# A Summary of Autism Teaching Methodologies

**A Description of Autism Methodologies, Autism Teaching Methods is excerpted from Dave Sherman's book, *Autism: Asserting Your Child's Rights to a Special Education***
The text below has been reformatted from the book to make it easier to read on this web site.

## Autism Methodologies

Autism is a complex disorder that can take many forms. The laws applicable to autism are also complex. There are a number of autism programs. Each child with autism is unique and truly needs a program tailored to suit his or her needs.

Parents of a child with autism need to be self-educated about the law, the disability itself, and learn which programs work for their child. It is recommended that parents become familiar with the most common autism methodologies.

As recommended in Chapter 1, parents of children with autism should read books, articles and search the Internet for information, as well as talk to other parents of children with autism. Joining an autism support group can also be informative and consoling and help parents learn the most effective teaching methods for their child.

The purpose of this book is not to educate the reader about the methodologies and programs used to educate children with autism. There are many books addressing those issues. However, to understand your legal rights, you need to have a basic understanding of the most common methodologies. The following is a brief description.

Some believe that ABA methodology to be the most successful with many children. Others are firm believers in TEACCH or one of the other methodologies. The law is that the methodology chosen by the IEP team should be appropriate and provide educational benefit. *School Bd. of Henrico County VA v. Z.P.* (4th Cir. 2005)

In some cases, a child with autism needs an integration of several methodologies to obtain an appropriate education. For instance, the Picture Exchange Communication System (PECS) can be taught using principals of applied behavior analysis and discrete trial training. Thus, teachers and parents of children with autism need to have knowledge of the various methodologies so that they can determine how to address the unique needs of the child. (See National Research Council in *Educating Children with Autism*. P. 187, 225,)

The mix of methodologies should be based on information about the child's learning readiness, capacity to generalize learning-readiness skills to more independent settings, and mastery of the curriculum content. (Siegel, *Helping Children with Autism Learn, P. 441*.)

It is important for teachers and parents to know the different methodologies because the child's unique needs will change with time, and the methodologies that are appropriate to

teach the child may also need to change. By learning about the different autism methodologies, you can help ensure that your child will receive an appropriate education.
To help understand the history of the development of teaching methods for children with autism, a brief history of behaviorism is helpful. Many of the autism methodologies are derived from the works of Pavlov, Watson and Skinner, the founders of behaviorist psychology. According to Pavlovian theory, conditioning is a fundamental building block of learning. Both animals and humans adapt to their environment through positive and negative experiences. Pavlov introduced the concept of "conditioned response." Watson applied the theory to humans.

Skinner found that the human response is voluntarily controlled. Skinner determined that a desired behavior can be achieved by rewarding a random behavior that leads to a desired behavior. This process is called "operant conditioning." To put it another way, operant conditioning is the theory that to achieve a desired behavior, there is an antecedent stimulus that can influence the response, which in turn leads to the consequence. The consequence can be positive, or can be negative (aversive).
For example, a child with autism is shown a picture of a ball. (the antecedent stimulus.) The student hands the teacher a ball. (the operative response). The child is given a jellybean. (the positive consequence or reinforcement).

Ivar Lovaas applied these theories to children with autism in a form of what is called applied behavior analysis. Lovass taught children with autism using the basic principals of behaviorist psychology for up to forty hours a week and reported exceptional results. His work provided a foundation for other professionals to develop variations of ABA therapies and other teaching methods for children with autism.

As children with autism responded to different teaching methods in varying degrees, other methodologies were developed. At this time, many autism experts recognize that a child with autism will need different blends of methodologies as the child develops. Some of these methodologies have their roots in behaviorism; others do not.

## A Brief Description of the Most Common Methodologies and Non-Medicinal Treatments (and a Few of the Less Common Ones)

## Applied Behavior Analysis (ABA)

### What are the key features of Applied Behavior Analysis? Here is how the Cambridge Center for Behavioral Studies describes ABA:

- The person's behavior is assessed through observations that focus on exactly what the person does, when the person does it, at what rate, and what happens before (antecedents) and what happens after behavior (consequences). Strengths and weaknesses are specified in this way.
- Skills that the person does not demonstrate are broken down into small steps.

- To teach each step:
- A - give a clear instruction, provide assistance in following the instruction (for example "prompt" by demonstration or physical guidance), and use materials that are at the person's level.
- B - get a correct response.
- C - give a positive reinforcer (A consequence that will lead the person to do the behavior again in the future.)
- Many opportunities or trials are given repeatedly in structured teaching situations and in the course of everyday activities.
- Instruction emphasizes teaching a person how to learn -- to listen, to watch, to imitate.
- As the person progresses, guidance is systematically reduced so that the person is responding independently; prompts are faded out.
- As steps are acquired, the person is taught to combine them in more complex ways and to practice them in more situations.
- Problem behavior is not reinforced. The person is not allowed to escape from learning and is redirected to engage in appropriate behavior.
- The person's responses during every lesson are recorded. These data are used to determine if he or she is progressing at an acceptable rate. If not, that part of the program needs changing.
- The "therapist's" (teacher's, parent's) behavior is also observed continuously at first and then less frequently and as needed to ensure that procedures are being applied correctly and safely.
- Recording client and therapist behavior is essential because we need to SEE that the program is working as well as it can be. Even highly experienced behavior analysts need feedback in the form of detailed, rigorous performance data.
- Observing therapist behavior tells us that the procedures are being followed correctly and consistently.
- The information adds to our knowledge about the effectiveness of procedures and how to avoid and overcome problems that may arise in practice.

Permission from Dr. Dwight Harshbarger, Executive Director of the Cambridge Center for Behavioral Studies, http://www.behavior.org/
There are a number of methodologies that are offshoots or refinements of ABA: discrete trial training, pivotal response training, LOVAAS, and others.

## Discrete Trial Training (DTT)

Discrete Trial Training is a form of ABA. It is a short, instructional training that breaks down an activity into three distinct components: (1) an instruction by the teacher or therapist (2) a response or behavior of the child and a (3) a consequence. (The consequence is what happens to the child following a behavior.)
Many discrete trial programs rely heavily on directions or commands as the signal to begin the discrete trial. In the beginning, an edible treat, affection, praise or another reward is often

given the child as the consequence. DTT programs sometimes used aversives (punishment) in the past. In general, if an aversive is used today, it will be very minor such as saying "No!"

In Discrete Trial Training (DTT), the beginning lessons center around basic functions. Children learn to attend, to control tantrums and other maladaptive behaviors. At the same time, they are taught positive behaviors, such as "Look at my eyes."
After an instruction, if the child responds appropriately, he may be given an favorite edible. As the program progresses, the rewards can be changed to social reinforcers such as hugs or praise. DTT is a methodology that is teacher directed, with the child following the lead of the instructor. Often DTT programs can be up to forty hours a week of one-on-one training. As the program progresses, simple lessons are combined to teach more complex tasks and social behavior.

## Shaping and Chaining

Shaping and Chaining is a method of discrete trial training where the teacher does not wait for the child to actually complete the whole desired behavior. If the child partially completes the behavior or makes a move or effort towards the desired behavior, the child is rewarded. Chaining is putting the small subparts together to obtain the desired behavior. Shaping and chaining is often used with severely autistic children.
While DTT is based upon principles of learning theory and has been demonstrated to be an effective intervention methodology, it represents only one of dozens of teaching strategies within the field of ABA. ABA methods of teaching can be used with PECS (Picture Exchange Communication System), photo activity schedules, naturalistic learning, pivotal response, chaining and shaping, graduated guidance, and functional communication training.

## Pivotal Response Training (PRT)

The following description of PRT was provided by Lynn Kern Koegel, Ph.D. Clinical Director, Autism Research and Training Center, University of California, Santa Barbara
and written by doctoral student Ty Vernon. www.education.ucsb.edu/autism
Pivotal Response Treatment (PRT) is a naturalistic intervention model derived from ABA approaches. Rather than target individual behaviors one at a time, PRT targets pivotal areas of a child's development, such as motivation, responsivity to multiple cues, self-management, and social initiations. By targeting these critical areas, PRT results in widespread, collateral improvements in other social, communicative, and behavioral areas are not specifically targeted.

The underlying motivational strategies of PRT are incorporated throughout intervention as often as possible, and they include child choice, task variation, interspersing maintenance tasks, rewarding attempts, and the use of direct and natural reinforcers. The child plays a crucial role in determining the activities and objects that will be used in the PRT exchange. Intentful attempts at the target behavior are rewarded with a natural reinforcer (e.g., if a child attempts a request for a stuffed animal, the child receives the animal, not a piece of candy or

other unrelated reinforcer). Pivotal Response Treatment is used to teach language, decrease disruptive/self-stimlutory behaviors, and increase social, communication, and academic skills.

Comparing DTT and PRT: DTT breaks a skill into smaller parts teaching each subpart one at a time. PRT focuses on strategies that motivate the child to attempt the larger task, and by reinforcing these attempts, the child's rate of responsivity is improved. Further, studies show that child affect improves using the motivational procedures. DTT is more structured and often uses flash cards and drill-type activities, wherein PRT uses activities found in the child's everyday environment with task variation, in addition to following the lead of the child. DTT uses a reinforcer not necessarily related to the task (such as a small edible).

## LOVAAS

Dr. Lovaas, the most famous autism researcher, began using a form of ABA almost twenty years ago to teach children diagnosed with autism. Dr. Lovaas published a study in 1987 showing that 40 hours per week of one on one therapy could be very successful with children with autism. LOVAAS is not synonymous with ABA; it is a particular type of ABA therapy.

## Natural Environment Training, Naturalistic Learning

### Using the child's interests as a guide to or initiate teaching and instruction.

This method generally is used in conjunction with DTT - ABA and uses the child's immediate interests and activities as a reward. Generally, naturalistic learning is provided in the child's natural environment.

## TEACCH

(The description of TEACCH was provided by Dr. Gary Mesibov. www.teacch.com)
The TEACCH program was started at the University of North Carolina. A TEACCH program is usually very structured, with separate areas for each different activity.
Structured teaching is an important priority... Organizing the physical environment, developing schedules and work systems, making expectations clear and explicit, and using visual materials have been effective ways of developing skills and allowing people with autism to use these skills independently of direct adult prompting and cueing. These priorities are especially important for students with autism who are frequently held back by their inability to work independently in a variety of situations. Structured teaching says nothing about where people with autism should be educated; this is a decision based on the skills and needs of each individual student. Some can work effectively and benefit from regular educational programs, while others will need special classrooms for part or all of the day where the physical environment, curriculum, and personnel can be organized and manipulated to reflect individual needs. TEACCH modifies materials to make them clearer and more meaningful, especially for students who can function in more inclusive settings. The program uses visual aids, such as pictures. Pictures may be combined with words or a symbol. Many children with autism have

significant language problems and the TEACCH method enables them to communicate using picture squares.

## DIR/Floortime

Description of the DIR - Developmental, Individual Difference/Floortime was provided by Dr. Barbara Kalmanson, Clinical Psychologist, Senior Floortime/DIR clinician.

DIR is a comprehensive, intensive, interdisciplinary approach to intervention focused on the central importance of emotions and relationships in learning and development. DIR systematically addresses the core issues in autistic spectrum disorders through an array of family focused interventions designed to build the child's capacities to relate, communicate, think symbolically and process sensory information. In a DIR intervention, practitioners from health, mental health, sensory integration oriented occupational therapy, pragmatic speech and language therapy, and special education work together with the family. Intervention goals target the child's emotional and social connection to family, primary caregivers and peers; reading and responding to social signals with empathy and self- awareness; and creative and reflective thinking and complex problem solving. Through systematic observation of the child in his or her natural environment and in interaction with family members, a DIR assessment identifies the child's developmental level of emotional and intellectual functioning (D); determines his individual way of reacting to and comprehending movement, sounds, sights, and other sensations (I); and formulates methods for learning through relationships and interactions at home, in school, and in different therapies (R). The DIR model organizes interventions around the following well -researched stages of infant and early childhood development:

1. Regulation and attention (the ability to stay calm and observe the surrounding environment)
2. Engagement (an emotional connection to family members and other caregivers)
3. Reciprocal emotional signaling (initiating and responding in a back and forth manner with gestures and vocalizations)
4. Shared social problem solving (multiple back and forth gestures to communicate intentions and needs)
5. Creating ideas (pretend play)
6. Connecting ideas logically (abstract and sequential thinking)

Each intervention program is based on the child's individual sensory and developmental profile. Services vary depending upon the child's age, cognitive and language abilities, social and emotional needs, and the family's priorities. Interventions utilize structured, semi-structured and open- ended play activities. Floortime is an important component of all DIR interventions. Through Floortime play experiences the family members learn how to draw the child into emotionally satisfying, meaningful interactions by appealing to his or her natural interests and behaviors. Floortime helps the child become capable of warm reciprocal relationships, spontaneous self-expression, curiosity, flexibility and abstract thinking.

## Play Therapy

Playing with the child while talking to the child and attempting to establish oral communication.

## Picture Exchange Communication Systems (PECS)

PECS is a system that allows the child to communicate using pictures. As the child progresses, the pictures are replaced by symbols and then the symbols are combined to make simple sentences. Children with autism that have speech development problems often benefit by this program. Many times the PECS system is used in conjunction with ABA. PECS can be especially effective with nonverbal children.

## Sensory Integration Therapy

Sensory Integration Therapy is generally applied by an occupational therapist or a physical therapist. Children with autism often have one or more senses that are either over or under-stimulated. When such a condition exists, the child may exhibit symptoms, such as spinning, hand flapping, rocking, or other repetitive motions. Other symptoms include over-sensitivity to touch, sound, smell, or taste. Some children with autism do not like to wear a certain kind of clothing because of the feel. Sometimes a child may dislike dirty hands. Others are overly sensitive to touch, temperature, or pain. Conversely, some children with autism seem to be oblivious to pain. Some types of sensory integration therapy address hearing, or other ear problems that affect balance. An ear problem can affect playing on playground equipment, climbing hills or stairs, and other movements. Sometimes children with autism constantly want to jump or spin. Often, occupational therapists or physical therapists provide services to the child in conjunction with ABA or other therapies.

1. The Tomatis program uses vocal exercises to help children with autism develop self-listening to foster communication. One exercise is for the children to talk into a microphone. Through a feedback loop, they hear their own voice coming back into their ear through a vibrator situated on the skull. For some children, this makes it possible for them to feel their body, and build their ability to produce sounds, which can lead to language. Giving a child the ability to produce sounds in a controlled way, can also lead to a sense of self.
2. Berard uses another form of sensory integration that randomly selects high and low frequencies from a music source and sends them the sounds to headphones and into the ears of the trainee.

### Social Stories

Social stories are short stories or cartoons that teach children with autism socially acceptable behaviors to help them understand their own behaviors and the behaviors of others. For instance, a story might be about how everyone gets angry from time to time. The purpose of the story is that it is OK to be angry and that an appropriate response is to say, "I am angry."

It also shows that it is OK to find a teacher or parent and tell the teacher or parent that the child is angry.
Carol Gray is recognized for developing this methodology that is often used with high functioning children with autism. (More examples of social stories can be found at www.Polyxo.com) Younger children may be shown cartoons to tell the story.

## Relationship Development Intervention (RDI)

The following description of RDI was provided by Dr. Steven Gutstein.

The goal of RDI is to provide individuals with ASD the cognitive, emotional, communicative and social tools needed to obtain a quality of life which their disorder typically deprives them. RDI™ is a remediation and not a compensation program. The aim is to build new neurological patterns and pathways. The assumption in RDI is that there was no reason to assume a priori that the brains of people with ASD are more resistant to modification than other groups.

RDI objectives are chosen based on a careful review of research findings in typical child development and in the critical differences in the development of children with Autism Spectrum Disorders. A treatment objective is chosen only when there is a research consensus concluding that the deficit area is universal to people with ASD and is an essential building block to eventual quality of life.

RDI is a family-centered treatment program. The bulk of treatment resources are invested in preparing and training parents of ASD children to act as "participant" guides, creating daily opportunities for their child to increase competencies in increasingly challenging settings, characterized by ongoing variation and non-linear, unpredictable change. Both fathers and mothers are essential participants

Parents are trained to implement RDI in the course of daily activities throughout the day. Parent education is conducted through small-group seminars and support groups, regular consultant modeling and guiding sessions (averaging twice per month), periodic evaluation and planning sessions, involvement with "veteran" parents and twice monthly videotaped evaluations of samples of their performance. Through this process, parents learn to implement the following critical steps of coaching:

1. Slowing down and amplifying the parent-child information feedback system, so that both parents and children can more easily understand each other's actions.
2. Altering the communication environment to emphasize "mindful" communication with the goal of quality of communication and "broadband" verbal & non-verbal communication replacing quantitative production of speech.
3. Carefully framing all daily activities to enhance their potential to provide safe, but challenging opportunities for mental discovery based upon the child's developmental readiness.

4. Requiring the child to gradually engage in a greater percentage of the ongoing co-regulation of interaction, where each partner evaluates and adapts his or her actions on a moment-to-moment basis, based on the prior and anticipated actions of the other participants.
5. Spotlighting critical moments of competence in the face of uncertainty, to increase the child's likelihood of episodic memory retention.
6. Generalizing the guided participation process into everyday family life and then into new and more complex settings.

## Music Therapy

Music Therapy is a therapy that uses music to treat behavioral, social, psychological, communicative, physical, sensory-motor, and/or cognitive functioning.

## Animal Therapy

Dolphins, horses, and dogs are sometimes used to establish contact with the child and a relationship between the animal, child and teacher or parent.

Whichever methodologies are used to educate your child, you should have a measuring stick in place that will show whether or not the program is effective and whether your child is making progress. The National Research Council recommends that a data collection system be in place. The article below addresses some things that you can do to "test" your child's treatment or program.

## How Do You Know if the Methodology, Autism Program or Treatment is Really Working for Your Child

(The following article was written by Stephen M. Edelson, Ph.D. Center for the Study of Autism, Salem, Oregon. It appears on his website http://www.autism.org/determine.html under the title *How to Determine If a Treatment Really Helped*. *Treating Autism, Parent Stories of Hope* *and Success* Edited by Stephen M. Edelson, Ph.D. and Bernard Rimland, Ph.D. It can be purchased at http://www.treatingautism.com/ ) This article has been reformatted to conform with the formatting used in this book.

There are many types of interventions available today for autistic individuals, including nutritional, biomedical, educational, sensory, and behavioral. When beginning a new intervention, it is important to be as objective as possible to determine whether the treatment truly helped the person. If the treatment is not helping, then it does not make sense to continue it especially if it involves a great deal of time, money, or effort.
When deciding to try a new treatment, whether 'proven' or not, here are a few tips to help determine whether the person may have improved from the specific treatment:
When a parent begins to learn about all of the various treatments given to autistic children, he/she sometimes tries many at once in order to see improvement as soon as possible.

However, if the child improves after receiving several treatments, it will be impossible to determine which one(s) really made a difference. A general rule is to try a treatment for about two months before beginning a new one, to determine whether or not the treatment was helpful.

When a parent begins to learn about all of the various treatments given to autistic children, he/she sometimes tries many at once in order to see improvement as soon as possible. However, if the child improves after receiving several treatments, it will be impossible to determine which one(s) really made a difference. A general rule is to try a treatment for about two months before beginning a new one, to determine whether or not the treatment was helpful. However, if it is quite clear that the child improved from a treatment, even after a week or two, then another treatment can be started.
Parents should consider completing the Autism Treatment Evaluation Checklist (ATEC) monthly for a few months prior to the intervention and then monthly following the intervention. The ATEC was designed specially to evaluate treatment effectiveness. If improvement occurs due to maturation, then one typically sees gradual improvement over time. However, if there is a sharp improvement after the intervention is started, then the treatment may be helping. There is no charge for use of the ATEC. You can complete the checklist on the Internet at: www.autism.com/atec or obtain a hardcopy of the checklist by writing to the Autism Research Institute (4182 Adams Ave., San Diego, CA 92116; fax: 619-563-6840).

If at all possible, tell no one when a child starts a new treatment. This includes teachers, friends, neighbors, and relatives. If there is a noteworthy change in the child, it is likely that the people who come in contact with the child will say something about the improvement. It is also a good idea not to ask "Have you noticed any changes in my child?" In this way, any spontaneous statements regarding the child's improvement will be credible.

People who do know that the child received a specific treatment can, independently, compile a list of what changes they have noticed in the child. After a month or two, you can compare their observations. If similar changes are observed by different people, then there is a reasonable chance that these changes are real. It is important they these observations be written down; otherwise, when appropriate behaviors replace inappropriate ones, you may not remember what the child's behavior was like before the treatment, especially if the behavior was an undesirable one.

Parents and others should note in writing when the child's behavior ‘surprises' them. Basically, parents usually know how their child will respond in various situations; and once in a while, their child may do something that is unexpected. If a child improves soon after an intervention is begun, one can assume that the child will act differently than before; and his/her behavior will likely lead to more ‘surprises' than usual-hopefully good ones!

Some people suggest that parents should give their children only treatments for which there are ample research evidence to support their effectiveness. However, when a relatively new treatment is introduced, there will likely be a limited amount of research, if any, on its

effectiveness. It takes, on average, 5 to 10 years to complete enough research to support or refute an intervention's efficacy. Additionally, chances are fairly good that even after 10 years, the results will be mixed, because researchers often use different populations and assess changes using different measures.

Be leery of any treatment if it has been around for ten or more years, and there are no research studies to support its effectiveness. For example, Ritalin is one of the most frequently prescribed treatments for autism, but we are not aware of any published studies supporting its effectiveness with this population.

## Evaluating New Treatments Before Implementation

Before trying a new treatment, learn as much as possible about the treatment. Rather than just focusing on positive reports, it is also important to seek out criticisms of the treatment. When evaluating conflicting claims, look to the nature of the studies and their methodologies--poorly conducted studies should not be given the same credence as methodologically sound research.

It is important to keep in mind that no treatment will help everyone with autism. Although one child may have improved dramatically from a certain treatment, another child, even with similar characteristics, may not benefit from the same treatment. Careful observation along with a critical perspective will allow parents and others to decide whether or not a treatment is truly beneficial.

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*This article has been compiled by V. Henderson.*