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# Review 2007

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## **ARTICLE REPRINT**

**Autism: Developing Strengths  
to Achieve Success**  
by Temple Grandin, author

# Autism: Developing Strengths to Achieve Success

by Temple Grandin, author

*The author is, perhaps, the most accomplished and celebrated adult with autism. Here she shares her thoughts on what has made her life successful.*

When I was 2 1/2 years old, I had the full symptoms of autism, including no speech, no eye contact, lots of tantrums and repetitive behaviors. Fortunately, I was put into a great early intervention program where I got forty hours a week of intensive teaching from my speech therapist and nanny. My ability in drawing showed up early, by third or fourth grade, and my parents encouraged my art projects.

Today, I use my visual skills to design livestock handling facilities for cattle and pigs. Half of the cattle in the United States and Canada are handled in facilities that I have designed.

## The Three Cognitive Types

Ten years ago, when I wrote *Thinking in Pictures: My Life with Autism*, I thought that all individuals on the autism spectrum thought in pictures the same way that I do. For instance, when I design equipment, I can test run my designs in full 3D motion video in my imagination like a virtual reality computer system. I did not know that most other people could not do this. After I interviewed many people with autism and Asperger's syndrome, I discovered two other specialized ways of thinking. In the 2006-revised edition of *Thinking in Pictures*, I describe my visual thinking and compare it to these other specialized cognitive styles in individuals on the spectrum. The one factor that

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appears to be the same is that the person will be really good at one type of academic skill and really poor at something else:

*Visual thinkers* like me are good at visual tasks, such as drawing, and really weak in more abstract forms of math such as algebra. I cannot do algebra because there is no way for me to visualize it with my photo realistic visual thinking.

*Music and math minds* think in patterns and relationships between numbers instead of photographic realistic images. Music and math minds are often weak in creative non-factual types of writing such as poetry.

*Word specialists* tend to know many facts and figures about the weather, history or sports statistics. These highly verbal individuals are often very good at writing, acting in plays, or foreign languages, and they often love history. They are often weak in drawing and other visual skills.

#### An Educational System that Stresses Deficit

Unfortunately, the educational system often puts too much emphasis

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skipped algebra and taken more visual forms of math such as geometry and trigonometry.

Further, if students are not placed in challenging classes in their area of strength, they may misbehave because they are bored. I was a bored student who goofed off and was constantly teased. From a social standpoint, my high school years were the worst years of my life. My bad grades in English and history were due to goofing off, and problems with algebra were due to my disability.

on a student's area of deficit and not enough emphasis on building up the student's area of strength. Some students may need advanced classes in their area of strength. As for me, my math education was handled poorly. Teaching me algebra was hopeless. I should have

#### Keys to Success

Two major keys to success for me were development of my visual thinking ability into a design career and having good mentors when I was in high school.

After I was kicked out of a large girls school for throwing a book at a girl who teased me, I was sent to a special school. There I met Mr. Carlock, my science teacher. His science lab was a refuge away from teasing, and I now had some friends through shared interests in horseback riding, model rockets and electronics. Becoming interested in science gave me a reason to study.

Children on the autism spectrum often have intense special interests that should be used to motivate learning. For example, if a child loves trains, use train books to teach reading, math and history.

Many have been successfully mentored, like me, by a teacher or a neighbor who helped redirect their interests into career-related skills. Asperger's children who have parents in fields such as engineering or computer science are often successfully apprenticed into a good career by their parents.

#### Teach Job Skills Early

When a child is ten to twelve years old, teachers and parents should start teaching job skills such as being on time and being polite. I have seen many really smart individuals on the spectrum who successfully graduate from high school and college but are not able to get good jobs. They need to do internships and work at a job before they graduate.

### Another thing that helped was my structured 1950's upbringing.

During the summers when I was in college, I worked on my aunt's ranch, interned at a research lab and worked with autistic children. These job experiences were really valuable. Another thing that helped me was my structured 1950's upbringing. All kids in the '50's were taught table manners and to say "please" and "thank you."

When I started my freelance design business, everybody thought I was weird. Doing freelance work enabled me to avoid job interviews where I would do poorly. Instead, I sold my ability to customers by showing a portfolio of my work. I sold my work to clients – instead of selling my

weird nerdy self to them. People respected me after they saw a portfolio of either my design drawings for livestock-handling facilities or articles that I had written for a farm magazine.

### Sound Career Choices

Some examples of careers that would be good for visual thinkers are drafting, graphic design, auto mechanics, working with animals, photography and architecture. Music and math thinkers would be good at music, engineering, mathematics, computer programming and statistics. The language specialists would make excellent journalists, language translators, accountants and special education teachers.

The reason I have put so much emphasis on careers is because the happy people whom I have met in the spectrum have jobs they like. The autism spectrum is large, ranging from individuals who remain non-verbal to Einstein. In fact, many famous scientists and musicians would be labeled Asperger's if they were born today. Some of the famous autistic and Asperger's individuals who are profiled in *Thinking in Pictures* are Albert Einstein, the philosopher Ludwig Wittgenstein, Vincent van Gogh and Gregor Mendel, the monk who discovered the principles of inheritance.

### Sensory Over-sensitivities Neglected

I wish scientists would do more research on visual and sound over-sensitivity, which is extremely debilitating for some people in the spectrum. While researching the 2006 edition of *Thinking in Pictures*, I discovered that there are several hundred published scientific studies on abnormalities in brain regions that process social and emotional information, but very few studies exist on sensory problems in autism. These sensory over-sensitivities make a normal classroom or office environment unbearable for some individuals

When I was a child, loud noises such as the school bell hurt my ears like a dentist's drill hitting a nerve. I had difficulty tolerating scratchy clothes.

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Rough fabrics are like having sandpaper in my underpants. I talked to one lady who told me that rough fabrics created a burning sensation in her skin. Wearing soft fabrics that have been washed many times may be more comfortable.

For other individuals, fluorescent lights are difficult to tolerate because they can see the 60 cycle flicker. It makes them feel like they are in a disco. If fluorescent lights cannot be eliminated, then a lamp with a 100-watt old-fashioned incandescent light bulb should be placed next to the student's desk. Also, for children and adults with visual sensitivities reading is often easier if the text is printed on tan or gray paper to reduce contrast.

Accounts written by people on the spectrum will provide the best insight. *Thinking in Pictures* has quotes from many individuals on the spectrum, and Donna Williams's books *Somebody Somewhere* and *Autism: an Inside Out Approach* provide descriptions of severe problems with visual processing.

### Medication Decisions

When I reached puberty, intense anxiety and panic attacks started. During my twenties, the anxiety felt like a constant state of stage fright. As I reached my late twenties, the panic attacks became worse and worse. I was in a subgroup of individuals on the spectrum who got more and more debilitated by panic attacks as I got older. Antidepressant medication, which I started taking in my early thirties, saved me. I have remained on this medication for twenty-five years, and I have never stopped taking it. The right medication was one of the crucial keys to my success.

## The right medication was one of the crucial keys to my success.

I want to emphasize that some individuals do not need medication. Autism is extremely variable, and a special diet or a medication that works for one person may not work for another. I am sick and tired of the fighting that goes on about conventional versus alternative forms of treatment. Sometimes a small dose of conventional medication combined with a special diet or supplement works best. People on the spectrum often need much lower doses of antidepressants. The medication section of *Thinking in Pictures* has been completely updated.

### **Conclusion**

I have met many individuals on the autism spectrum during my professional career. The most successful were those who developed their areas of strength and were guided by mentors both in school and in their chosen career.

*Temple Grandin, Ph.D., is an author and speaker on the subject of autism as well as a Professor of Animal Science at Colorado State University and a designer of livestock handling facilities. Her books include Thinking in Pictures, Expanded Edition: My Life with Autism (2006); Unwritten Rules of Social Relationships: Decoding Social Mysteries Through the Unique Perspectives of Autism (2005); Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior (2004); and Developing Talents: Careers for Individuals with Asperger Syndrome and High-Functioning Autism (paperback 2004).*