

# Chapter 5: Essential Components of Instruction

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## Considerations

This section describes different components of instruction that should be addressed with individuals with Autism Spectrum Disorder (ASD) from kindergarten through high school. It includes an explanation of the unique learning styles of individuals with ASD and considerations for creating effective learning environments. Though this section speaks specifically to education beginning in Kindergarten, early intervention is the key to success. For more information, refer to Appendix 2: Early Intervention - Birth to Age 3 and Appendix 3: Special Education - Three Through Five.

This section is best used in conjunction with the rest of the document because it offers strategies to address skills that form the foundation for learning and underlie all other areas, e.g., attention, imitation. It incorporates the information from the other sections and applies that information to teaching situations, gives specific techniques to address the other areas, and is intended to work within the general curriculum (see Appendix 9: Implications for the Education System).

Along with this Guidebook, other organizations have helpful guides to assist teachers and parents in understanding autism. These include *The Puzzle of Autism* by the National Education Association (NEA, 2006), and *The Educational Aspects of Autism Spectrum Disorders Manual*, from The Office of the Superintendent of Public Instruction (OSPI) in partnership with the Autism Outreach Project of Washington State.

The NEA states:

The number of children diagnosed as having autism has increased substantially and many of these students are in general education classrooms. How can general education teachers and other education professionals address their complex communication, social and learning needs? To assist educators in their daily work, NEA has produced a new resource in collaboration with the Autism Society of America, the American Speech-Language-Hearing Association, and the National Association of School Psychologists.

*The Puzzle of Autism* is a brief and clear informational guide for all education personnel who work with students with ASD. The guide explains common autistic characteristics and suggests effective classroom strategies for improving the communication, sensory, social, and behavioral skills of children who have autism. *The Puzzle of Autism* is available online at [www.nea.org/assets/docs/autismpuzzle.pdf](http://www.nea.org/assets/docs/autismpuzzle.pdf).

Washington's OSPI publication, *The Educational Aspects of Autism Spectrum Disorders Manual* (2003), provides information about educating students with ASD and is beneficial to parents, teachers, speech-language pathologists, school psychologists, and others involved in educational planning for children on the spectrum. It is available in school district offices or online at [www.k12.wa.us/SpecialEd/pubdocs/Autism%20Manual.pdf](http://www.k12.wa.us/SpecialEd/pubdocs/Autism%20Manual.pdf).

There are numerous methods and instructional strategies that are specifically designed for use with individuals with ASD. Professionals may incorporate a variety of approaches into instruction, but it is critical that the method or strategy be:

- ◆ Matched to the strengths and needs of the individuals
- ◆ Modified as individuals change
- ◆ Effective in supporting independence and learning

### ***Learning Styles of Individuals With ASD***

Individuals with ASD have the capacity to learn a variety of concepts and skills. However, because of unique communication and sensory motor processing issues, it is critical that instruction is designed with their individual learning styles in mind. Learning styles are based on:

**Individual Strengths:** Individuals with ASD exhibit varied cognitive strengths and challenges (e.g., visual, auditory memory, spatial, kinesthetic). Careful assessment should be integrated to identify an individual's unique profile to tailor instruction and accommodations.

**Individual Interests:** Individuals with ASD may focus on specific topics of interest. This focus may allow them to develop a unique perspective, a specific skill, or a depth of understanding; therefore, it is important to support and expand areas of interest and not extinguish them. Indeed, these interests can lead to meaningful leisure activities and employment outcomes.

**Individual Motivators:** These motivators come from every person's need to derive reward for pursuits and interactions. Teachers, through instruction, build in assumptions of successful motivators such as grades, praise, stickers, etc. It is important to identify, with the help of family and the individual, the motivators that will provide incentives toward learning. Individuals with ASD often have unusual motivators that include completion of tasks, sensory-based stimuli, special interests, tactile-based stimuli, pace of activity, etc. Teachers need to understand and tolerate motivators that will not inhibit the learning environment.

**Communication Style:** Individuals with ASD have unique abilities and difficulties with regards to communication and language. The communication process can be made difficult because professionals may assume individuals do not understand and then make conclusions based on individual input or non-input. In teaching, individuals must communicate back understanding to the teacher. Teachers who are most effective in the communication process use multiple strategies simultaneously such as visual, auditory, written, symbolic, etc.

**Sensory Motor Processing:** Sensory motor proficiency involves the taking in of information from one's body and the environment through a variety of sensory channels, interpreting and understanding these sensations, and developing a response to them. Sensory systems include auditory, visual, tactile, proprioceptive, vestibular, olfactory, and gustatory. Individuals with ASD may rely heavily on one or two sensory channels to compensate for deficits in other modalities. Preferences for specific sensory systems may therefore result in learning styles that are different from typically-developing peers. For example, individuals may need to pair a motor activity with learning new material such as isometric exercises paired with multiplication tables.

**Pattern of Skill Development:** The premise of instruction is to teach in a sequential pattern of skill development. Individuals with ASD may have highly developed skills in one area and be delayed in others. Professionals should not assume that with a highly developed skill there are not gaps in learning. Teachers may need to teach holistically rather than sequential levels. Learning need not be linear to be understood.

**Social Understanding:** This is the ability of the individual to read social cues and the context and behave accordingly. Typically, social situations for individuals with ASD are often very stressful. Teaching techniques that rely on social situations may cause stress in individuals with ASD because of the reliance on social relationships. Individuals may have an inability to participate appropriately in the context of class discussions.

In conclusion, instructional strategies should be based on individual learning styles and should take into consideration and capitalize upon the aspects of unique learning styles.

### **Purpose of Assessment**

The purpose of assessment is to develop instruction appropriate to the needs of each individual. ASD is considered to be a triad of impairments with core deficits in socialization, communication and behavior. It is critical that the assessment and evaluation process reflect those three core areas of deficit. Federal and state guidelines (Washington Administrative Code [WAC] 392-172A-03020 and *The Educational Aspects of Autism Spectrum Disorders Manual*, 2008) require assessment in the following domains:

- ◆ Cognitive
- ◆ Social/Emotional
- ◆ Academics
- ◆ Communication
- ◆ Vocational/Occupational
- ◆ Adaptive Behavior

However, assessments of individuals with ASD must also address areas of strengths, interests, and sensory motor abilities in order to get valid information on which to base instructional strategies. Emphasis on these additional areas will facilitate the assessment process itself and provide critical information for developing the individual's learning.

Assessments, whether ongoing or part of an evaluation need to take into consideration the unique learning style of the person with ASD. Assessments and evaluations should include information from the parent(s); data from previous interventions; criterion-referenced assessments; curriculum-based assessments; standardized, norm-referenced tests; structured interviews; and structured observations. On the other hand, most norm-referenced tests have limited usefulness in curriculum development. Regardless of the tools used, person(s) conducting the assessment must have a firm understanding of autism in order for the results to be valid.

Elements that will help to optimize the results of the assessment process include previous familiarity with the individual, shorter test periods over multiple sessions, advance notice to the individual prior to testing, and sensory motor preparation for an optimum level of alertness. An additional resource for both educators and parents can be found in Appendix 8: Educational Best Practice Guidelines Check List.

### **Aspects of a Learning Environment**

Any instruction must include a carefully planned environment that is predictable, structured and appropriate for the sensory motor needs of the individual. Environments, including the regular classroom, resource room, community, and home, can be engineered to support the degree and type of structure that the individual requires.

Learning and behavior may be enhanced by physical space modifications that include visual barriers, reduced visual or sound distractions, temperature adjustments, preferential seating, and visual organization of material.

One methodology that can be utilized to enhance the level of structure and predictability within an environment is the TEACCH system (Treatment and Education of Autistic and Related Communication-handicapped Children). TEACCH was developed in the early 1970s by Eric Schopler at the University of North Carolina in Chapel Hill. The TEACCH program's position states that to effectively teach students with autism, a teacher must provide structure, i.e., set up the classroom so that students understand where to be, what to do, and how to do it, all as independently as possible. The methodology utilizes physical and environmental structure, scheduling, and structured work tasks and sessions to help persons with ASD become more successful and independent (see Appendix 4: Least Restrictive Environment and Natural Environment and Appendix 7: Instructional Accommodations and Modifications).

## **Focus of Interventions – All Ages**

Federal law (IDEA, 2004) requires that, to the fullest extent possible, all individuals have access to, and make progress in, the general curriculum; however, the instruction must be meaningful, purposeful, and age appropriate for the individual. The individual with ASD will have specific goals and objectives that need to be addressed in order to participate and progress in the general education curriculum.

Particular attention needs to be paid to the following areas to increase the individual's ability to benefit from the educational experience and become more competent and independent adults.

### **Attention**

Purpose—Increase awareness of others, develop appropriate learning processes, establish attention to critical task stimuli, and reduce over-selective attention.

Target Areas:

- a. Acknowledgment of external world
- b. Sustained attention (attending on a regular basis)
- c. Saliency (looking at what is important)
- d. Joint attention (attending with people)
- e. Attention shifting (flexibility in attending) event to event, object to object, object to person, and person to object

### **Imitation**

Purpose—Prepare for learning complex skills, enable observational learning from peers and build reciprocal interaction.

Target Areas:

- a. Pre-requisite to imitative learning is that it must be purposeful and independent.
- b. Attention to model: imitation of movements, vocalizations, verbalizations, and gestures.

### **Communication**

Purpose—Establish verbal or augmented communication skills; enhance social interaction as an initiator and responder; enhance comprehension of events and persons in the environment; provide appropriate alternatives to challenging behaviors by teaching a functional communication system.

Target Areas:

- a. Use and comprehend nonverbal communication (gestures, gaze, and facial postures).
- b. Use and comprehend nonverbal communication and primary vocabulary and simple sentence structures.
- c. Use and comprehend nonverbal communication and vocabulary and simple sentence structures and grammatical parts of speech.

- d. Use and comprehend combined/multiple communicative means.
- e. Use communicative means for a variety of reasons (request, protest, comment, repair, etc.).
- f. Use echolalia functionally.
- g. Increase use of spontaneous language.
- h. Continue vocabulary building, comprehension and use.
- i. Develop effective means to communicate needs, wants, desires, and emotions.

### **Socialization**

Purpose—Establish social and affective contact with others.

Target Areas:

- a. Intentional and systematic introduction to social situations with initiation and respondent acts.
- b. Turn-taking – including non-verbal/vocal/verbal turns.
- c. Adult-child and child-child interactions.
- d. Sharing with others.
- e. Ability to give help and accept help.
- f. Choice-making.
- g. Understanding other person's emotions and perspectives.
- h. Interdependence – be able to assist and accept assistance from others.
- i. Sense of belonging: as a son or daughter, sibling, student, or co-worker.
- i. Development of a repertoire of expected social behaviors for environments where the individual lives, learns, works, and spends leisure time.
- j. Development of skills and abilities which lead to positive interactions and relationships.

### **Cognition**

Purpose—Enhance conceptual, problem-solving, and academic performance and executive function (flexible, strategic plan of action to solve a problem or attain a future goal).

Target Areas:

- a. Utilization of multiple modes of learning concepts and skills (e.g., sorting, matching, classifying, problem-solving, categorizing, comparisons, ordinals, sequencing, temporal understanding, spatial understanding)
- b. Understanding cause and effect
- c. Abstract thinking
- d. Humor

### **Purposeful Play/Recreation/Leisure/Physical Exercise**

Purpose—Enhance cognitive, social and motor skills; enhance relationships between self and environment; shape appropriate use of unstructured time; increase opportunities to get physical exercise and stay healthy; increase enjoyment of life.

Target Areas:

- a. Intentional and systematic introduction of a variety of play and leisure skills.
- b. Interaction/cooperation with peers.
- c. Leisure skill building to include toys, games, hobbies, sports, creative arts (drama, music, writing, arts and crafts).
- d. Recreation and physical exercise to include walking, hiking, team and individual sports, and other activities that promote good health and decrease obesity and chronic health conditions.

### **Self-Determination**

Purpose—Enhance the individual’s ability/opportunity to make executive function decisions (choices and options) through means of communication, relationship and visual organization; foods, clothing, activities, employment, residential, roommates, etc. Choices are limited to people’s experience; broaden the experience, record outcomes, and review visually with the individual his/her experiences to develop choice.

Target Area:

Intentional and systematic instruction of sequencing, categorizing, and communicating preferences.

### **Essential Life Skills**

Purpose—Increase personal independence and create opportunities for greater community participation including independent living, working and recreating.

Target Areas:

- a. Transitioning within daily activities
- b. Self-help: e.g., toileting, dressing-undressing, eating, feeding, and drinking
- c. Safety and ability to say “no”
- d. Hygiene
- e. Gross and fine motor coordination
- f. Managing sensory stimuli
- g. Purposeful communication
- h. Productivity of a task
- i. Flexibility of a task
- j. Communication
- k. Self-determination, self-advocacy, choice
- l. Navigating public transportation system(s)

### **Transition**

Purpose—Facilitate integration of the individual into the community in terms of work or post-secondary education, recreation, and residence.

Target Areas:

- a. Generalization of learned skills and strategies to the next environment.
- b. Exploration of areas of interest or strength.
- c. Selection of community options including work, leisure, residence, and post-secondary activities.

### **Sexuality (as determined by student’s team to be developmentally appropriate)**

Purpose—Assist the individual to understand and express sexuality in an acceptable and appropriate manner.

Target Areas:

- a. Acquire skills which assist in the development of friendship.
- b. Develop personal health and hygiene.
- c. Understand changes in the body and how to manage the changes.
- d. Develop specific and appropriate outlets to express sexuality.

## **Behavior**

Purpose—Develop functional behaviors that are acceptable in the school, work, and community environments.

Target Areas:

- a. Develop effective means to communicate needs, wants, desires, and emotions.
- b. Develop skills and abilities which lead to positive and acceptable behaviors.

## **Description of Teaching Strategies and Methodologies That Are Data Driven**

Teaching strategies need to be based on peer reviewed and empirically validated evidence-based practices and methodologies for students with autism. At this time the science heavily favors, but is not limited to, those based on the science of applied behavior analysis, defined as the application of behavioral principles for the benefit of the learner and includes simultaneous evaluation of the effect of these applications.

The following section (taken from the Ohio Parent Guide) summarizes evidence-based practices that should be considered when developing instructional programs for students on the autism spectrum.

### **Applied Behavior Analysis**

Applied behavior analysis (ABA) is the scientific study of the principles of human behavior. The Florida Department of Children and Families defines ABA as:

The design, implementation, and evaluation of systematic environmental modifications for the purpose of producing socially significant improvements in and understanding of human behavior based on the principles of behavior identified through the experimental analysis of behavior. ([www.abatherapy.net](http://www.abatherapy.net))

ABA includes finding out the connection between an individual's behavior and his or her environment. In other words, what is causing the behavior? ABA uses direct observation and measurement of behavior and environment. Measurement looks at how often, what time, how long, to whom, or how intensely a behavior occurs. ABA also looks at what happens in or to the environment right before a behavior occurs, otherwise known as the antecedent behavior. Antecedent behavior includes verbal, gestural or physical prompts, cues, materials, language, and environmental factors (sensory input: noise, light, smell, taste, touch), either naturally occurring or intentionally manipulated to affect a behavior.

The consequence of the behavior is what occurs after the behavior. Consequences include reinforcement, both positive and negative, and punishment. Reinforcement increases the likelihood of the behavior occurring again. Punishment procedures increase the likelihood of the behavior diminishing or disappearing (known as extinction). The sequence of ABA is sometimes referred to as ABC: antecedent, behavior, consequence.

A substantial amount of research has shown that ABA can be effective for children with ASD.

### **Comprehensive Autism Planning System (CAPS)**

This comprehensive, yet easy-to-use system allows educators to understand how and when to implement an instructional program for students with autism spectrum disorders (ASD). The CAPS model answers the questions (a) What supports does my student/child need in each class to be successful? (b) What goals is my student/child working on? and (c) Is there a thoughtful sequence to the student's/child's day that matches his learning style. This timely resource addresses adequate yearly progress (AYP), response to intervention (RTI), and positive behavior support (PBS) in a common-sense format. The CAPS process

was designed to be used by the child's educational team, consisting of parents, general educators, special educators, paraprofessionals, speech-language pathologists, occupational therapists, physical therapists, administrators, psychologists, consultants, siblings, and others who are stakeholders in the student's education.

The structure of this innovative tool ensures consistent use of supports to ensure student success as well as data collection to measure that success.

In addition, CAPS fosters targeted professional development. Because CAPS identifies supports for each of the student's daily activities, it is possible for all educational professionals working with the student to readily identify the methods, supports, and structures in which they themselves need training (Henry, Smith Myles, 2007).

### ***Discrete Trial Training***

ABA is not synonymous with discrete trial training (DTT), although many erroneously use the terms interchangeably. DTT is an ABA strategy. DTT is a distinct and complete behavioral event that includes a discriminative stimulus or the antecedent (what happens before the behavior), the response or behavior (what the child is required to do), and the consequence for the behavior (reinforcement). The term "Lovaas Therapy" comes from Dr. O. Ivar Lovaas, whose landmark research led to the application of DTT techniques to teach children with autism.

### ***Social Thinking***

Simply put, social thinking is our innate ability to think through and apply information to succeed in situations that require social knowledge. Social thinking is a form of intelligence that is key to learning concepts and integrating information across a variety of settings: academic, social, home, and community. Limited abilities for learning and or applying socially relevant information can be considered a social thinking learning disability. The great difficulty encountered when trying to determine if a child has social thinking challenges is that standardized tests available through educational, psychological and or speech and language evaluations fail to reveal problems in this area.

Thus a child's ability to do well on testing in no way proves or disproves the possibility that he or she may have a significant learning disability in the form of social thinking. The reason that standardized tests lack in their ability to illuminate deficits in this area is that testing needs to be highly structured in order to cleanly measure the very specific skills that the test or subtest was designed to evaluate. However, social cognition requires the complex integration of multiple skills. Thus, standardized test formats, as written today, are often counter to the evaluation process for exploring social thinking skills.

Social thinking challenges represent a social executive function problem. The ability to socially process and respond to information requires more than factual knowledge of the rules of social interaction. It also requires the ability to consider the perspective of the person with whom you are speaking. Perspective taking can be defined as considering the emotions, thoughts, beliefs, prior knowledge, motives and intentions of the person with whom one is communicating as well as one's self.

This ability then allows one to not only better determine the actual meaning behind the message being communicated but also how best to respond to that message. Thus applying social knowledge and related social skills successfully during social interactions requires the complex synchronicity of perspective taking along with language processing, visual interpretation and the ability to formulate a related response (verbal or non-verbal) in a very short period of time (1-3 seconds).

Finally, social thinking challenges do not only reveal themselves during social interactions, but instead they are present during many academic tasks that require highly flexible abstract thinking such as written expression, reading comprehension of literature, organization, and planning of assignments. Some students have tremendous difficulty learning math skills. Thus persons with significant difficulties relating to others interpersonally often have related academic struggles in the classroom particularly as they get older.

Typically, we start to require more creative thinking, flexibility, and organizational skills to succeed in the classroom curriculum starting in 3rd to 4th grade. Some students begin to show struggles at that time, while others students manage to hold it together until middle school. It is very common for students to develop academic problems only when they get older even when it is determined that this person is “quite bright” according to psycho-educational measures.

### **TEACCH**

Developed in the early 1970s by Eric Schopler, the TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children) approach focuses on the person with autism and designing a program around his/her skills, interests, and needs. Thus, the individual, rather than the instructional method, is the priority.

The program uses structured teaching in a variety of settings. Organizing the physical environment, developing schedules and work systems, making expectations clear and explicit, and using visual materials have been found to be effective ways of developing skills and allowing people with ASD to use these skills independent of direct adult prompting and cueing.

Cultivating strengths and interests, rather than drilling solely on deficits, is another important priority. The relative strengths of those with autism in visual skills, recognizing details, and memory, among other areas, can become the basis of successful adult functioning (Mesibov & Shea, 2006).

### **Communication**

Communication difficulties, both verbal and nonverbal, are inherent in the diagnosis of ASD. The typical sequence of communication development is disrupted. As a result, communication skills can range from nonverbal, gestural and the use of single words, to verbal conversation, and may include:

- ◆ Perseveration - repetitive verbal and physical behaviors.
- ◆ Echolalia - immediate and/or delayed “echoing” of words, music, phrases or sentences.
- ◆ Hyperlexia - precocious knowledge of letters and words or a highly developed ability to recognize words but without full comprehension.
- ◆ Dactolalia - repetition of signs, pronoun reversals, inappropriate responses to yes or no questions, and difficulty responding to “wh” questions.

When designing intervention strategies, it is important to understand both the individual’s receptive (comprehensive) and expressive communication skills. Stressful situations that increase anxiety often interfere with the ability to communicate. Difficulty understanding humor, idioms (“keep your eye on the paper”), sarcasm, and other complex forms of verbal and written expression is common. Even the highly verbal individual may understand and use literal (concrete) language, but have difficulty with abstract concepts needed for higher order thinking skills.

A person's communication ability usually changes over time. Therefore, it is important to maintain an ongoing communication assessment from diagnosis through adulthood as this provides current information, which is necessary to support appropriate communication strategies.

Supporting all forms of communication – verbal, signing, pictorial, augmentative devices (and often a combination of more than one) – promotes learning.

### **Common Communication Options**

#### **Sign Language**

Use of signs alone or paired with speech.

#### **Picture Exchange Communication System (PECS)**

Involves using picture symbols to communicate wants/needs, label and so on. The child goes through a learning process that teaches initiation of communication and then expands to the use of sentences. Many children who use PECS develop some verbal skills and may graduate to speech as the primary form of communication.

#### **Communication Boards**

Can be made with pictures of objects that the child points to or removes from the board to communicate wants/needs.

#### **Other Communication Devices**

A wide range of devices designed to enable the user to create longer messages. These devices can also act as a universal remote, allowing the user to operate electronic devices in the environment such as the TV, lights, and so on. The speech-language therapist can assess the child's abilities to use high-technology devices and make recommendations about the type of device best suited for the individual's needs.

#### **Total Communication**

A communication system that pairs simultaneous production of speech with manual signs or another augmentative devices or symbol systems. The child is encouraged to use the word or phrase that he is capable of producing and supplementing communication with signs, symbols, and so on, for what he cannot communicate verbally.