- or herself with other people. Look for ways to boost self-esteem.

Social Interaction: Rejects affection or seeks it inappropriately		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> indiscriminate with strangers, will talk to, accompany, and/or be affectionate to anyone 	<ul style="list-style-type: none"> may see people as interchangeable sources of treats, or interesting stimulation or attention 	<ul style="list-style-type: none"> Use social stories or role-playing. Teach firm rules and practice them, perhaps using stand-in "strangers." Monitor the student's interaction with new people to ensure safety.

Social Interaction: Inappropriate sexual behaviour		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> masturbates or fondles self in school 	<ul style="list-style-type: none"> enjoys feeling; using it for comfort when stressed, bored, or doesn't know what to do next, or setting is unstructured 	<ul style="list-style-type: none"> Collaborate with parents/guardians to agree on response and strategies. Observe to identify settings in which the student uses behaviour and makes changes in schedule or activities as required to reduce stress, increase structure and predictability, and introduce more enjoyable activities. Consider having student wear overalls or pants with snug waistbands, and reinforce other activities that need use of both hands. As part of training regarding sexuality and hygiene, teach where and when masturbation can be done.

Communication (Receptive): Doesn't follow instructions		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • does not follow instructions or seem to understand what he or she hears 	<ul style="list-style-type: none"> • does not start listening soon enough because he or she is concentrating on something else 	<ul style="list-style-type: none"> • Teach visual or verbal alerting signal for "listen, pay attention" (begin in a one-to-one setting, then transfer to classroom environment; use signal consistently).
	<ul style="list-style-type: none"> • understands one word and stops listening; jumps to conclusion (for example, hears "wave a flag" instead of "wave a gun" because he or she pairs the words "wave" and "flag") 	<ul style="list-style-type: none"> • Use verbal "highlighting" (for example, "The most important thing to remember is..."). • Use visual/verbal/physical cues to explain; have student show comprehension by means other than repeating.
	<ul style="list-style-type: none"> • understands literal meaning of words but does not understand that vocal inflection, emphasis, sarcasm, etc., can alter meaning 	<ul style="list-style-type: none"> • Understand this is a communication of anxiety and need for predictability. • Teach directly. Try audio-taping and videotaping peers and let students practise in many settings. Do as a classroom activity if appropriate. • Acknowledge that it is very confusing, and give him or her words to use to ask for clarification.
	<ul style="list-style-type: none"> • becomes so distracted or distressed when the speaker makes errors in grammar, fact, or spelling that he or she misses the rest of what is said 	<ul style="list-style-type: none"> • In a small-group setting, help him or her to practise making a mark on a paper to note the error, and to wait to do the correction. Start with one or two minutes and expand. • Try a social story about "My job is to remember what the teacher says."

Communication (Receptive): Doesn't follow instructions		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> often doesn't follow instructions or seem to understand what he or she hears, even when he or she can repeat the message <p>Note: Expect this behaviour to occur frequently.</p>	<ul style="list-style-type: none"> may "hear what he or she wants to hear" because the real meaning is unpleasant and/or requires him or her to change his or her expectations and/or handle ambiguity (for example, two different people having the same name, computer class being rescheduled) <p>or</p> <ul style="list-style-type: none"> the student is anxious but is not able to change the behaviour or follow through on an instruction the student can repeat an instruction but does not really understand 	<ul style="list-style-type: none"> Always use as many channels as possible to give student information (for example, line drawings, demonstration, spoken words, print) Have the student communicate understanding to you in many ways other than repeating, such as paraphrasing, demonstrating, acting out, or drawing. Try a social story; practise with another person using speech bubbles to remind him or her to hear and remember what was really said.

Communication (Receptive): Doesn't follow age-appropriate instructions		
Action	Possible Reaction	Strategies
<ul style="list-style-type: none"> does not seem to understand age-appropriate instructions (for example, "play nicely"; "act like a good friend"; "behave like a grade 1 boy or girl does in the library") 	<ul style="list-style-type: none"> language is too vague and student does not know what he or she is expected to do or say 	<ul style="list-style-type: none"> Use specific, clear instructions with a few words and/or visuals. Break instructions into steps, such as <ol style="list-style-type: none"> Walk in line with hands in pockets. Follow the student ahead of you to the carpet. Sit on your carpet square with quiet hands and look at the librarian. Use modelling and role-playing to teach him or her a few behaviours that show being "a good friend" or "playing nicely."

Communication (Receptive): Doesn't follow instructions promptly		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> able to respond to a question or follow instruction after 60-second delay; unable to do it more promptly 	<ul style="list-style-type: none"> has processing lag for understanding and making verbal or motor response the student has learned to wait 	<ul style="list-style-type: none"> Be sure to get the student's attention before giving instructions; give instructions slowly using short phrases; add gestures. Introduce a prompt for response, reducing time delay Pace activities and instructions to accommodate the student.

Communication (Receptive): Runs away when name called		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • runs away when name is called 	<ul style="list-style-type: none"> • habit or • has learned the behaviour to avoid interaction, task demands, or unpleasant situations 	<ul style="list-style-type: none"> • Retrieve student with no interaction and return to spot from which he or she ran. Teach and reinforce responding to his or her name.
	<ul style="list-style-type: none"> • enjoys being chased 	<ul style="list-style-type: none"> • Teach as above, but build in times for "chase me" games in other settings during the day.
	<ul style="list-style-type: none"> • instructions or demands are always preceded by the student's name, setting up an aversive reaction 	<ul style="list-style-type: none"> • Do not always precede directions with the student's name.

Communication (Receptive): Doesn't understand visual schedule		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • does not seem to understand a visual schedule 	<ul style="list-style-type: none"> • may not attach meaning to visual symbols because they are too abstract • hasn't had enough practice with it • is shown too many symbols at once and can't focus on just one 	<ul style="list-style-type: none"> • Begin symbol use at a level the student understands; symbol levels from concrete to abstract are: <ul style="list-style-type: none"> – concrete objects (for example, paintbrush for art) – colour photographs of activity (for example, crafts) or location (for example, gym) with, or without student in the picture, as needed – black and white line drawings – print • Use repeated and multi-sensory exposures to help the student understand symbol meaning. • Use the schedule consistently, before and after every change of activity. Involve the student in setting up and using it. Have morning activities on one side and afternoon on the other to limit the number of pictures, or show him or her just two at a time if he or she is distracted by many pictures on a schedule. Advise the student to take the schedule when changing rooms.

Communication (Non-verbal): Doesn't understand body language		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • does not seem to understand facial expressions and/or everyday gestures and/or body language (for example, teacher "warning look", saying name in a "warning" tone) 	<ul style="list-style-type: none"> • does not understand that people give each other messages with eye contact, facial expression, and other non-verbal communication 	<ul style="list-style-type: none"> • Use cognitive explanations and/or social stories to explain that people communicate in this way. • See the References section for books by Winner, which discuss goals and activities related to perspective-taking and social communication, and books by Duke and Nowicki for activities to teach non-verbal communication.

Communication (non-verbal): Stands too close		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • stands too close to people when he or she talks; keeps stepping forward 	<ul style="list-style-type: none"> • doesn't understand expectation for social distance and/or the other person's actions <p>or</p> <ul style="list-style-type: none"> • is attracted to something about the other person, such as hair or scent, and wants to be close 	<ul style="list-style-type: none"> • Teach a rule using social stories, peer modelling, role-playing, etc. • Have peers model appropriate distance. • Try teaching visual cues such as "Stand so that you can reach forward and put your hand on the other person's shoulder." • Practise.

Communication (Expressive): Echolalia		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> immediately repeats or echoes questions, statements, or instructions 	<ul style="list-style-type: none"> repetition gives him or her more time to process and understand 	<ul style="list-style-type: none"> Pause after a few words, wait 10 seconds to give the student a chance to respond before repeating.
	<ul style="list-style-type: none"> is trying to take a conversational turn or indicate he or she has heard the message 	<ul style="list-style-type: none"> Teach him or her some alternate strategies to stay in the conversation. Allow longer processing time.
	<ul style="list-style-type: none"> knows someone's response is expected but can't find words, or doesn't know the answer to a question and doesn't know how to say "I don't know" or "I don't understand what you mean" 	<ul style="list-style-type: none"> Give verbal or visual cues for expected words, such as cue cards or line drawings of listener and speaker roles. Teach him or her scripts to use when he or she doesn't understand. Use closed rather than "wh-" questions and gradually introduce responses to "wh-" questions, such as "For lunch today Michael/ Michelle (or you) had ... ?" Use visual cues to teach concepts. Provide much practice in naturalistic situations.
	<ul style="list-style-type: none"> repeats a phrase using the pro-noun (for example, "my name is ..." because he or she can't change pronouns and re-arrange words to say "What is your name?") 	<ul style="list-style-type: none"> Model appropriate interactions, such as by saying "Your name is Thomas. My name is 'Jack'." while pointing to the student and then yourself. Help him or her to practise.

Communication (Expressive): Common difficulties		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • uses third person to talk about him- or herself rather than saying “I” 	<ul style="list-style-type: none"> • has difficulties with pronouns (common for students with ASD) 	<ul style="list-style-type: none"> • When the student is ready to begin working on pronouns, use direct instruction, role-playing, audio and videotaping, and other visual cues.
<ul style="list-style-type: none"> • speaks too quickly/too softly/too loudly or with unusual inflections and emphasis 	<ul style="list-style-type: none"> • these speech characteristics are common for students with ASD 	<ul style="list-style-type: none"> • Use audio and videotaping and role-playing, and practise in small groups to sensitize student to how he or she sounds and to determine how much can be controlled or changed. • Sensitize others, especially peers, to this difficulty to reduce the chance of teasing or bullying.
<ul style="list-style-type: none"> • can speak in sentences when he or she initiates but does not respond to questions 	<ul style="list-style-type: none"> • finds initiating easier than responding because he or she does not have to process a communication first 	<ul style="list-style-type: none"> • Accept shorter communication. • Use closed questions that allow the student to fill in a missing word rather than needing to rearrange words. • Teach the student strategies for word-finding problems. • Practise response patterns to various “wh-” questions. • Ensure that receptive (spoken or visual) vocabulary continues to grow.

Following School Routines: Resists entering school		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> resists leaving bus or entering school 	<ul style="list-style-type: none"> does not remember what he or she likes at school <p>or</p> <ul style="list-style-type: none"> does not like anything at school <p>or</p> <ul style="list-style-type: none"> does not like hallway noise and/or confusion of removing outerwear and/or first activity of the day 	<ul style="list-style-type: none"> Use a visual at home to remind the student of familiar people and favourite activities at school. Have an adult greet the student at the door or bus with a photo or valued object. Give the student an object to bring on the bus to put into a container, add to a puzzle, etc., on school arrival, and then reinforce. Modify school entry to accommodate sensory difficulties. Ensure the first activity of the day is something he or she likes.
	<ul style="list-style-type: none"> is upset because of alterations in morning routine at home, hunger, tiredness because of sleep disturbance, separation from parent 	<ul style="list-style-type: none"> Problem-solve with parents/guardians to identify and reduce stressors. If possible, ask the parent/guardian to telephone the school to warn of stressors. Use home-school communication book consistently. If the student is verbal, he or she may like to telephone parents/guardians when arriving at school.

Following School Routines: Runs away		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> bolts or runs away from adult 	<ul style="list-style-type: none"> wants to be chased to get social interaction <p>or</p> <ul style="list-style-type: none"> wants predictable adult reaction, even if negative <p>or</p> <ul style="list-style-type: none"> enjoys physical release of running in open space wants to avoid a task, demand, instruction, or activity 	<ul style="list-style-type: none"> When possible, shadow the student closely enough to prevent running. Hold his or her hand (or have the student put his or her hands in pockets or clasped behind back. The student could also carry something with both hands, if appropriate). Use a social story to script ahead of time so he or she knows what he or she is expected to do. Reinforce success. If student runs, retrieve him or her and return to where he or she started in a matter-of-fact manner with no excessive words. Script again. Reinforce when he or she complies. Look for ways to incorporate more "chase games," fun interaction with adults or peers, general movement, and running in the right settings. Establish rules for running games.
<ul style="list-style-type: none"> runs to favourite settings in the school (for example, preschool, bathroom, staff room) whenever he or she has a chance 	<ul style="list-style-type: none"> wants to get to more familiar and/or enjoyable setting, or one of preservative interest (for example, bathroom plumbing, parking lot with interesting license plates visible from the staff room window, computer room) 	<ul style="list-style-type: none"> Script and shadow as above. Build access to these favourites into the student's schedule as reinforcers. Observe objects/activities he or she runs to and make them available in a regular setting as part of his or her schedule, or use them as reinforcers to reward expected behaviours.

Following School Routines: Classroom entry		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> when entering a room, runs immediately to activities rather than to his or her desk or other designated spot 	<ul style="list-style-type: none"> enters room with one fixed idea or memory of what he or she wants to do <p>or</p> <ul style="list-style-type: none"> likes other activities/areas better than what happens at his or her desk or other setting 	<ul style="list-style-type: none"> Have a “landing spot” (for example, carpet square just outside or just inside the classroom door); use visual script of what to do first. Be sure the student understands his or her visual schedule; show that he or she will have access to valued activities soon. If necessary, shadow him or her to his or her place and reinforce praise.
	<ul style="list-style-type: none"> is disoriented or over-stimulated (for example, noise; motion; daylight; flickering fluorescent lights; odours; change of flooring) 	<ul style="list-style-type: none"> Use “landing spot” and shadowing as above. Always use the same carpet square in the same location and mark his or her desk in some simple way. Be aware of sensory issues (for example, use shades or curtains to control light in room; try a less chemical-smelling cleaning solution. Give him or her a marked “travel path” to his or her area and practise in an empty room.

Following School Routines: Resists required tasks		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> resists all adult direction or <ul style="list-style-type: none"> resists structured activities such as table-top or desk tasks or <ul style="list-style-type: none"> wants to wander independently in the classroom or <ul style="list-style-type: none"> moves away or screams whenever anyone comes close 	<ul style="list-style-type: none"> may not feel comfortable or secure with adults 	<ul style="list-style-type: none"> Develop a relationship with the student before making demands. Learn and use materials/activities that naturally interest him or her. Provide opportunities to explore the classroom without others present. Gradually introduce structure using a visual system and allow access to valued reinforcers within the structure.
	<ul style="list-style-type: none"> sees movement of people around/ toward him or her as closer or faster than it is, and feels threatened because of visual perception problems or <ul style="list-style-type: none"> sensitive to odours of perfume, aftershave, coffee, etc. 	<ul style="list-style-type: none"> If he or she doesn't want anyone to come close, try doing an activity or using materials that you know he or she liked a few feet away, or try imitating any action he or she does. Gradually move activities closer to the student. Observe sensory sensitivities and plan accordingly.
	<ul style="list-style-type: none"> does not understand "first/then" (for example, doing something to get something he or she wants) 	<ul style="list-style-type: none"> Use brief teaching sessions with materials/activities the student already likes (for example, stacking blocks and knocking them down). Teach the student to do the task, then reinforce him or her by allowing something he or she likes even more. Gradually increase time-on-task and complexity of tasks and pair social with tangible reinforcers. See "Resists academic assignments" for discussion of teaching assignments.

Following School Routines: Resists academic assignments		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • very resistant to doing academic assignments (for example, math problems, writing); doesn't seem to care about doing well, getting good grades, or earning rewards. 	<ul style="list-style-type: none"> • has learned that he or she can safely delay working on assignments with no meaningful consequences; is more comfortable/less anxious engaged in alternate activity (for example, playing, reading, drawing) than in making the effort necessary to do the task <p>or</p> <ul style="list-style-type: none"> • doesn't value "pleasing" adults and/or doesn't understand that work completion pleases adults 	<ul style="list-style-type: none"> • Ensure that work is within the student's ability. DO NOT ASSUME. Good rote memory may mask significant weakness in comprehension of written or spoken language, skills, concepts, etc. • Based on your knowledge of the student's ability, adjust quantity and/or demands of work so the student can complete tasks or parts of tasks in allotted time with reasonable effort. Increase expectations very gradually. • Use graphic organizers, outlines, sentence story-starters, etc., to structure assignments. Let the student choose factual rather than imaginative writing topics (for example, don't ask him or her to pretend to be another person). • Allow student input (for example, deciding which tasks to do first, suggesting positive and negative consequences). • Try always to have the student work toward gaining positives rather than avoiding negatives. • Strengthen the relationships between the student and key adults at school. • Collaborate with parents/guardians about homework.

Following School Routines: Resists academic assignments (continued)		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • very resistant to doing academic assignments (for example, math problems, writing); doesn't seem to care about doing well, getting good grades, or earning rewards. (continued) 	<ul style="list-style-type: none"> • is more reinforced by concentrating on internal thoughts, or the ability to feel in control of the situation, than by any external reinforcers 	<ul style="list-style-type: none"> • As appropriate, introduce some element of his or her special interest into the task. • Give access to his or her special interest as reinforcement for task completion. Establish a time limit (for example, draw one dinosaur). Give the student some control in decision making. • Strengthen the relationship between the student and key adults at school. • Help the student set realistic goals or expectations for different situations, such as grades in class subjects or performance in sports. • Make sure the student knows when he or she is doing well. Praise the student and specify what he or she did well. • Boost self-esteem through reinforcing positive behaviours.
<ul style="list-style-type: none"> • refuses to do homework 	<ul style="list-style-type: none"> • is exhausted by demands of the day at school (however little he or she actually accomplishes) <p>or</p> <ul style="list-style-type: none"> • sees school work as belonging to school, not to the home setting 	<ul style="list-style-type: none"> • Rather than use "complete it as homework" as consequences for not completing work in class, <ul style="list-style-type: none"> – ensure that work is within his or her ability – determine other possible reasons for refusal and plan strategies accordingly – reduce amount required for task completion and experiment with different reinforcers • See: www.tonyattwood.com.au for a discussion on homework.

Following School Routines: Perseverates		
Actions	Possible Reasons	Strategies
<ul style="list-style-type: none"> uses toys perseveratively (for example, spinning car wheels or moving toys in front of lights), but doesn't play with anything the way others do 	<ul style="list-style-type: none"> has a limited repertoire of activities because he or she <ul style="list-style-type: none"> is too distractible to stick with an activity long enough to master it has low frustration tolerance, needs instant cause-effect feedback can't motor plan control movements, especially in multi-step or unrehearsed tasks has a strong drive for one kind of sensory stimulation so that he or she resists learning to use materials in any other way uses perseverative play as a sort of sensory buffer to screen out other stimulation, avoid interaction, or calm him- or herself when he or she doesn't know what to do next 	<ul style="list-style-type: none"> Teach the student how to play with other objects, followed by his or her play activity as a reinforcer. Observe the student in an environment with many activities, and see what he or she does independently or chooses to do. Prioritize activities that <ul style="list-style-type: none"> fit with his or her attention span, frustration tolerance, and motor skills can be done in many settings are popular with other students of his or her development age eventually can be done with others

Following School Routines: Dependent on adult		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> follows routines successfully when the teacher assistant (TA) is in the room, but refuses tasks when the TA is not there 	<ul style="list-style-type: none"> is completely dependent on the TA's presence and/or is anxious without it does not understand language and/or system used by anyone else to explain expectations because he or she has only learned to understand TA's language/system has learned to understand instructions delivered by someone sitting very close to him or her and not standing in front of the classroom has not generalized learning to another person 	<ul style="list-style-type: none"> The TA may begin to move away from the student by standing or sitting slightly behind the student. Ensure that specific strategies used by the TA to get attention and instructions are written down and used by other people. Use a small-group setting to help the student learn focus and listen as the teacher delivers instruction. Structure the classroom so the student attends to teacher instruction, with the TA repeating or breaking down instruction as necessary. Have him or her take finished tasks or papers so that he or she knows that both instruction and praise come from more than one person.
	<ul style="list-style-type: none"> has a rule for him- or herself that he or she is only "supposed" to follow instructions from one person 	<ul style="list-style-type: none"> Use social stories as an appropriate method to explain the "rules." Train peers to imitate the helping behaviours of adults, being careful not to make the student over-dependent. Train the student to communicate the need for help to peers and other adults.

Following School Routines: Won't look at teacher		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • will not look at the teacher when he or she is talking or <ul style="list-style-type: none"> • will not look at what is being shown (book, overhead, writing on board) 	<ul style="list-style-type: none"> • not able to use vision and hearing simultaneously Note: Do not immediately interpret this behaviour as ignoring, or deliberately tuning out, unless you have a good reason to believe it.	<ul style="list-style-type: none"> • Find ways to allow the student to look/touch/explore in silence for as long as needed before listening to explanations or instructions. • When this is not possible, allow the student to look away or put his or her head down, and let him or her look at the visuals later in silence. • As the student's skills become stronger, teach looking and listening at the same time, as this becomes more important as the student gets older; accept that the student may not be able to achieve this.
	<ul style="list-style-type: none"> • loses focus because he or she is too far from speaker 	<ul style="list-style-type: none"> • Experiment with seating; seat the student close to where teacher usually stands to speak. • Seat student in the front to listen but in a study carrel facing the wall in the back of the class to concentrate on written work.
	<ul style="list-style-type: none"> • needs auditory feedback from reading aloud or talking to him- or herself through tasks 	<ul style="list-style-type: none"> • Sensitize other to his or her need and try to ignore. • Reinforce lower speaking volume.

Transitions: Changes in activities		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> • becomes upset or tantrums when class changes from one activity or subject to another 	<ul style="list-style-type: none"> • has a different idea of “finished” than others (for example, feels he or she can’t start spelling until he or she has finished his or her math assignment) 	<ul style="list-style-type: none"> • Always use visual schedule. • Teach him or her a routine using words, symbols, signs, etc., to warn him or her that a change is coming (for example, “almost finished”). • Show student object (symbol or print) representing the next activity. • Until his or her tolerance for change improves, try to do tasks/activities that can be finished in one session. • Use visual strategies (for example, clear away art materials when art is done rather than leaving them out; circle math problems done can highlight the ones that can be finished “after recess”). • Acknowledge student’s distress and frustration.

Transitions: Resists all changes		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> resists any change, even to a favourite activity or one previously enjoyed 	<ul style="list-style-type: none"> anxiety; is anxious no matter how regularly a change occurs or how much warning he or she receives 	<ul style="list-style-type: none"> Use visual support strategies, including schedule and change card. Persevere. Keep gently introducing change. Consult with occupational therapist regarding appropriate relaxation techniques; teach student to recognize his or her own feelings of anxiety.
	<ul style="list-style-type: none"> knows from experience that he or she becomes over-stimulated in an activity (for example, gym or computers) and loses control (e.g., becomes silly, or loud, or starts flapping) if the student is sensitive to the way he or she appears to others he or she may resist going to the activity has difficulty with motor planning; is anxious about negotiating a different physical setting 	<ul style="list-style-type: none"> Teach the student self-regulation strategies. Make sure the student has a way of asking to leave a situation that is becoming overstimulating for them. Use social stories to guide the student through new activities.
	<ul style="list-style-type: none"> has difficulty with motor planning; is anxious about negotiating physical setting 	<ul style="list-style-type: none"> Provide the student with a regular seat in all environments. Let him or her practise being in a new setting with no one else there.

Anger Management: Aggressive		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> physically or verbally aggressive to others (e.g., bites, hits, head-butts, spits) destroys sensory materials; insults, name calls 	<ul style="list-style-type: none"> has no way to communicate pain, anger, frustration, jealousy, confusion, anxiety, sensory discomfort 	<ul style="list-style-type: none"> Do a functional behavioural assessment to determine the purpose of the action for the student and its antecedents and consequences. Observe carefully and try to reduce discomfort if possible. Teach alternate ways to communicate. Adapt expectations or environment as appropriate. Discuss with parents/guardians and refer for medical treatment as necessary.
	<ul style="list-style-type: none"> has no other strategies to calm down, or reduce anxiety or anger 	<ul style="list-style-type: none"> Intervene early.
	<ul style="list-style-type: none"> learned behaviour to get adult reaction/attention, or to escape, or avoid a demand or situation 	<ul style="list-style-type: none"> Ensure that no one in the student's environment reinforces the behaviour with attention or reaction. Be sure that task or environmental demands are within the student's ability to manage and that reinforcement is appropriate.

Anger Management: Tantrums		
Action	Possible Reasons	Strategies
<ul style="list-style-type: none"> tantrums when he or she hears the word "no" (for example, "you can't" or "that's not correct") 	<ul style="list-style-type: none"> habit; tantrums whenever he or she hears the trigger word, even if it's not directed at him or her 	<ul style="list-style-type: none"> Avoid using the word no, or other trigger words, if possible. State what you want to have happen instead. Acknowledge his or her communication and redirect (for example, "first/then"; "that's close, let's look at it again," instead of "no" and "that's wrong").
	<ul style="list-style-type: none"> assumes that is he or she follows the rules and communicates clearly, his or her needs and wishes will be met has learned that tantrums work 	<ul style="list-style-type: none"> Use a social story and trial and error to teach him or her the concept of "sometimes" and to develop his or her capacity to tolerate frustration or delay gratification. Steps: <ol style="list-style-type: none"> wait out tantrum remove him or her from area if necessary or remove other students from setting Try the above tantrum management strategies.
<ul style="list-style-type: none"> goes limp and falls to the floor screaming when a demand is made or he or she can't have his or her way 	<ul style="list-style-type: none"> has learned that this behaviour works to avoid demands or is a way to have his or her wishes met 	<ul style="list-style-type: none"> When possible, ignore and wait. Then repeat the expectation modified if necessary; try to structure the expectation to make compliance easy so that he or she can be reinforced. If the student cannot be ignored, move him or her with as little interaction as possible to a safe location; then try to ignore and wait.

Appendix F: Components of an Individual Program Plan with Behavioural Outcomes

Identification of the Target Behaviour (What, Where, When, Who, and Why)

- Define the problem behaviour(s) in observable, measurable terms. (What is the frequency, intensity, and duration of the behaviour?)
- Describe the environment in which the behaviour usually occurs. (What is the physical setting and arrangement? What is the social setting? What are the instructional/curriculum factors?)
- Describe any sensory or biomedical factors involved.
- Describe any setting events /predisposing factors that may contribute to the behavior. eg, got up late, missed breakfast
- Explain when the behaviour usually occurs, include individuals present.
- Key component: Determine the function(s) of the behaviour.

Behavioural Outcomes

- Describe the desirable/alternative replacement behaviours. (This is the purpose of the plan.)

Environmental Considerations

- Identify any changes that should be made in the environment in order to prevent the problem behaviour and promote the desired (replacement) behaviour.
- Specify the extent to which the plan will be implemented in various settings.

Identify Strategies/Techniques that Will be Used to Change Behaviours

- Specify proactive strategies/techniques to decrease the problem behaviour(s); e.g., modifying task characteristics, clarifying routines and expectations, revising the activity schedule, providing more opportunities for choice, using visual strategies, developing a communication system, providing a quiet area.
- Specify the reinforcement procedures used to support the teaching of replacement behaviours; e.g., reinforcement schedule (frequency of rewards), magnitude (amount or intensity of rewards), and immediacy (delay between behaviour and rewards).

Identify Instructional Methods/Strategies that Will be Used to Achieve Behavioural Outcomes

- visual supports
- self-regulation
- student contracts
- direct instruction (individual/group) e.g., play skills, social skills, communication skills
- applied behaviour analysis methods e.g., cueing and prompting strategies
- social stories
- choice making
- other

Roles and Responsibilities

- Identify the roles and responsibilities of all persons involved in implementing the plan.

Strategies to Transfer Skills

- Identify strategies that will be used to teach the student to transfer/generalize the skills to other settings, people, etc.

Response Protocol

- Identify a planned response to
 - defuse the behaviour (interventions focus on preventing future problem behaviours and keeping the student on task)
 - deal with out-of-control behaviours that pose a risk of injury to the student or others (interventions focus on safety)
 - establish a consequence for behaviour (may or may not be required)
 - support recovery after the behaviour (interventions focus on re-establishing routines; this includes a re-entry plan, which may be to a specific activity, the classroom, or school)
 - provide an opportunity for team members to debrief after an incident occurs
- Identify the persons responsible at each stage of the response protocol.

Evaluation Plan and Schedule

- Identify how you will evaluate the plan's effectiveness, including data collection.
- Monitor the intervention and evaluate the outcomes.
- Determine a schedule for reviewing/modifying the plan. Include dates and criteria for changing/fading the plan.

Appendix G: Behaviour Observation and Data Collection Chart for Determining the Function of Behaviours

When determining the function of inappropriate target behaviours in order to plan behaviour change interventions for students, schools need to observe the behaviour and collect information. It is important to document the behaviour as factually as possible. Rather than speculating on the function of behaviour in the absence of good data, it is important to gather facts that are observable and measurable:

Antecedent: events in the environment that occur immediately prior to the target behaviour

Behaviour: actual behaviour, described in specific terms (including duration and intensity)

Consequence: events in the environment that occur directly after the behaviour

ABC (Antecedent–Behaviour–Consequences) Chart

Name of student: _____ Date: _____

Target behaviour: _____

Time, setting, social situation	Antecedent event(s)	Behaviour description	Consequence event(s)

Source: *Teaching Students with Autism and Developmental Disorders: A Guide for Staff Training and Development* (1996) by JoAnne Seip, British Columbia.

Appendix H: Tips for Teaching High Functioning People with Autism

Susan Moreno and Carol O'Neal
MAAP Services for Autism & Asperger Syndrome
P.O. Box 524
Crown Point, Indiana 46308
website: www.maapservices.org

1. People with Autism have trouble with organizational skills, regardless of their intelligence and/or age. Even a “straight A” student with Autism who has a photographic memory can be incapable of remembering to bring a pencil to class or of remembering a deadline for an assignment. In such cases, aid should be provided in the least restrictive way possible. Strategies could include having the student put a picture of a pencil on the cover of his notebook or maintaining a list of assignments to be completed at home. Always praise the student when She or he remembers something he has previously forgotten. Never denigrate or “harp” at her or him when he fails. A lecture on the subject will not only NOT help, it will often make the problem worse. He may begin to believe he can not remember to do or bring these things. These students seem to have either the neatest or the messiest desks or lockers in the school. The one with the messiest desk will need your help in frequent cleanups of the desk or locker so that he can find things. Simply remember that he is probably not making a conscious choice to be messy. He is most likely incapable of this organizational task without specific training. Attempt to train her or him in organizational skills using small, specific steps. People with Autism have problems with abstract and conceptual thinking. Some may eventually acquire abstract skills, but others never will. When abstract concepts must be used, use visual cues, such as drawings or written words, to augment the abstract idea. Avoid asking vague questions such as, “Why did you do that?” Instead, say, “I did not like it when you slammed your book down when I said it was time for gym. Next time put the book down gently and tell me you are angry. Were you showing me that you did not want to go to gym, or that you did not want to stop reading?” Avoid asking essay type questions. Be as concrete as possible in all your interactions with these students.

2. An increase in unusual or difficult behaviors probably indicates an increase in stress. Sometimes stress is caused by feeling a loss of control. Many times the stress will only be alleviated when the student physically removes himself from the stressful event or situation. If this occurs, a program should be set up to assist the student in reentering and/or staying in the stressful situation. When this occurs, a “safe place” or “safe person” may come in handy.
3. Do not take misbehavior personally. The high functioning person with Autism is not a manipulative, scheming person who is trying to make life difficult. They are seldom, if ever, capable of being manipulative. Usually misbehavior is the result of efforts to survive experiences which may be confusing, disorienting or frightening. People with Autism are, by virtue of their disability, egocentric. Most have extreme difficulty reading the reactions of others.
4. Most high functioning people with Autism use and interpret speech literally. Until you know the capabilities of the individual, you should avoid:
 - idioms (e.g., save your breath, jump the gun, second thoughts)
 - double meanings (most jokes have double meanings)
 - sarcasm (e.g., saying, “Great!” after he has just spilled a bottle of ketchup on the table)
 - nicknames
 - “cute” names (e.g., Pal, Buddy, Wise Guy)
5. Remember that facial expressions and other social cues may not work. Most individuals with Autism have difficulty reading facial expressions and interpreting “body language”.
6. If the student does not seem to be learning a task, break it down into smaller steps or present the task in several ways (e.g., visually, verbally, physically).
7. Avoid verbal overload. Be clear. Use shorter sentences if you perceive that the student is not fully understanding you. Although the student probably does not have a hearing problem and may be paying attention, he may have difficulty understanding your main point and identifying important information.
8. Prepare the student for all environmental and/or changes in routine, such as assembly, substitute teacher and rescheduling. Use a written or visual schedule to prepare her or him for change.

9. Behavior management works, but if incorrectly used, it can encourage robot-like behavior, provide only a short term behavior change or result in some form of aggression. Use positive and chronologically age appropriate behavior procedures.
10. Consistent treatment and expectations from everyone is vital.
11. Be aware that normal levels of auditory and visual input can be perceived by the student as too much or too little. For example, the hum or florescent lighting is extremely distracting for some people with Autism. Consider environmental changes such as removing “visual clutter” from the room or seating changes if the student seems distracted or upset by his classroom environment.
12. If your high functioning student with Autism uses repetitive verbal arguments and/or repetitive verbal questions, you need to interrupt what can become a continuing, repetitive litany. Continually responding in a logical manner or arguing back seldom stops this behavior. The subject of the argument or question is not always the subject which has upset him or her. More often the individual is communicating a feeling of loss of control or uncertainty about someone or something in the environment. Try requesting that he write down the question or argumentative statement. Then write down your reply. This usually begins to calm her or him down and stops the repetitive activity.
13. If that doesn't work, write down his repetitive question or argument and ask her or him to write down a logical reply (perhaps one he thinks you would make). This distracts from the escalating verbal aspect of the situation and may give her or him a more socially acceptable way of expressing frustration or anxiety. Another alternative is role-playing the repetitive argument or question with you taking his part and having her or him answer you as he thinks you might.
14. Since these individuals experience various communication difficulties, do not rely on students with Autism to relay important messages to their parent/guardians about school events, assignments, school rules, etc., unless you try it on an experimental basis with follow-up or unless you are already certain that the student has mastered this skill. Even sending home a note for his parent/guardians may not work. The student may not remember to deliver the note or may lose it before reaching home. Phone calls to parent/guardians work best until the skill can be developed. Frequent and accurate communication between the teacher and parent/guardian (or primary caregiver) is very important.

15. If your class involves pairing off or choosing partners, either draw numbers or use some other arbitrary means of pairing. Or ask an especially kind student if he or she would agree to choose the individual with Autism as a partner before the pairing takes place. The student with Autism is most often the individual left with no partner. This is unfortunate since these students could benefit most from having a partner.
16. Assume nothing when assessing skills. For example, the individual with Autism may be a “math whiz” in Algebra, but not able to make simple change at a cash register. Or, she or he may have an incredible memory about books she or he has read, speeches she or he has heard or sports statistics, but still may not be able to remember to bring a pencil to class. Uneven skills development is a hallmark of Autism.

Be Positive

Be Creative

Be Flexible

Appendix I: Organizations

Annapolis Valley Autism Support Team (VAST)

Annapolis Valley, Nova Scotia
phone: 902-825-0559 or 902-825-2588
email: VASTinfo@AnnapolisVAST.ca
website: www.annapolisvast.ca

Asperger's Society of Ontario

293 Wychwood Avenue
Toronto, ON M6C 2T6
phone: 416-651-4037
email: info@aspergers.ca
website: www.aspergers.ca

Autism Awareness Centre

56 Sussex Crescent SW
Calgary, AB T2W 0L5
phone: 403-640-2710
toll free: 1-866-724-2224
email: info@autismawarenesscentre.org
website: www.autismawarenesscentre.com

Autism Centre Society of the South Shore

16147 Highway #3
RR #4
Bridgewater, NS B4V 6Y1
phone: 902-541-8233
email: info@autismcentresocietyss.org
website: www.autismcentress.ednet.ns.ca

Autism Nova Scotia

1456 Brenton Street
Halifax, NS B3J 2K7
phone: 902-446-4995
email: info@provincialautismcentre.ca
website: www.provincialautismcentre.ca

Autism Research Centre

Dr. Susan Bryson
IWK Health Centre
5850-5980 University Avenue
PO Box 9700
Halifax, NS B3J 3G9
phone: 902-470-7275

Autism Society Canada

1670 Heron Road, PO Box 22017
Ottawa, ON K1V 0C2
phone: 613-789-8943
email: info@autismsocietycanada.ca
website: www.autismsocietycanada.ca

Autism Society of Cape Breton

40 Bentinck Street
Sydney, NS B1P 1G2
phone: 902-567-2830
email: autismcb@eastlink.ca
website: <http://autismcapebreton.com>

Autism Society New Brunswick

PO Box 1493 Station A
Fredericton, NB E3B 5G2
phone: 866-773-1916
email: autism_nb@yahoo.com
website: www.autismnb.org

Autism Speaks Canada

5401 Eglinton Avenue West, Suite 115
Toronto, ON M9C 5K6
phone: 416-362-6227
email: autismspeakscanada@autismspeaks.org
web: www.autismspeaks.ca/autism-speaks-canada

Autism Treatment Services of Canada

409 - 94th Avenue SE
Calgary, AB T2J 0E8
phone: 403-253-6961
email: atsc@autism.ca
website: www.autism.ca

Canadian Autism Intervention Research Network (CAIRN)

The Offord Centre for Child Studies
Faculty of Health Sciences, McMaster University
107 Patterson Building, Chedoke Site
1200 Main Street West
Hamilton, ON L8N 3Z5
email: info@cairn-site.com
website: www.cairn-site.com/index.html

Early Intervention Nova Scotia

email: inquires@earlyintervention.net
web: www.earlyintervention.net

Geneva Centre for Autism

112 Merton Street
Toronto, ON M4S 2Z8
phone: 416-322-7877
email: info@autism.net
website: www.autism.net

Kings Regional Rehabilitation Centre

1349 County Home Road
PO Box 128
Waterville, NS B0P 1V0
phone: 902-538-3103

Nova Scotia Department of Community Service

website: www.gov.ns.ca/coms

Nova Scotia Hearing and Speech Centres

website: www.nshsc.ns.ca

Society for Treatment of Autism

541 Charlotte Street, PO Box 392
Sydney, NS B1P 6H2
phone: 902-567-6441
email: autism@ns.sympatico.ca
website: www.nsnet.org/autismns

Southwest Early Childhood Intervention

207-58 Vancouver Street
Yarmouth, NS B5A 2P5
phone: 902-742-3366
email: southwesteip@eastlink.ca
website: www.nsnet.org/yarmouth

Valley Child Development Association

PO Box 63
Kentville, NS B4N 3V9
phone: 902-678-6111
email: vcda@ns.aliantzinc.ca
website: www.nsnet.org/vcda

Glossary

ABA—Applied Behaviour Analysis

ABA is an entire field of study that incorporates scientific principles of behaviour in its teaching practice to improve socially significant behaviour to a meaningful degree and to demonstrate empirically, that the procedures employed were responsible for that improvement.

ABBLs-R—Assessment of Basic Language on Learning Skills-Revised

The ABBLs-R is an assessment device curriculum guide and skills tracking system for children with language and learning deficits. It contains a task analysis of the many skills required to communicate successfully and learn from everyday experiences.

ASD—Autism Spectrum Disorder

Includes these pervasive developmental disorders: autism, Asperger's syndrome and pervasive developmental disorder not otherwise specified.

AS—Asperger's Syndrome

Pervasive developmental disorders including the impairments in social interaction and communication and the restricted and repetitive patterns of behaviours, interests, and activities. Children have a significant delay in the development of social communication skills. Named after the Austrian pediatrician, Hans Asperger. (Sometimes referred to as Asperger syndrome, Asperger disorder, or simply Asperger's)

CAPS—Comprehensive Autism Planning System

This is a planning system designed to be used alone or with other models, e.g., the Ziggurat Model, to help schools identify and organize an instructional program for students with ASD.

DDT—Discrete Trial Training/Teaching

DDT is a specific teaching method. Skills to be taught are identified and then broken down into specific elements for instruction. Each element is in a logical sequence building on previously learned skills until it is mastered. Each instructional session consists of a series of discrete trials. A discrete trial consists of a four step sequence: instructional cue, student response, consequence, and pause before resuming another trial.

EIBI—Early Intense Behavioural Intervention

EIBI is an intensive intervention program for young children with ASD that incorporates the behaviourally based teaching principles of applied behavioural analysis. Children typically begin EIBI programs at an early age, before the age of 5. The EIBI program offered province wide in Nova Scotia utilizes pivot response teaching and positive behavioural support.

FACTER—Functional Assessment and Curriculum for Teaching Everyday Routines

The primary purpose of the FACTER is to assess and teach students with developmental disabilities to be independent. FACTER addresses the ability to perform everyday ‘routines’ while incorporating essential ‘related skills’ for living.

FR—Functional Routines Instruction

Functional routines are activities or tasks that occur at predictable times, have a predictable sequence of component steps, and a predictable expectation for participation and independent performance. Examples of common functional routines in the school setting are arrival at school, using the washroom, or eating snack. One step of the routine leads to another and the accomplishment of each step can serve as a built in reinforcer. Becoming independent with functional routines in everyday settings is an important goal for all students, including those with ASD.

HFA—High Functioning Autism

Not an official diagnosis, but people with HFA generally have a higher IQ and fewer difficulties with language than those with more typical autism. An early language delay distinguishes HFA from Asperger’s syndrome.

PCS—Picture Communication Symbols

These include drawings, photos, logos, computer generated graphics, and other images. Mayer Johnson’s Boardmaker and Picture This from Silver Lining Multimedia are two examples of software that produce picture symbols.

PDD—Pervasive Developmental Disorder

Refers to a group of five disorders characterized by delays in the development of multiple basic functions including socialization and communication. The five disorders under this grouping are: pervasive development disorder not otherwise specified (known as PDD-NOS), autism, Asperger’s syndrome, Rett syndrome, and childhood disintegrative disorder.

PDD-NOS—Pervasive Development Disorder Not Otherwise Specified

A diagnosis for individuals who are well-described under PDD, but cannot be categorized by any other disorder. PDD-NOS is usually milder than autism yet has similar symptoms to autism, with some symptoms present, and others absent. This disorder is sometimes called “atypical autism” by autism specialists.

PECS—Picture Exchange Communication System

An argumentative communication program that utilizes principles of applied behaviour analysis to elicit a communicative exchange between the student and the communicative partner.

PRT—Pivotal Response Treatment

PRT uses an applied behavioural analysis methodology of teaching, building on each learner’s individual interests. It has proven effective in teaching language and communication and improving social skills. Pivotal Response Training identifies motivation, responding to multiple cues, self-management, and self-initiation as “pivotal skills.” These four skills are considered foundational skills for persons with ASD. PRT capitalizes on the natural environment and incorporates naturally occurring reinforcers meaningful to the student. The nature of this strategy allows for incorporation throughout the school day and across settings.

SCERTS—Social Communication, Emotional Regulation, and Transactional Supports

SCERTS is a multidisciplinary approach to enhancing communication and social-emotional abilities in children and older individuals with ASD. Goals are incorporated into everyday activities and home and school settings.

SI—Sensory Integration

The process by which the nervous system receives, organizes, filters, and integrates sensory information in order to make an appropriate response.

STAR Program—Strategies for Teaching Based on Autism Research

A comprehensive behavioural program for young children with autism incorporating discrete trial teaching pivot response training and functional routines. The program was designed to give teachers many of the instructional plans and some of the materials needed to implement the program as part of the child's individual program plan.

TEACCH-Treatment and Education for Autistic and Related Communication-Handicapped Children

TEACCH is a program developed by Dr. Eric Shopler in the 1970's at the University of North Carolina. TEACCH developed the "Structured Teaching" approach to intervention for persons with ASD, and strategies used in TEACCH are supported by empirical research. This approach is based on an appreciation of a "culture of autism" to understand the thinking, behaviour and learning characteristics of individuals with autism and the use of visual supports and routines to promote learning and independence. TEACCH supports individuals of all ages and developmental levels in various educational settings: employment placement, home, and community. The TEACCH approach is known nationally and internationally through its many training activities and publications.

TTAP-TEACCH—Transition Assessment Profile

A comprehensive assessment developed for adolescents and young adults with ASD to help plan for transition into community and vocational settings. Skill areas addressed include vocational skills and behaviour, independent functioning, leisure skills, functional communication, and interpersonal behaviour.

Resources

Video Resources

Title: *Asperger Syndrome: Success in the Mainstream Classroom* (DVD)

Supplier: AAPC Publishing

Description: This DVD features professionals and parents describing proven strategies that help create success in the mainstream classroom.

Title: *Asperger Syndrome: Transition to College and Work* (DVD)

Supplier: AAPC Publishing

Description: This DVD includes strategies to help high school students with the transition process from high school to post-secondary education.

Title: *Intricate Minds* series (DVD)

Supplier: AAPC Publishing

Description: This series of DVDs helps elementary and high school students understand Asperger's Syndrome.

Title: *Look Beyond the Labels* (video)

Supplier: Toronto School Board, School Programs and Services

Description: This video explains the characteristics of ASD and gives many elementary and high school examples. Teachers talk about the challenges and the strategies they used to help support students with ASD.

Title: *Model me Kids* (DVD)

Supplier: www.modelmekids.com

Description: Model me Kids offers a series of DVDs on various social skill topics through peer modelling behaviour.

Title: *Visual Supports in the Classroom* (video)

Supplier: AAPC Publishing

Description: This video introduces visual supports and visually based environmental supports, showing their practical application in the classroom, including visual schedules, choice boards, task organizers, and work systems.

Technology Resources

Title: Boardmaker software, including Boardmaker Plus and Boardmaker Studio

Supplier: Mayer-Johnson (www.mayer-johnson.com)

Description: Picture-making software to develop activity sheets, schedules, books, etc.

Title: Gaining Face

Supplier: Stone Mountain Software (www.ccoder.com/GainingFace)

Description: Special education software to teach recognition of facial expression.

Title: Intellitools (IntelliKeys, Overlay Maker, Classroom Suite)

Supplier: www.intellitools.com

Description: Intellitools provides software, adaptive hardware, and customized computer keyboards.

Title: Laureate Learning Systems: Special Needs Software

Supplier: Laureate (www.laureatelearning.com)

Description: This special needs software provides interactive computer activities to develop language skills, reading, and spelling.

Title: Picture This ... (Professional, Visual Suite, Great Action Adventure, School Rules and Routines; for other titles see website)

Supplier: Silver Lining Multimedia (www.silverliningmm.com)

Description: Photo software collections containing thousands of photos designed for teaching language, behavioural rules and everyday living skills.

Title: Proloquo2Go (for iPhone, iPod touch, iPad)

Supplier: www.proloquo2go.com (AssistiveWare company)

Description: This is an alternative and augmentative communication (AAC) application that can be used for communication and scheduling.

Title: Time Timer

Supplier: www.timetimer.com and www.difflern.com

Description: This clock/timer is a visual timer that helps students understand how much time they have for a task or activity.

Title: School Rules and My School Day

Supplier: Social Skill Builder (www.socialskillbuilder.com)

Description: This resource for autism and special needs has over 350 different real-life scenarios to demonstrate common student interactions, and covers a full range of social problem-solving, playground interactions and peer relationships within a school setting.

Internet Resources

ABA Educational Resources Ltd. (free downloads available):
www.abaresources.com

Accelerations Educational Software: www.dttrainer.com

Asperger's Society of Ontario: www.aspergers.ca

Autism 4 Teachers: www.autism4teachers.com

Autism Awareness Centre Inc.: www.autismawarenesscentre.org

Autism Internet Modules: www.ocali.org/aim

“Autism: Interventions and Strategies for Success”:
www.specialed.us/autism/index2.htm

Autism Society Canada: www.autismsocietycanada.ca

Autism Society of America: www.autism-society.org

Autism Today (online magazine and information centre):
www.autismtoday.com

Autism Women's Network: www.autismwomensnetwork.org

Autism-PDD Network: www.autism-pdd.net

“Centre for Disabilities: Autism Spectrum Disorders Program”:
www.usd.edu/medical-school/center-for-disabilities/autism-spectrum-disorders-program.cfm

Do2Learn (free printable games): www.do2learn.org

Families for Early Autism Treatment: www.feat.org

Geneva Centre for Autism: www.autism.net

Global Autism Collaboration: www.autism.org

Help 4 Aspergers: www.help4aspergers.com

“Kid's Quest: Autism”:
www.cdc.gov/ncbddd/kids/autism.html

Linda Hodgdon's Newsletter:
www.usevisualstrategies.com/AutismNewsletters.aspx

Nova Scotia Department of Education: www.EDnet.ns.ca

Parentbooks: www.parentbooks.ca

Picture Exchange Communication System: www.pecs.com

POPARD (Provincial Outreach Program for Autism and Related Disorders):
www.autismoutreach.ca

SCATC.org: www.scatc.org/pages/teacch_work_jobs.htm

SchoolsPlus: <http://schoolsplus.ednet.ns.ca>

SET (Special Education Technology British Columbia): www.setbc.org

Social Thinking: www.socialthinking.com

Society for Treatment of Autism: www.autism.ca

SPD Connection: <http://spdconnection.com>

Special Education Services Autism: Interventions and Strategies for Success:
www.special.us/autism/index2.htm

STAR Autism Support: www.starautismprogram.com

“Tasks Developed During TEACCH Training 2000-2005”:
www.preschoolfun.com/pages/teacch%20work%20jobs.htm

TEACCH Autistic Program: www.teacch.com

Temple Grandin: www.templegrandin.com/templehome.html

The Gray Center: www.thegraycenter.org

The Watson Institute: www.thewatsoninstitute.org

Tony Attwood: www.tonyattwood.com.au

Use Visual Strategies: www.usevisualstrategies.com

Valuable Asperger's Resources

Attwood, Tony. 1998. *Asperger's Syndrome: A Guide for Parents and Professionals*. London: Jessica Kingsley Publishers.

Attwood, Tony et al. 2006. *Asperger's and Girls*. Arlington, TX: Future Horizons.

Attwood, Tony. 2007. *The Complete Guide to Asperger's Syndrome*. London: Jessica Kingsley Publishers.

Cumine, Val, Julia Dunlop, and Gill Stevenson. 2009. *Asperger Syndrome: A Practical Guide for Teachers*. 2nd ed. Oxford, UK: Routledge Publishers.

Ernsperger, Lori. 2007. *Girls Under the Umbrella of Autism Spectrum Disorder*. Shawnee Mission, KS: Autism Asperger Publishing.

Faherty, Catherine. 2000. *Asperger's... What does it mean to me? Structured Teaching Ideas for Home and School*. Arlington, TX: Future Horizons.

Gagnon, Elisa, and Brenda Smith Myles. 1999. *This is Asperger Syndrome*. Shawnee Mission, KS: Autism Asperger Publishing.

Holliday-Willey, Liane. *Pretending to be Normal: Living with Asperger's Syndrome*. Jessica Kingsley Pub. 1999

Ives, Martine, and Matt Watkins. 1999. *What Is Asperger Syndrome, and How Will It Affect Me? A Guide for Young People*. Shawnee Mission, KS: Autism Asperger Publishing.

Korin, Ellen S. Heller. 2007. *Asperger Syndrome: An Owner's Manual—What You, Your Parents and Your Teachers Need to Know*. Shawnee Mission, KS: Autism Asperger Publishing.

Moore, Susan Thompson. 2002. *Asperger Syndrome and the Elementary School Experience: Practical Solutions for Academic and Social Difficulties*. Shawnee Mission, KS: Autism Asperger Publishing.

Myles, B.S., and D. Adreon. 2001. *Asperger Syndrome and Adolescence: Practical Solutions for School Success*. Shawnee Mission, KS: Autism Asperger Publishing.

Myles, B.S., D. Adreon, and D. Gitlitz. 2006. *Simple Strategies That Work! Helpful Hints for All Educators of Students with Asperger Syndrome, High-Functioning Autism, and Related Disabilities*. Shawnee Mission, KS: Autism Asperger Publishing.

- Myles, B.S., K.T. Cook, N.E. Miller, L. Rinner, and L. Robbins. 2000. *Asperger Syndrome and Sensory Issues: Practical Solutions for Making Sense of the World*. Shawnee Mission, KS: Autism Asperger Publishing.
- Newport, Jerry and Mary. 2002. *Autism, Asperger's & Sexuality: Puberty and Beyond*. Arlington, TX: Future Horizons.
- Nichols, Shana. *Girls growing up on the Autism Spectrum: What parents and professionals should know about the pre-teen and teenage years*. Jessica Kingsley Publishers, Philadelphia, PA, 2008
- Santomauro, Josie, and Damian Santomauro. 2007. *Asperger Download: A Guide to Help Teenage Males with Asperger Syndrome Trouble-Shoot Life's Challenges*. Shawnee Mission, KS: Autism Asperger Publishing.
- Schnurr, Rosina G. 2002. *Asperger's Huh? A Child's Perspective*. Gloucester, ON: Anisor Publishing.
- Weiss, Mary Jane. 2008. *Practical Solutions for Educating Young Children with High-Functioning Autism and Asperger Syndrome*. Shawnee Mission, KS: Autism Asperger Publishing.
- Welton, Jude. 2003. *Can I Tell You about Asperger Syndrome? A Guide for Friends and Family*. Philadelphia, PA: Jessica Kingsley Publishers.

Nova Scotia Department of Education Resources

Policies, Guidelines, and Handbooks

Assistive Technology: Supporting Student Success (2006)

http://studentservices.ednet.ns.ca/sites/default/files/assistive_technology.pdf

Bias Evaluation Instrument (2001)

http://studentservices.ednet.ns.ca/sites/default/files/bias_eval_ss.pdf

Comprehensive Guidance and Counselling (2007)

<http://studentservices.ednet.ns.ca/sites/default/files/Comp%20Guidance%20and%20Couns%20Prog.pdf>

Gifted Education and Talent Development (2010)

http://studentservices.ednet.ns.ca/sites/default/files/Gifted_Education_and_Talent_Development.pdf

Guidelines for English as a Second Language (ESL) Programming and Services

(2003) http://studentservices.ednet.ns.ca/sites/default/files/esl_guidelines_web.pdf

Guidelines for Use of Designated Time-Out Rooms in Nova Scotia Schools (2010)

http://studentservices.ednet.ns.ca/sites/default/files/Time_Out_Guidelines_and_Sample_Form.pdf

Guidelines for Use of Physical Restraint (2011) [http://studentservices.ednet.](http://studentservices.ednet.ns.ca/sites/default/files/resources_6893_28Jan2011_Guidelines_for_use_of_Physical_Restraint.pdf)

[ns.ca/sites/default/files/resources_6893_28Jan2011_Guidelines_for_use_of_Physical_Restraint.pdf](http://studentservices.ednet.ns.ca/sites/default/files/resources_6893_28Jan2011_Guidelines_for_use_of_Physical_Restraint.pdf)

Handbook for the Transportation of Students with Special Needs in Nova Scotia

(2011) <http://studentservices.ednet.ns.ca/sites/default/files/Handbook%20for%20the%20Transportation%20of%20Students%20with%20Special%20Needs.pdf>

Homework Guide for Teachers: Grades 4–6 (2011) [www.ednet.ns.ca/pdfdocs/](http://www.ednet.ns.ca/pdfdocs/curriculum/Homework_Booklet_for_Teachers-4-6.pdf)

[curriculum/Homework_Booklet_for_Teachers-4-6.pdf](http://www.ednet.ns.ca/pdfdocs/curriculum/Homework_Booklet_for_Teachers-4-6.pdf)

Homework Guide for Teachers: Grades 7–9 (2011) [www.ednet.ns.ca/pdfdocs/](http://www.ednet.ns.ca/pdfdocs/curriculum/Homework_Booklet_for_Teachers-7-9.pdf)

[curriculum/Homework_Booklet_for_Teachers-7-9.pdf](http://www.ednet.ns.ca/pdfdocs/curriculum/Homework_Booklet_for_Teachers-7-9.pdf)

Homework Guide for Teachers: Grades 10–12 (2011) [www.ednet.ns.ca/](http://www.ednet.ns.ca/pdfdocs/curriculum/Homework_Booklet_for_Teachers-10-12.pdf)

[pdfdocs/curriculum/Homework_Booklet_for_Teachers-10-12.pdf](http://www.ednet.ns.ca/pdfdocs/curriculum/Homework_Booklet_for_Teachers-10-12.pdf)

Increasing Learning Success (2008) http://studentservices.ednet.ns.ca/sites/default/files/increasing_learning_success_0.pdf

Provincial School Code of Conduct and School Code of Conduct Guidelines (2008) http://studentservices.ednet.ns.ca/sites/default/files/provincial_school_code_of%20conduct.pdf

Racial Equity Policy (2002) http://studentservices.ednet.ns.ca/sites/default/files/RacialEquityPolicy_Webversion.pdf

School Board and Ministerial Appeal Guide (2009) http://studentservices.ednet.ns.ca/sites/default/files/School_Board_and_Ministerial_Approval_Guide.pdf

School Psychology Guidelines (2009) http://studentservices.ednet.ns.ca/sites/default/files/School_Psych_Guide.pdf

Special Education Policy (2008b) <http://studentservices.ednet.ns.ca/sites/default/files/speceng.pdf>

Speech Language Pathology Guidelines (2010) http://studentservices.ednet.ns.ca/sites/default/files/Speech_Language_Pathology_Guidelines.pdf

Student Records Policy (2006) <http://studentservices.ednet.ns.ca/sites/default/files/StudentRecordsPolicy.pdf>

Supporting Student Success: Resource Programming and Services (2002) http://studentservices.ednet.ns.ca/sites/default/files/Student_Success_web_full.pdf

Teacher Assistant Guidelines (2009) <http://studentservices.ednet.ns.ca/sites/default/files/ta-full.pdf>

The Program Planning Process: A Guide for Parents (2006) <http://studentservices.ednet.ns.ca/sites/default/files/program-planning-process.pdf>

Transcript Guide (2000) <http://studentservices.ednet.ns.ca/sites/default/files/transcript.pdf>

Transition Planning for Students with Special Needs: The Early Years through to Adult Life (2005) http://studentservices.ednet.ns.ca/sites/default/files/transition_planning_web.pdf

Student Services Fact Sheets

Adaptations: Strategies and Resources, http://studentservices.ednet.ns.ca/sites/default/files/Adaptations_WEB.pdf

Assistive Technology: Access to Learning, http://studentservices.ednet.ns.ca/sites/default/files/assistive_technology_factsheet.pdf

Enrichment: Challenge for Excellence, <http://studentservices.ednet.ns.ca/sites/default/files/enrichment.pdf>

Inclusion: Supporting all Students, <http://studentservices.ednet.ns.ca/sites/default/files/inclusion.pdf>

Program Planning: A Team Approach, http://studentservices.ednet.ns.ca/sites/default/files/program_planning.pdf

Transition: A Lifelong Process, <http://studentservices.ednet.ns.ca/sites/default/files/transition.pdf>

Videos

The following videos can be ordered from the Nova Scotia Department of Education Learning Resources and Technology website, <http://lrt.ednet.ns.ca>:

Assistive Technology: Strategies and Options [DVD] (2009)

Challenge for Excellence: Enrichment Clusters [DVD] (2003) V2510

Challenge for Excellence: Total Talent Portfolios [DVD] (2004) V2574

Nova Scotia SchoolsPlus: Our Kids are Worth It [DVD] (2010)

Providing Support through Co-teaching [DVD] (2006)

Autism Resources on the Nova Scotia School Book Bureau (NSSBB) Authorized Learning Resources (ALR) Database

NSSBB #: 16775 **ISBN:** 9781885477361

Title: *A Treasure Chest of Behavioral Strategies for Individuals with Autism* (1997)

Authors: Beth Fouse, Maria Wheeler

Supplier: Future Horizons Inc.

Notes: Over 400 pages of strategies about communication, sensory issues and behaviour, physiological needs, social skills and social/emotional issues, environment, crisis management, and discipline.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16998 **ISBN:** 9781853464997

Title: *Asperger Syndrome: A Practical Guide for Teachers* (2002)

Authors: Julia Leach, Gill Stevenson, Val Cumine

Supplier: Future Horizons Inc.

Notes: A guide for teachers unfamiliar with the Asperger's syndrome and autism spectrum disorder.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16776 **ISBN:** 9781885477590

Title: *Asperger's: What Does It Mean to Me?* (2000)

Author: Catherine Faherty

Supplier: Future Horizons Inc.

Notes: Resources to support development of programming for children with ASD.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16559 **ISBN:** 9781861560933

Title: *Autism: Medical and Educational Aspects* (1999)

Authors: Theo Peeters, Chris Gillberg

Supplier: Login Brothers Canada

Notes: The medical and educational aspects of autism are described in this professional resource.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000170 **ISBN:** 9781932565751

Title: *Basic Skills Checklists: Teacher Friendly Assessment for Students with Autism or Special Needs* (2000)

Author: Marlene Breitenbach

Supplier: Future Horizons Inc.

Notes: This resource will be used by teachers to assess students with autism in the area of assessment skills.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16798 **ISBN:** 9780760602997

Title: *Behavior* (1999)

Authors: Pam Britton Reese, Nena C. Challenner

Supplier: Lingui Systems Inc.

Notes: Social skills lessons using both instructional and behavioural components.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16768 **ISBN:** 9780968537503

Title: *Building Bridges through Sensory Integration* (1998)

Authors: Ellen Yack, Shirley Sutton, David Larochelle

Supplier: Parentbooks

Notes: This resource provides information about sensory processing disorders and suggests therapy techniques with young children diagnosed with PDD or autism. Starts with a brief overview of theory; limited research into sensory integration applications for children with autism.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 2000246 **ISBN:** 9780130485069

Title: *Career Development and Transition Services: A Functional Life Skills Approach, Fourth Edition* (2004)

Authors: Donn E. Brolin, Robert J. Loyd

Supplier: Pearson Education Canada

Notes: This resource helps programming for career and transitions using a functional life skills approach. It is listed in the Department of Education's "Life Skills: Supporting Student Success" (2009) resource.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16771 **ISBN:** 9781885477224
Title: *Comic Strip Conversations* (1995)
Author: Carol Gray
Supplier: Future Horizons Inc.
Notes: A collection of materials to accompany Social Stories Unlimited presentations and workshops.
Resource Type: Professional resource
Grade Level: P–12

NSSBB #: 16779 **ISBN:** 9780760604150
Title: *Communication* (2002)
Authors: Pam Britton Reese, Nena C. Challenner
Supplier: Lingui Systems Inc.
Notes: Social skills lessons using pictures.
Resource Type: Professional resource
Grade Level: P–12

NSSBB #: 16557 **ISBN:** 9781557664532
Title: *Do-Watch-Listen-Say* (2000)
Author: Kathleen Ann Quill
Supplier: Atlantic Book Ltd.
Notes: This is a practical guide for teachers dealing with students who have an autism spectrum disorder.
Resource Type: Professional resource
Grade Level: P–12

NSSBB #: 1001571 **ISBN:** 9781934575772
Title: *Drawing a Blank: Improving Comprehension for Readers on the Autism Spectrum* (2011)
Author: Emily Iland
Supplier: Autism Awareness Center
Notes: This resource discusses literacy issues for students with ASD and offers numerous strategies on improving comprehension. Hyperlexia is also discussed.
Resource Type: Professional resource
Grade Level: P–12

NSSBB #: 18971 **ISBN:** 9780890799833

Title: *FACTER: Functional Assessment and Curriculum for Teaching Everyday Routines* (2004)

Authors: Joel R. Arick, Gary Nave, Tera Hoffman

Supplier: PRO-ED, Inc.

Notes: This program manual is used for both assessment and instruction in functional everyday routines and related skills for students with disabilities. The FACTER can be used with any elementary or secondary age student who needs to learn typical living skills, transition, academic, leisure, community, or career routines.

Resource Type: Teacher resource, guide, or manual; professional resource; parent/guardian resource

Grade Level: P–12

NSSBB #: 16777 **ISBN:** 9780760603448

Title: *Health and Hygiene* (2001)

Authors: Pam Britton Reese, Nena C. Challenner

Supplier: Lingui Systems Inc.

Notes: Social skills lessons, both instructional and behavioural, using symbols.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16778 **ISBN:** 9780760602980

Title: *Home* (1999)

Authors: Pam Britton Reese, Nena C. Challenner

Supplier: Lingui Systems Inc.

Notes: Social skills sessions using both instructional and behavioural components.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000173 **ISBN:** 1843101513

Title: *How to Find Work That Works for People with Asperger Syndrome: The Ultimate Guide for Getting People with Asperger Syndrome into the Workplace* (2004)

Author: Gail Hawkins

Supplier: University of Toronto Press

Notes: Resource recommended in the “Life Skills: Supporting Student Success” (2009) resource.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000319 **ISBN:** 9781934575420

Title: *Hygiene and Related Behaviours for Children and Adolescents with Autism Spectrum and Related Disorders* (2009)

Author: Kelly J. Mahler

Supplier: Autism Asperger Publishing Co.

Notes: This resource is an introduction to hygiene, oral hygiene, and general washroom hygiene. Used for social and personal understanding of hygiene skills.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16799 **ISBN:** 9780760603456

Title: *Interacting* (2001)

Authors: Pam Britton Reese, Nena C. Challenner

Supplier: Lingui Systems Inc.

Notes: Social skills lessons, both instructional and behavioral, using symbols.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000320 **ISBN:** 9781412941747

Title: *Joyful Learning Active and Collaborative Learning in Inclusive Classrooms* (2008)

Authors: Alice Udvari-Solner, Paula Kluth

Supplier: Corwin Press

Notes: This resource helps teachers create an inclusive environment for all students. The resource promotes the notion that all learners can learn side-by-side. Practical ideas and differentiated approach helps all students develop skills and abilities.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16800 **ISBN:** 9780760603464

Title: *Managing Behavior* (2001)

Authors: Pam Britton Reese, Nena C. Challenner

Supplier: Lingui Systems Inc.

Notes: Social skills lessons, both instructional and behavioral, using symbols.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000318 **ISBN:** 9780545094665

Title: *My Brother Charlie* (2010)

Authors: Holly Robinson Peete, Ryan Elizabeth Peete

Supplier: Scholastic Canada Ltd.

Notes: This book is for families struggling with autism and for those who have no autism in their immediate families but who have friends facing it. “My Brother Charlie” is a book about how special all children are and how every one of us can find value in the uniqueness of people.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16773 **ISBN:** 1931282013

Title: *Power Cards: Using Special Interests to Motivate Children and Youth with Asperger Syndrome and Autism* (2001)

Author: Elisa Gagnon

Supplier: Autism Asperger Publishing Co.

Notes: In order to assist ASD students to understand the hidden curriculum, these Power Cards are used to set strategies and special interest to teach the hidden curriculum.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 25629 **ISBN:** 1932565337

Title: *Preparing for Life: The Complete Guide for Transitioning to Adulthood for those with Autism and Asperger’s Syndrome* (2005)

Author: Dr. Jed Baker, Ph D.

Supplier: Parentbooks

Notes: This resource provides an easy-to-follow format that describes a complete toolbox of social skills and other critical life skills for students as they approach adulthood. Issues such as perspective-taking, non-verbal communication skills, conversational skills, and stress management skills are addressed. This is a critical component for students with ASD in middle level and high school as they prepare to transition from school.

Resource Type: Teacher resource, guide, or manual; professional resource; parent/guardian resource

Grade Level: P–12

NSSBB #: 19123 **ISBN:** 9781557664280

Title: *Sexuality: Your Sons and Daughters with Intellectual Disabilities* (2007)

Authors: Karin Melberg Schwier, Dave Hingsburger

Supplier: The Autism Awareness Center

Notes: This resource is intended to be used by parents and teachers of children with disabilities, to help them shape healthy sexuality among those with intellectual challenges. This book is about learning to interact with children—no matter their age or ability—in a way that increases self-esteem, encourages appropriate behaviour, empowers them to recognize and respond to abuse, and enables them to develop lifelong relationships.

Resource Type: Professional resource; parent/guardian resource

Grade Level: P–12

NSSBB #: TBA **ISBN:** 978041587034

Title: *Social Skills for Teenagers With Developmental and Autism Spectrum Disorders: The PEERS Treatment Manual* (2010)

Authors: Elizabeth A. Laugeson, Fred Frankel

Supplier: Parentbooks

Notes: This book is a treatment manual for the PEERS program (Program for the Education and Enrichment of Relational Skills). PEERS is an evidence-based social skills intervention for adolescents in junior or senior high school. The focus of the program is learning how to make and keep friends. Lesson plans are provided to work on skills such as how to share common interests, enter and exit conversations, hold successful get-togethers, and handle conflict such as bullying, rejection, and disagreements.

Resource Type: Professional resource

Grade Level: 7–12

NSSBB #: 19120 **ISBN:** 9781557666970

Title: *Steps to Independence: Teaching Everyday Skills to Children with Special Needs, 4th edition* (2004)

Authors: Bruce L. Baker, Alan J. Brightman

Supplier: The Autism Awareness Center

Notes: The book starts by overviewing teaching methods (behavioural therapy) that will foster numerous skills that lead to living life as independently as possible. The fourth edition of this book includes a section on managing behaviour problems, technology management (e-mails, texting, etc.), strengthening partnerships with the school, and a website with downloadable forms from the book.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1001573 **ISBN:** 9780470230800

Title: *Successful Inclusion for Student with Autism: Creating a Complete, Effective, ASD Inclusion Program* (2009)

Author: Sonja R. deBoer

Supplier: Autism Awareness Center

Notes: This resource gives educators and administrators the information they need for inclusive programming for students with autism spectrum disorders. The book offers information on ongoing program assessment and evaluating student progress and provides teaching strategies on behaviour management, boosting social and communication skills, and more.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000176 **ISBN:** 9781571674982

Title: *Supporting Individuals with Autism Spectrum Disorder in Recreation* (2004)

Authors: Phyllis Coyne, Ann Fullerton

Supplier: Sagamore Publishing

Notes: Resource to assist programming in the area of Recreation and Leisure for learners with autism spectrum disorder. Listed as a professional resource in the “Life Skills: Supporting Student Success” (2009) resource.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000177 **ISBN:** 9781885477941

Title: *Taking Care of Myself: A Healthy Hygiene, Puberty and Personal Curriculum for Young People with Autism* (2003)

Author: Mary Wrobel

Supplier: Future Horizons Inc.

Notes: Professional resource listed in the “Life Skills: Supporting Student Success” (2009) resource.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000868 **ISBN:** 9781934226001

Title: *Tasks Galore* (2003)

Authors: Laurie Eckenrode, Pat Fennell, Kathy Hearsey

Supplier: Parentbooks

Notes: Valuable resource for structuring early learning concepts across a number of curricular areas. Full-colour pictorial series of visually structured tasks for teaching fine motor skills, language concepts, readiness, literacy skills, and more to individuals with autism and other visual learners.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000317 **ISBN:** 9781934226018

Title: *Tasks Galore for the Real World* (2004)

Authors: Laurie Eckenrode, Pat Fennell, Kathy Hearsey

Supplier: Parentbooks

Notes: Valuable for preparing your exceptional student for the “Real World.” Full-colour pictorial series of visually structured tasks for teaching domestic, vocational, and other independent living skills to individuals with autism and other visual learners. Applicable to home, school, community, and training sites.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000869 **ISBN:** 97819342260187

Title: *Tasks Galore: Let's Play* (2009)

Authors: Laurie Eckenrode, Pat Fennell, Kathy Hearsey

Supplier: Parentbooks

Notes: Valuable resource for structuring social engagement and play activities. Full-colour pictorial series of visually structured tasks for play set-up, making choices, learning language concepts and social skills in natural contexts for individuals with autism and other visual learners. Applicable to home, school, and community.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000870 **ISBN:** 978-1934226025

Title: *Tasks Galore: Making Groups Meaningful* (2005)

Authors: Laurie Eckenrode, Pat Fennell, Kathy Hearsey

Supplier: Parentbooks

Notes: Valuable resource for applying structured teaching strategies within classroom groups and school events. Full-colour illustrations of visually structured tasks for projects and activities in group settings for individuals with autism and other visual learners. Applicable to home, school, and community.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16770 **ISBN:** 9780965756501

Title: *Teach Me Language: A Language Manual for children with autism, Asperger's syndrome and related developmental disorders* (1997) or French Version, *Apprend moi le langage* (2000)

Authors: Sabrina Freeman, Ph.D., Lorelie Dake

Supplier: Editions Nouvelles AMS

Notes: A support book in special education for language development.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000332 **ISBN:** 9781890627331

Title: *Teaching Children with Down Syndrome about Their Bodies, Boundaries, and Sexuality: A Guide for Parents and Professionals* (2007)

Author: Terri Couwenhoven

Supplier: Monarch Books of Canada

Notes: This resource will serve as a valuable support to teachers who have children who are visual learners in their classroom. It covers many aspects of a child's language needs from primary through to middle school. The book explores strategies around adaptations, written instructions, and classroom routines.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1000322 **ISBN:** 9781890627423

Title: *Teaching Math to People with Down Syndrome and Other Hands-on Learners Book 1: Basic Survival Skills* (2004)

Author: DeAnna Horstmeier

Supplier: Monarch Books of Canada

Notes: This resource is for teaching students with learning delays practical math skills. Basic math skills including addition, subtraction, money, and counting, are addressed with hands-on, visually supported activities. Activities are appropriate across age ranges. The emphasis is on math skills for functional, real-life situations.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 14009 **ISBN:** 9780933149557

Title: *Teaching Reading to Children with Down Syndrome: A Guide for Parents and Teachers* (1995)

Author: Patricia Logan Oelwein

Supplier: Monarch Books of Canada

Notes: Practical strategies to assist in literacy.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 18970 **ISBN:** 9781934575031

Title: *The Comprehensive Autism Planning System (CAPS) for Individuals with Asperger Syndrome, Autism, and Related Disabilities: Integrating Best Practices Throughout the Student's Day* (2007)

Authors: Shawn Henry, Brenda Smith Myles

Supplier: Autism Asperger Publishing Co.

Notes: This resource provides a framework for organizing information in a thoughtful manner to more effectively educate and support individuals across the autism spectrum by addressing all aspects of their program. Strategies are well researched and have been proven effective in schools. The process enables program planning teams to ensure everyone understands the needs and supports necessary for the student across the curriculum.

Resource Type: Teacher resource, Professional resource

Grade Level: P–12

NSSBB #: 18931 **ISBN:** 0000000000000

Title: *The Eating Game: Get Awesome Meals Every Day* (2007)

Authors: Jean Nicol

Supplier: Eyecan Creations Publications

Notes: “The Eating Game: Get Awesome Meals Every Day” is a unique planning kit based on recommendations made in *Eating Well with Canada's Food Guide*. It is the ideal starting point for making healthy food choices. “The Eating Game” helps create a plan for what will be eaten throughout each day. No reading ability is required as pictures are matched using a simple system of colour coding. New foods can be added at any time. Included are suggestions for how to use, modify, and extend the use of the book/kit to maximize its effectiveness. Although it was initially developed to address the nutritional challenges faced by children with autism, “The Eating Game” will be a valuable resource for learning centre teachers.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16558 **ISBN:** 9780760601461

Title: *The Source for Autism* (1997)

Authors: Gail Richard

Supplier: Lingui Systems Inc.

Notes: Practical resource for professionals working with students with autistic spectrum disorders.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 18972 **ISBN:** 19834575437

Title: *The Ziggurat Model: A Framework for Designing Comprehensive Interventions for Individuals with High-Functioning Autism and Asperger Syndrome* (2008)

Authors: Ruth Aspy, Ph.D., Barry G. Grossman, Ph.D.

Supplier: Autism Asperger Publishing Co.

Notes: This book describes a comprehensive approach to intervention for more able individuals with autism and Asperger's syndrome. The Ziggurat Model is a simple-to-use framework consisting of five levels of intervention that require support to ensure successful programming for students. Based on best practices, this resource provides a multitude of ideas and help in planning individual program plans.

Resource Type: Professional resource; parent/guardian resource

Grade Level: P–12

NSSBB #: 19125 **ISBN:** 0970132042

Title: *Think Social: A Social Thinking Curriculum for School-Age Students + CD* (2005)

Author: Michelle Garcia Winner

Supplier: The Autism Awareness Center

Notes: This publication maps out a curriculum designed by Speech Language Therapist, Michelle Garcia Winner. The book documents how lessons are introduced by developing social thinking vocabulary and the materials necessary to deliver lessons that explore numerous concepts such as problem solving, hidden curriculum, and social rules as they change during our lifetime. Its intended use is partly for a clinical or therapeutic environment where students work individually with a teacher or small group. Each lesson also gives suggestions on how the curriculum might be introduced in a classroom.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 19121 **ISBN:** 0970132018

Title: *Thinking about You, Thinking about Me, 2nd edition* (2007)

Author: Michelle Garcia Winner

Supplier: The Autism Awareness Center

Notes: This resource is intended to be used by teaching professionals who work with students who are challenged by social skill development. This second edition describes the four steps of communication and related treatment strategies pertaining to practical concepts such as the ways we maintain communication through physical presence. This book explains why it is important to go beyond teaching social skills and teach students the dynamic processes of social thinking.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 16772 **ISBN:** 9781885477453
Title: *Toilet Training for Individuals with Autism and Related Disorders* (1998)
Author: Maria Wheeler
Supplier: Future Horizons Inc.
Notes: Practical assistance to support ASD learners with toilet training.
Resource Type: Professional resource
Grade Level: P–12

NSSBB #: 25630 **ISBN:** 9781416401933
Title: *TTAP: TEACCH Transition Assessment Profile, 2nd Ed.* (2007)
Authors: Gary Mesibov, John B. Thomas, S. Michael Chapman
Supplier: PRO-ED, Inc.
Notes: This resource describes a skills-based instrument that can assess current and potential skills in those areas most important for successful, semi-independent functioning in the home and community. Functional work skills are assessed to assist in transition planning from school to community and employment.
Resource Type: Professional resource
Grade Level: P–12

NSSBB #: 18969 **ISBN:** 1932565159
Title: *Understanding Asperger's Syndrome: Fast Facts* (2004)
Authors: Emily L. Burrows, Sheila J. Wagner
Supplier: Parentbooks
Notes: This resource describes, in clear language, an overview of Asperger's syndrome and strategies for teachers to employ with these students in their classrooms. Written by two teachers, it is filled with practical advice on behavioural, instructional, social, and sensory issues experienced by those students with Asperger's syndrome.
Resource Type: Professional resource; parent/guardian resource
Grade Level: P–12

NSSBB #: 18968 **ISBN:** 9781932565560
Title: *Understanding Death and Illness and What They Teach about Life* (2008)
Authors: Catherine Faherty
Supplier: Parentbooks
Notes: This book provides guidance and support for family members and professionals to manage explanations for illness, dying, losing a pet, etc., as it relates to people living with autism. Information is presented in a clear, straightforward, and concrete manner that will help those on the spectrum.
Resource Type: Professional resource; parent/guardian resource
Grade Level: P–12

NSSBB #: 16556 **ISBN:** 0761641262

Title: *Understanding the Nature of Autism, 2nd Edition* (2003)

Authors: J. E. Janzen

Supplier: Harcourt Assessment, Inc.

Notes: This is a theoretical text assisting teachers and other related professionals with understanding of the nature of autism.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 1001572 **ISBN:** 9780982876107

Title: *Visual Strategies for Improving Communication: Practical Supports for Autism Spectrum Disorders* (2011)

Authors: L.A. Hodgdon

Supplier: QuirkRoberts Publishing

Notes: Collection of visual strategies to help teachers improve communication with students with autistic spectrum disorders.

Resource Type: Professional resource

Grade Level: P–12

Videos

NSSBB #: 19117

Title: *Social Behavior Mapping* (DVD) (2007)

Supplier: The Autism Awareness Center

Notes: This is a 50-minute video-taped presentation of social behaviour mapping. It describes a cognitive behavioural technique designed to help students to learn the thinking behind expected behaviors.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 19118

Title: *Social Thinking across the Home and School Day* (DVD) (2003)

Supplier: The Autism Awareness Center

Notes: This resource is intended for parents and teachers working with students on the autism spectrum or non-verbal learning disorder who lack the use of appropriate social skills.

Resource Type: Professional resource

Grade Level: P–12

NSSBB #: 19119

Title: *Growing Up Social: Exploring How Social Communication Develops ... and Strategies to Help!* (DVD) (2007)

Supplier: The Autism Awareness Center

Notes: This resource is intended for teachers and parents who work with students with social cognitive deficits. This DVD looks at how social thinking supports the development of social skills from the first year of life, influencing language development and academic success, as well as skills for adult living. Social thinking concepts and strategies are introduced to support this teaching across the home and school day, including an exploration of how we organize our communicative interactions and use active perspective-taking throughout each day.

Resource Type: Professional resource

Grade Level: P-12

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