AUTISTIC BEHAVIOR

Teaching Tips from a Recovered Autistic

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Editor's Note: Focus on Autistic Behavior has heretofore been written by professionals in the education and treatment of children and youth with autism. The present issue is an exception. Temple Grandin bases her insights and suggestions on personal experiences. As a child she was diagnosed as having autism. In spite of her disability, however, she is currently a successful professional who leads a productive and independent life.

I am deeply grateful to the dedicated teachers and therapists who worked with me. They were responsible for my recovery, and their importance cannot be overemphasized. I was lucky enough to have the right people working with me at an early age. By the time I was 2 1/2, my mother realized there was something dreadfully wrong; I had no speech and screamed constantly

I had most of the standard autistic symptoms, such as fixation on spinning objects, refusing to be touched, tantrums, inability to speak, sensitivity to loud noises, lack of eye contact, and an intense interest in odors. I appeared to be deaf, but tests indicated that my hearing was normal. Fortunately, a wise doctor recommended that I have "normal therapy" and not be sent to an institution. The doctor recommended a speech therapist who had a private practice in her home. Along with practicing speech therapy, she ran a nursery school for both normal and handicapped children. During the morning nursery school, she took each child into another room for speech.

The common denominator of many successful autism treatment programs is early intense intervention and mainstreaming with normal children. Autistics need normal children as models for behavior. For best results, treatment should start by age 3, but good results can be obtained with older children. There is a tendency among professionals to think that their own methodology has the "special magic." In many instances the real magic that makes a program effective is early intense intervention in a structured environment, meaningful contact with normal children, and plenty of structured physical activity. Successful programs, such as that of Lovaas at UCLA, the Higashi School in Japan, and that of Lorna King in Phoenix, all have these crucial qualities. Even though the theoretical basis of these three programs is different, the positive results are similar.

STRUCTURED ENVIRONMENT

Structured environment is important for autistic children. The structured activities at the speech therapy nursery school I attended ranged from coloring to marching around the building with flags.

Another person helpful in my recovery was a governess hired by my mother when I was 3. She was an older woman, and she expected children to behave. In my book (*Emergence Labelled Autistic*, 1986), I do not give her enough credit. Sometimes she was too stern, but on the whole she did much more good than harm. The most important thing she did was to give my normal younger sister and me approximately 8 hours of her undivided attention every day.

The day consisted of structured activities, which ranged from skating and swinging to painting. Our governess would actually do all the activities with us. When we skated, she skated, and when we painted, she painted. She also conducted musical activities. While she played the piano, we marched around with toy drums or sang. Two or three hours a day were spent doing physical and musical activities. A strong emphasis on these types of activities is an important part of a successful autism program. Exercise and physical

activity have a calming effect on autistic children. Jogging reduces self-stimulation, whereas watching television does not.

Musical activities are important. In some cases a child who is unable to speak can sing. Therapists have found that singing directions to autistic children is sometimes more effective than speaking them. Some autistic children can sing a response when they are unable to speak it.

LEARNING TO TALK

I screamed because it was the only way I could communicate. When adults spoke directly to me, I could understand everything they said. When adults talked among themselves, it sounded like gibberish. I had the words I wanted to say in my mind, but I just could not get them out; it was like a big stutter. When my mother wanted me to do something, I often screamed. If something bothered me, I screamed. This was the only way I could express my displeasure. If I did not want to wear a hat, the only way I could communicate my desire not to wear the hat was to throw it on the floor and scream. Being unable to talk was utter frustration. I screamed every time my teacher pointed the pointer toward me. I was afraid because I had been taught at home never to point a sharp object at a person. I feared that the pointer would poke out my eye.

An observant teacher can differentiate between screaming to communicate and screaming to avoid doing a task the child does not want to do. If a child screams or spits during a lesson, the teacher must keep on teaching as if nothing has happened. If teaching is stopped, it reinforces bad behavior. If a child hits during teaching, just block the hit and keep on teaching. Sometimes I would have a tantrum just to see the adults get mad.

The speech therapist had to put me in a slight stress state so I could get the words out. She would gently hold me by the chin and make me look at her and then ask me to make certain sounds. She knew just how much to intrude. If she pushed too hard I would have a tantrum; if she did not push enough there was no progress. During recent visits to autism programs, I have observed this technique being used in many different types of programs.

RHYTHM

Rhythmic activities with musical instruments can be very helpful. Many autistics have problems with rhythm. I can generate a rhythm by myself, but I am unable to synchronize my rhythm with somebody else's rhythm. When people are clapping in time to the music at a concert, I am unable to synchronize my claps with them. The rhythm problems some autistics have may be related to speech problems. Research has shown that normal babies move in synchronization with adult speech (Condon & Sander, 1974). Autistics fail to do this.

As an adult I find it difficult to determine exactly when I should break into a conversation. I cannot follow the rhythmic give and take of conversation. People have told me that I often interrupt, and I still have difficulty determining where the pauses are.

Occupational therapists have found that speech can sometimes be induced in a mute child if speech therapy is conducted while the child is swinging slowly on a swing. Oscillating motion stimulates the vestibular system and the cerebellum. *Never* force a child to swing. Forced vestibular stimulation can be dangerous. Swinging must be done as a fun game. If it ceases to be fun, stop immediately.

SENSORY PROBLEMS

Many teachers fail to recognize the sensory problems many autistics have. I was very sensitive to loud noise. The governess used to force me to sit on a ferryboat deck near the ship's horn. When the horn blasted it was like a jet engine going through my head, and it hurt my ears like a dentist's drill hitting a nerve. The pain caused me to scream and throw myself on the floor.

I cannot use telephones in a noisy environment

The most common sensory difficulties occur with the auditory and tactile senses. Noise was a major problem for me. When I was confronted with loud or confusing noise, I could not modulate it. I either had to shut it all out and withdraw, or let it all in like a freight train. To avoid its onslaught, I would often withdraw and shut the world out. As an adult, I still have problems modulating auditory input. When I use telephones at the airport I am unable to screen out the background noise without screening out the voice on the phone. Other people can use telephones in a noisy environment, but I cannot, even though my hearing is normal. When I was a child, noisy birthday parties were unbearable when all the noisemakers were set off.

Autistics must be protected from noises that disturb them. If children scream when a loud noise occurs, they are attempting to communicate that the noise is distressing. The noise is blasting through an immature or damaged nervous system. They will never learn to tolerate such noises. As children mature, their nervous systems may be able to tolerate noises that caused earlier distress. Loud, sudden noises still startle me. My reaction to them is more intense than other people's. I still hate balloons, because I never know when one will pop and make me jump. Sustained high-pitched motor noises, such as hairdryers and bathroom vent fans, still bother me, lower frequency motor noises do not. The types of noise that will upset an autistic child will vary from child to child. A teacher must be observant to determine the types of noise that will cause problems, and the child must be shielded from them. All the behavior modification in the world will not teach a child to tolerate a noise that is overloading a damaged nervous system.

Confusing, noisy places often cause problems. The classroom should be quiet and free from distracting noises, such as a high-pitched vent fan. Some teachers have found that disturbing noises can be blocked out with headphones and music. When a child has to make a trip to a busy shopping center, a headset with a favorite tape can help make the trip more peaceful.

My mother, my teachers, and the governess did all the right things, except that they were not aware of my sensory problems. If they had known about them, temper tantrums and other bad behavior would have been reduced even further. When the governess discovered that loud noise bothered me, she punished me when I was bad by popping a paper bag near me. This was torture. Painful or distressing sensory stimulation should never be used as a punishment. I was terrified of anything that might make a sudden, unexpected loud noise.

Some episodes of bad behavior were directly caused by sensory difficulties. I often misbehaved in church and screamed because my Sunday clothes felt different. During cold weather when I had to walk outside in a skirt my legs hurt. Scratchy petticoats drove me crazy; a feeling that would be insignificant to most people may feel like sandpaper rubbing the skin raw to an autistic child. Certain types of stimulation are greatly

overamplified by a damaged nervous system. The problem could have been solved by finding Sunday clothes that felt the same as everyday clothes. As an adult, I am often extremely uncomfortable if I have to wear a new type of underwear. Most people habituate to different types of clothes, but I keep feeling them for hours. Today I buy everyday clothes and good clothes that feel the same.

If a child screams during lessons to avoid doing them, it is appropriate to ignore it. If an autistic child screams because distressful stimuli are flooding his or her nervous system, the teacher must find out what is bothering the child. It is impossible for children to learn if they are bombarded with confusing, irritating stimuli they are unable to screen out. If clothes bother them, steps need to be taken to find less irritating clothes. Unlike auditory sensory problems, tactual sensory problems can be desensitized. Occupational therapists trained in sensory integration have developed useful methods to train autistic children to tolerate different tactual stimuli.

REDUCING AROUSAL

Some autistics have an overaroused nervous system. Brain scans have found indications of cerebellar abnormalities and an overaroused brain (Courchesne et al., 1987; Rumsey et al., 1985). Exercise and certain types of sensory input will reduce arousal and make a child less hyperactive. I visited the Japanese Higashi School, which recently opened in Boston. I was impressed by the calmness of the autistic children. Three hours of structured physical and musical activity every day had a calming effect.

Deep pressure and vestibular stimulation are also very calming (Ayres, 1979). Bhatara et al. (1981) found that spinning hyperactive boys twice weekly in an office chair reduced hyperactivity. If you use this treatment, never force it on a child. Forced vestibular stimulation can cause seizures. The child must have control of the duration and intensity of the stimulation and be able to stop it instantly. Consult with an occupational therapist or other qualified professional before spinning a child.

I craved deep-pressure stimulation. I used to get under the sofa cushions and have my sister sit on them. Pressure had a very calming and relaxing effect. Animal and human studies have shown that pressure reduces arousal in the nervous system (Kumazawa, 1963; Takagi & Kobagasi, 1956), and many parents and teachers have commented on autistics' craving for deep pressure.

I would pull away and stiffen when hugged, but I craved back rubs. Rubbing the skin has a calming effect. A young autistic adult confined to the violent ward was able to attend class after his therapist gave him sensory input by rubbing his skin with different cloth textures and soft brushes. Lee Neill, a teacher in California, found that some autistic children were calmer if the tops of their desks were covered with sheepskin; while the child does his lessons, he can rub his arms on the sheepskin.

As a child, I loved crawling into small, snug spaces. I felt secure, relaxed, and safe. Lee Neill reported that her wildest autistic child was calm when he sat in the coat closet with coats on top of him. She has lined barrels with thick carpet for her children to use as reading "nooks."

At age 8, I was hyperactive, but I did not feel anxious. When puberty arrived, I started having anxiety, which felt like the worst "nerves" during final exams. I was nervous every day for no reason. Pressure and vestibular stimulation calmed my nerves. After riding on the "Rotor" at the carnival, I felt relaxed and calmed for an hour. This ride provided intense vestibular and pressure stimulation.

At puberty I was desperate for relief from the "nerves." I was backsliding and losing the gains I had made in elementary school. At my aunt's ranch, I observed that

*Physical and musical activity
had a calming effect*

the cattle sometimes appeared to relax when they were held in the squeeze chute, a device for holding cattle for veterinary procedures. The animal is held tightly between two sides, which squeeze the body. After a horrible bout of the "nerves," I got in the squeeze chute. For about 45 minutes I was much calmer. I then built a squeeze-chute-like device, which I could use to apply pressure (which I controlled).

Sensory methods of reducing nervous system arousal and physical activity should be used before a child is put on drugs. I was given no drugs for autism as a child, because they had not been invented. Prescribing drugs for young children should be avoided if possible. Sensory treatment in conjunction with traditional behavioral approaches is probably more effective than behavioral methods alone.

TACTILE STIMULATION

One of the first signs of autism is a baby that pulls away when touched. Tactual defensiveness should be broken down gently. Stimulation should not be forced but gently and gradually encouraged. There has been a lot of publicity recently about holding therapy, in which the child is forcibly held until he or she stops resisting. This procedure is stressful for both the child and the parents. In some cases holding therapy has been beneficial, but similar or better results can be obtained by breaking down the barrier of tactual defensiveness more gently. Powers and Thorworth (1985) found that eye contact and interest in people were improved after a gentler behavioral method was used. In one case, a young boy was held in a light hug until crying lessened. As soon as crying was reduced, the boy was released. Gradually the amount of holding time required to earn free time was increased.

Rubbing the child's skin with different fabric and fur textures can increase tolerance to touching. Simple activities such as getting under beanbag chairs or rolling up in a mat is calming. At first the child may try to pull away, but gradually he or she will accept and enjoy the stimulation. Calming sensory activities immediately prior to school lessons or speech therapy may help to improve learning. These activities should be conducted as fun games. Children will often seek the type of stimulation they find most calming.

FIXATIONS

A review of the literature indicates that some successful high-functioning autistics have directed their childhood fixations into careers (Simons, 1974). Bemporad (1979) reported a case in which a childhood fixation for arithmetic formed the basis of a career of preparing fiscal efficiency reports. Kanner identified autism in 1943, and he followed up his original 11 cases in 1971 to see what had happened to them. There were six failures, two unknowns, one partial recovery, and two successes. The most successful individual, who had a childhood fixation with counting, works as a bank teller. In the fourth grade, my fixation was election posters, buttons, and bumper stickers. At that time, I thoroughly disliked social studies and had little comprehension of how government worked. My fixation should have been drawn on to motivate study in history, social studies, and math. For example, the state capital was only 15 miles from my home, yet no one took me there. A tour of the legislature would have stimulated interest if I had seen in person the people I had previously learned to recognize on posters. Math could have been used in an assignment calculating Electoral College points. I could have been given reading assignments in newspapers and magazines throughout the course of an election. If a child is interested in vacuum cleaners, reading could be motivated by using a vacuum cleaner instruction book as a reading text. Principles of science and physics could be taught by learning how the vacuum cleaner motor works.

Another of my fixations was automatic sliding doors in supermarkets and airports. A

teacher might wonder, "How can I use math, science, and English in a door fixation?" At the elementary level, tasks could be simple, such as requesting the door company to send its catalog. Adults might think such a catalog boring, but the autistic child with a door fixation would find it fascinating. Math and geography could be involved by asking the child to find the door company on a map and measure the miles to it from the school.

I have made a successful career based on my fixation with cattle squeeze chutes. I have designed livestock handling systems for major ranches and meat companies all over the world. When I was in high school, many of my teachers and psychologists wanted to get rid of my fixation on cattle chutes. I am indebted to Mr. Carlock, my high school science teacher. He suggested that I read psychology journals and study so I could learn why the cattle chute had a relaxing effect. If my fixation had been taken away, I could have ended up in an institution. Do not confuse fixations with stereotyped behavior, such as hand flapping or rocking. A fixation is an interest in something external that should be directed and used to motivate.

VISUAL THINKING

My career makes the best use of my talents. All of my thinking is visual, and I have problems handling long strings of sequential verbal information. Written directions are easier for me to follow than oral. If I ask for directions at a gas station, I have to write them down if there are more than three steps. Everything that I remember is a visual image.

Drawing elaborate drawings of steel and concrete livestock stockyards is easy. I am able to visualize a motion picture of the finished facility in my imagination. When I was a child, my parents and teachers recognized my artistic talents. Talents need to be nurtured and developed.

Nadia, a well-known autistic case, drew wonderful perspective pictures as a child (Seifel, 1977). When she grew up, she stopped drawing. The psychologists said she lost the talent. I think that is rubbish. The book describes how she drew pictures on paper napkins and other waste papers. Her teachers should have given her proper drawing and painting materials. Another autistic man in England was more fortunate. His parents nurtured his artistic talent, and he sells his pictures around the world.

When I first started drawing livestock facilities, my drafting was terrible. Even though the talent was there, it took time to develop. If an autistic student shows a talent for art or music, the talent must be nurtured like a delicate flower. If numbers are the talent area, then activities such as math and computer programming should be encouraged. Talents will wither away unless they are used, but a talent can be revived by a dedicated teacher.

In the area of visualization I have superior talents, but trying to pass a statistics course was a disaster. I still have severe deficits. The problem is that I am unable to hold one piece of information in my mind while I manipulate another. This makes balancing chemical equations and algebra almost impossible.

Recently, I took a series of tests to determine my strong and weak areas. On the spatial relations tests (where you have to rotate a figure in your head), I was at the top of the engineering norms on an untimed test. On a timed test where I was forced to do the problems quickly, I got an average score. I am not a quick thinker; it takes time for the image to form in my imagination. Yet, development of my visualization talent enabled me to become one of the best livestock equipment designers in the world.

*One of the best livestock equipment
designers in the world*

AUTISTIC BEHAVIOR

The Visual and Auditory Learning subtest on the Woodcock Johnson was another disaster. I performed at the second-grade level. In this test I had to learn that some arbitrary symbols had meanings such as "horse" or "grass." I was given a few seconds to learn the symbols and then read back a sentence composed of the symbols. I could not remember the meaning of each symbol. The only symbol I could remember was a triangle which means horse. I visualized the triangle as a flag carried on the horse.

LEARNING TO READ

The reading method whereby a child has to memorize many words would not have worked with me. Words are too abstract to be remembered. I need concrete images. My mother taught me to read with old-fashioned phonics. After laboriously learning the different sounds for different letters, I sounded out the words. Every day she worked with me sounding out the words from a book. She would read a page out loud to get me interested in the story; to find out what happened I had to read the next page myself. Memorizing relatively few sounds was much easier than trying to memorize every word in the book. I read very quickly now, but I still sound words out in my mind. I do not remember nonvisual information. Abstract concepts such as getting along with people have to have a visual image. For example, my visual image for relationships with people is a sliding glass door. If you push on it too hard it will break. To make the abstract concept more real, I would sometimes act it out—for example, by walking through a real sliding door.

MENTOR

Newson, Dawson, and Everard (1982) state that "a skilled and imaginative teacher, prepared to enjoy and be challenged by the child, seems repeatedly to have been a deciding factor in the success and educational placement of those (high-functioning autistic) children." Bemporad (1979) introduces the concept of a supportive "mentor" for an older able autistic. My high school science teacher, Mr. Carlock, was my mentor.

Strict behavior modification methods that work with nonverbal children are useless with a high-functioning older autistic child with normal intelligence. The people who were crucial to my career development were creative, unconventional teachers and friends. Mr. Carlock built upon my strengths. A high-functioning autistic may never be able to fit in with the social whirl, but if they can develop an interesting career they will make social contacts. This is how I make almost all of my social contacts. A high-functioning autistic woman who works doing graphic arts made additional social progress when she showed her paintings at an art show. People respect talent, even though they might think you are "weird." Weirdness is more tolerable because other people like the good music or art an autistic produces. In college, my first breakthrough in social acceptance was after I built the scenery for the college talent show. When I show people my drawings, they become interested in me. I picked a very specialized area and made myself an expert.

With young autistic children, forcing them to comply is appropriate; but with high-functioning autistic teenagers, the emphasis should be on developing their talents and interests into a useful occupation. If the psychologists had succeeded in stomping out my cattle-chute fixation, I would have ended up being nothing. My job is my life, and this is true for many other successful autistics.

ADOLESCENCE

During adolescence some autistics backslide and some improve. At puberty I started having horrible panic and anxiety attacks (Grandin & Scariano, 1986), which made me fearful of change. I never wanted to travel because I was afraid I would have an attack. For

many years I was able to reduce the anxiety by heavy physical activity, by using my squeeze machine, and keeping busy (e.g., making a drawing, typing a paper).

Six years ago the panic attacks and nerves got much worse after a stressful eye operation. I went to the library and read articles in medical journals on the use of antidepressants for panic attacks. The drug Tofranil now provides me relief. Other medications may also be helpful. For instance, Ratey (1987) reported that beta blockers (blood pressure medication) greatly reduced aggressive behavior in some adult autistics. Vitamin B6 and magnesium supplements have also improved behavior. A high percentage of autistics have allergies, and eliminating offending foods from the diet often improves behavior.

CONCLUSION

I cannot over emphasize the important role that good teachers and therapists play in enabling autistics to lead a fuller life. A good autism program needs dedicated people and should use a variety of treatment methods in combination with an intense, structured environment.

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