Folks, for those of you I have not met, my name is Dave Daley. I’m the Associate Dean of the College of Agriculture. Welcome, we’re glad you could join us this morning. I really would like to thank the Butte County Farm Bureau in particular. They are the primary reason we’re able to get Dr. Grandin here today. And she is their keynote speaker this evening at their annual banquet. And that’s why we’re setting roundtables for the banquet tonight and they were gracious enough once we were able to make arrangements, to also allow the College of Agriculture and particularly the Chico State Young Cattlemen’s Association the opportunity to sponsor, put together a couple of seminars for you today with Dr. Grandin. I think for many of you, she doesn’t need an introduction because once it came out in the community even before it came out that she was going to officially be here, our phone started to ring. So we know that you’re familiar with her work and her interest and the things that she’s done. It’s a pretty remarkable story, an inspirational story. But my field is animal science and I have watched so many changes that have been implemented in animal agriculture because of the work of Dr. Grandin. She is a professor of animal science at Colorado State University. She was listed as one of the hundred most influential people in the world by Time Magazine. I believe it was in 2010. And she has an incredible international following and lecture circuit of both animal welfare and autism. This morning she talked for about an hour and fifteen minutes with a very engaged audience about animal welfare and agriculture and some remarkable things that she has observed. Today she’s going to talk with you about her life thinking in pictures and her journey with autism. Please help me in welcoming Dr. Temple Grandin.
Well, it's great to be here. Just hope I don't start coughing too much. And I think I'll start out talking a little bit about autism and what it is. It's a developmental disorder that a kid is born with. They are very big genetic components and I can't emphasize enough the importance of early educational intervention. You have a kid that's three years old, who's nonverbal, doing a lot of odd behavior, so the worst thing you can do is nothing. And if you can't get services right away then you get some students, you get some grandmothers, you get some people to work with this kid. Teach them things like turn taking. Now, the thing is the diagnosis of autism is not precise. In fact, the American Psychiatric Association is going to be changing the diagnosis, taking out the Asperger designation which is mild autism. If you look at the science, autism is a truly continuous trait. Some people are more social than others. Some of the Asperger's may get place into social communication disorder. You know, the science support part of the DSM-5 is doing and another part is pure politicking around hotel conference rooms and the cute little tables and skirts and things like that. And it's a hardcore science, is there a problem with that? Now, the part that's hardcore science is what's called the DSM where the main things that will be looked at is social communication problems, and the repetitive behavior and fixated interest. Those are the two core symptoms. That's supported by science. Then all that stuff they write under that, like how many symptoms you have to have, that's a discussion around the conference room table. That's were science leaves. This is not precise. It's a behavioral profile. Just stick really close to the two main things.
It matches up pretty well with brain scans. But when you get out there in the real world, it's not precise. Some kids are going to get labeled ADHD, some are getting labeled conduct disorder, oppositional defiant, temper dis-regulation disorder, global developmental delay not otherwise cataloged. That's sounds a lot like the new PDD-NOS. And this is where the science leaves it. You know, the part of is based in science, the rest is not. And eventually someday in the future will all be done with brain scans, but that's not your local hospital yet. And I'm going to talk about brain scans stuff I've done that's not in the hospital. It is in a research lab.
A child has to be pushed to keep learning new skills

Pushing too hard causes sensory overload and no progress

Never have sudden surprises. This causes fright and tantrums

Adults and teenagers must also be pushed to try new things and keep learning

A child is going to be pushed to keep learning new things. Autistic kids, you’re going to stretch them, because if you don't stretch them some, they don't learn anything new. Now if you push too hard, you're going to get tantrums. No surprises, surprises stare, don't do surprises. But if you don't push at all, nothing happens. When I was 15, I had the opportunity to go to my aunt's ranch and I was afraid to go. My mother gave me a choice, one week or all summer. She wasn't going to let not going be an option because if I hadn't gone to my aunt’s ranch, when I was 15, I would have never gone into the cattle industry. And there's too many smart autistic kids sitting around in the social disability payments because they're not learning work skills. See the problem we have with autism is one end of the spectrum is Steve Jobs and Einstein and half of Silicon Valley, half of all the NASA space scientists. And the other end of the spectrum, you've got people that are nonverbal, they're going to have to live in the supervised living situation. And the kind of services you need for both ends of their spectrum are kind of different. And that teaching somebody that's nonverbal to bag groceries is appropriate, teaching somebody like Steve Jobs to bag groceries is not appropriate. But you always have to keep pushing.
Now sensory problems, like sensitivity to sound, sensitivity to fluorescent lights, it can occur along with many other disorders. Learning problems, dyslexia, head injuries, oppositional defiant, global developmental delay, not otherwise specified, not otherwise cataloged. I have got to put that one on there. That'd be new PDD-NOS, but now it's in another category not in autism. Now, you might wonder why this kid blocked his ears.
He's blocking his ears because loud sounds hurt his ears. When I was a little kid and the school bell went off, it was like a dentist drill down the ear. One kid may love running water, another kid may be afraid of it. These sensory things are very variable and they're totally supported by science. Nancy Minshew and the other researchers at the University of Pittsburgh are doing NIH research so I wrote a really big letter to the NIH. They needed to fund this stuff because the sensory stuff had been neglected. But the sensory stuff can be very debilitating. You know I know people that are super smart computer programmers and they can't tolerate noise.
Now, what can happen in a lot of kids with problems? Alright, let's just call little kids, kids with problems since the diagnosis kind of a quagmire. You know what, I don't really care whether he's autistic. I don't really care what his diagnosis is. Let's look at what the kid's symptoms are. If you have a speech delay then you go to speech therapy. If you have problems on sensory, we need to work on that. If you have problems with being on time, we have to teach him how to be on time. Well, that's not a very simple thing for temper tantrum throwing. The rule was, if I had a meltdown, there was no TV that night. That was the rule period. Didn't matter if I needed to meltdown. You know, kicking and screaming that not acceptable. So what I ended up doing is I end up switching from anger to crying. And, you know, crying, you still have a job if you do that. Kicking and throwing things you don't. But what happens in a lot of kids that have problems in the brain is the auditory threshold will be normal. That's the ability to hear faint sounds. But hearing auditory detail will be impaired. That's the ability to hear hard consonant sounds. This happens in many, many different labels. Some times hearing can fade in and out like a bad cellphone connection especially when the kid is tired, you know, slow down, stretch out and annunciate words. When the grown-ups talk really fast, I thought they were talking to me in a foreign language. I went in and I did some of these fancy brain scans and they found out my language output circuit is all messed up. I've got a one-lane highway instead of a four-lane highway. Then you have other kids where language output works fine but they're just repeating all these YouTube videos, but the problem is they don't know what the videos mean.
You have perfect language coming out, but the meaning circuits are not connected. So those kids are going to learn with hundreds of flash cards or hundreds of flash cards made on the iPad or on the Galaxy whatever you use. Where you see a picture of the juice and the word juice on the same screen, it's going to be on the same screen or the same piece of card board. They've got to see the picture and word together simultaneously and hear it. Then you start to program words into their head. Then the kid might sing the McDonald's commercial at dinner time because he's beginning to realize that McDonald's commercial that he's been singing over and over again has something to do with food. Why are they picking up on commercials and YouTube videos? Because when that stuff plays over and over again, it always does it exactly the same way, so that's why they learn from that first.
Another problem with brains that have problems is attention shifting slowness. It takes much longer to shift back and forth between two different things, like if a cellphone rings over here that interrupts my attention, it takes me much longer to shift back then a person who has a normal brain function.
Okay, this shows very clearly a shift in attention slowness. So you get people hooked up with a special hat that tracks where their eyes are looking. And the normal person watching this movie who's afraid of Virginia Woolf, look at how many times you look back and forth looking at the eyes. Look at the number of times of back and forth. The autistic is looking at the mouth because they don't hear very well. You know, auditory threshold and they're not shifting back and forth at all. So you've got to watch out for problems like clipping or maybe a kid didn't hear the first half of what you said. You want to say Sammie I want to ask you a question, then you ask it because you have the channel open. You have to watch out for this attention shifting slowness.
Another problem that you can have and a lot of kids with various labels have, again, don't get hung up on the labels. But there's a problem in the visual cortex, where the visual cortex circuits that do shape, color, motion, and texture are not working together to make a proper graphics thought. And so you get weird stuff like the image breaking up, similar to what people get when they get migraines.
And what's a sign that there's something wrong with the visual cortex? Even though the eyes are fine, these kids do a lot of eye steps. They often look out the corner of their eye and you'll get that in some dyslexics too. Often the kids are terrified of escalators but the big one is they hate fluorescent lights. The single worse design thing in the schools today is 60 cycle fluorescent lights. A lot of kids with a lot of labels can say those lights flicker. The classrooms go flicking on and off like a strobe light. Well, I am finding in my life start handling class, I find one in every 50 students have this problem. And I can tell because they can't draw. I can tell by the way they do their cattle handling drawings. Eye exams, the quick eye exam will be normal. The problem is in the visual cortex.
Ask them if the print jiggles on the page when they try to read? So I ask these kids, do you ever see the print jiggle on the page? Do you hate escalators? Do you hate driving at night? And do you hate fluorescent lights? And I find if they're yes on all four of those questions, they are usually not doing very well in school. Alright, let's look at some simple things we could do to correct this problem.
These things are so simple that if you didn't try them it'd be kind of stupid to flunk out of school because you didn't do these things. Try blocking the fluorescent lights with a hand. They put a 100 watt incandescent lamp next to their desk to blood out the fluorescent lights. Some kids might like a smaller like a 40 watt. Use laptops and tablets. Laptops and tablets don't flicker. TV type computers are horrible and some of the older flat panels are terrible. Try printing the work on different colored paper gray, lavender, light blue, light green, tan, that helps some people, just the color background on the computer. Experiment with different color backgrounds on the computer. A kid will flunk out of school if you don't do this. A lot of people with this problem love their kindles. I'm talking about just the old basic kindle that's kind of gray. They love them because it reduces the contrast. Some are helped by the colored lenses, Irlen colored lenses where you try on different pale colored glasses until you find the color where the print no longer jiggles. You know, maybe pale pink, pale lavender and Irlen give you the exact color but a lot of students have gone out and bought glasses at Wal-Mart, and you see movie stars and stuff wearing pink glasses, that's not for fashion. The funny thing is that as movie stars are doing that, I don't think that's for fashion. I think they've got this visual problem and they sort of accidentally figured out those glasses helped them.
<table>
<thead>
<tr>
<th>Severe Sensory Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background noise problems</td>
</tr>
<tr>
<td>Mono-channel</td>
</tr>
<tr>
<td>Body boundary problems</td>
</tr>
<tr>
<td>Often an auditory thinker</td>
</tr>
<tr>
<td>Best book</td>
</tr>
</tbody>
</table>

*How Can I Talk If My Lips Don’t Move: Inside My Autistic Mind*

by Tito Rajarshi Mukhopadhyay

Very severe problems cannot screen out background noise. I can't hear when there's too much background noise. It is really bad that they have mono channel, they cannot see and hear at the same time, going to do one or the other. Often times they're an auditory thinker. You might want to read this book "How Can I Talk if My Lips Don't Move" by Tito Mukhopadhyay. If you're working with nonverbals, you need to read this book, you know, especially the older children and adults.
Scientists have learned a lot about the brain. Sensory problems are real. And where you have the big abnormality is the circuits that go in between different brain regions. The over half of your brain is white matter connector circuits, that's 3/4 of your entire brain. A circuit that connects different parts of the brain to parts other than just the outer layer, the grey matter is the processors where you have memory stored and you have stuff that actually does stuff and word-based tasks tend to be processed more in visual parts of the brain, frontal cortex tends to be used less but there's abnormalities in the connectors circuits. Some, they have more circuits, others may have less.
See when you hear a word, say a word, speak a word and you think about a different word, the other parts of your brain turns on. You have to have interconnector circuits to integrate all these things together.
So over the top of the brain, you have the chief executive officer, that's the frontal cortex. The frontal cortex is all association, you know, there's no memories there, things for walking and stuff like that, that's not there. But the frontal cortex associates everything to everything else, that's what gives you higher thought. Then you have language and verbal thought, then you have things more on the back of the brain, the fun stuff, music and vision or math, all that fun kind of stuff, parietal cortex, and visual cortex. And then you have a lot of trouble on incoming data streams, where data coming in is getting scrambled, hearing is getting scrambled, maybe the visual system is pixelating. Do you imagine what it would be like if your visual system pixelated like a bad TV when the satellite's shaken? I'm sure you've all seen that happen on big screen TV, that make it pretty hard to read and do stuff, that's what your visual system did.
Now this is a map of the major super highways of the brain interconnector circuits. Since this is an old diagram, it only shows the main interconnector highways. I'm going to be getting another scan they did on me that shows all the highways, all the freeways and it's just a ton of bushes. This is just a gigantic interstate. We will look at it like a map of the US. On the right hand side, you have the East Coast, that's the frontal cortex, where Chicago is that's the emotion center. Then out West, that's Silicon Valley. So what tends to happen developmentally is the frontal cortex doesn't get enough circuits, quite a few circuits don't get built to Chicago, Silicon Valley may get extra circuits. You know, you take out some of the social circuits, you get geek circuits. See, I think a brain can either be made to be more cognitive or made to be more social. You know, who do you think made the first stone spirit, certainly it wasn't social talkers. You know, when does geek and nerd become an abnormality. There's no black and white divide line. And when the doctors are sitting around those conference tables, you know, autism skyrocketing, I think those doctors want less people getting labeled autistic. So they tightened up the criteria.
Now there are some people that have a type of Alzheimer’s where as the language gets wrecked, art comes out. You know, the visual thinking, that’s kind of hidden underneath language.
I cannot emphasize enough; build on the kid’s strengths. When I was in third and fourth grade, I was very good in art. My mother always encouraged my ability in art. Autistic kids get fixated on their favorite things like airplanes or trains or dinosaurs. Build on that, do math with trains, do reading with trains. Let’s do all kinds of things about the science on how trains work. Use that fixation, tap into it, broaden it. When I was a little kid all I wanted to do was draw horse heads all the time. I was always encouraged to draw other things, not just endless horse heads. You have to stretch him, get him to do other things.
Now my mind is totally visual. It's just like Google for images. The movie did a great job showing how my mind works. And if you want to get a copy of the movie, you can just go right to Amazon and type in Temple Grandin movie or set it on a movie setting and it will come right up. Amazon has lots of it, barnesandnoble.com, those are the easy places to order it from since Blockbuster is gone now I think. You can get it at Blockbuster if you still know of one. But Amazon is usually the easiest. What the movie showed really, really well is how my mind thinks in pictures, like the word shoe would send a bunch of pictures just came up, that's how my mind works.
And when I designed cattle facilities, I can test run this equipment in my head. I didn't know that other people didn't know how to test run equipment in their head. I thought everybody thought the same way I did. Now I've been very interested in the different kinds of minds and we need to build on them.
Here's the dip vat they built for the movie. They did a great job in the movie showing how all my projects work. Boy, that was just wonderful, all my projects.
There're the drawings that they showed in the movie for the dip vat that I designed in the '70s. When you're a weird geek, now I used to sell myself by showing off my drawings. Few didn't want to talk to me but then I showed them my drawing and they go, "Oh, wow, you did that?" Then I started getting some respect.
There's another version of the drawings. I had to learn how to sell my ability rather than myself. So when you get out in job world, forget about regular job interviews. You got to figure out how to sell the skill. There're so many internet tools now you can do for businesses online. I was just reading in the paper today about self-publishing books online. Some guys are making 60,000 dollar a year on his ministries that he publishes online. There're all kinds of tools to do entrepreneurial type of things online. Now you need to be using those things.
Now how do you form a concept when I have very specific pictures in my mind? You sort them into categories. It’s called bottom-up thinking. A concept is made by taking specific examples, sorting them into categories and this little boy drew this picture showing how he had file boxes in his head, like file folders in his head. I thought this is a wonderful picture, this picture will always stay on my presentation because it shows, you know, you sort the specific examples in the file folders to make concepts, that’s just the opposite way to most people think, most people think way too vague.
I realized my thinking was different when I asked other people to think about church steeples.
And I was shocked to find out that so many people see a vague generalize thing. I just see specific ones.
Now, they just come up like this, you know, series of pictures.
Then I asked an astrophysicist and he saw the motion of people standing up and singing and kneeling and praying. He saw motion. Most people just get the vague generalized one. And I just see the individual pictures. Most people don't see that. The reason why I ask church people is I want to ask you some thing you don't know but you have to see them.
Now, I use to joke around that a huge internet connection, I went deep into my visual cortex or visual thinking turns out I do, and when I got these brain scans I go, wow. I don’t even think about doing these at the hospital, no hospital can do this. This is done on research lab.
And I got real big one up here. But in the future, they’re going to be able to take this new scanning, this new super intense scanning as the Defense Department has been, you know, paid for the development of. They can track white fibers right down to the--to the white fibers you can see in the brain to the anatomical level, and they can actually see which circuits are intact and which aren't. Because in the head injury, circuits are ripped. In developmental disorder, circuits just don't grow, but you get a lot of the same symptoms.
Okay, that does explains why my math is terrible, this is full of ventricles and, yeah, it goes right into my parietal cortex. They're like blue, my working memory. I can't remember one-three steps, I have a terrible time of word problems 'cause I say stuff like Sally had two apples and Jim had three and Sally ate 1, Dick throw another 1 in the garbage, how many have got left? I have a hard time doing 'cause I can't remember the sequence. So it's like I got an ability on one area, a big deficit and in another area. But, you know, if you're doing engineering work, nobody does word problems like that. They don't do well. If I take this bridge and I built this, now I'm putting another bridge on top and then I did this, what would happen? Nobody does that. See those kinds of things put a load on working memory. You have engineering, there's no load on working that way.
Okay, this is probably one of the most important slides that I have. I'm a photorealistic visual thinker. So how do I remember the sequence of a whole meat packing plant? I turn on the video in my head and I walk to the plan. And it took about 6 months of Tuesday afternoons at the local Swift plant to do that, to videotape the entire plant into my head. And then I just walkthrough it and then I can tell you the sequence of the events. Couldn't do algebra and I'm finding a lot of people that can't do algebra, they can do geometry and trig and then you jump right to geometry and trig. Algebra is not a prerequisite for geometry. Geometry was invented before algebra. So how can it possibly be the prerequisite? The geometry is invented first. This is one thing that was not handled well in my math education. So pounded on a way at algebra, we never got to geometry. So how did they get to college? Thank goodness for the math of fads of the '60s. In 1966 and '67 when I have to take math, it was finite math, probability, statistics, and matrices. And I could do that with tutoring. If it had been college algebra like we had today in a lot of schools, I would have been sunk. I'm getting worried about people, you know, a lot people being just screened out. I'm not suggesting not having college math, but let him do algebra, let him do calculus, let him do statistics anything else. You know, what I think the real verbal thinkers are insisting algebra is the prerequisite for geometry. Now the pattern thinker, that's your music and math mind, that's your physicist. They think in patterns of things. Think extreme origami. These kids often have trouble with reading. They'll need special ed reading.
Then you got the verbal thinker. He knows every fact about his favorite stuff. Not a visual thinker. Some people are auditory thinkers. A lot of auditory thinkers their visual system is sometimes messed up. All we got to do is be thinking a lot more with kids, when they get at middle school, what are they going to be when grow up? There're a lot of good jobs out there, diesel mechanics has a shortage right now. I was listening, a thing on Fox News last night. They've talking about people learning trade and I think that's a really good idea. When they start getting on the politics [inaudible] that's what my eyes play over. But people, you know, where there're jobs or things like certified welder, nurses, a diesel mechanic, people that fix appliances and fix medical equipment. Those are jobs where it's not going to get outsourced to China. Car mechanic, they're good jobs. But a lot of those hands-on classes had been taken out of the schools so the kids aren't getting expose to this stuff. I think it's just terrible. If I hadn't had the hands-on classes when I was in school, I would have gone nowhere.
But just to show you there're different ways to do algebra, to do this algebraic equation there. You can do it visual space way or the verbal way.
Now this is to give you a little glimpse into the mind of a pattern thinker. That praying mantis is made out of single sheet of folded paper. No cutting and no tape. What you see in the background, that's the folding pattern, a folding pattern from making praying mantis. Now that's not my mind. I'm not good at these kinds of things. I'm good at things that really rely on the visual thinking don't put a load on working memory.
This is the kind of stuff I really like to do when I was in high school where I took care of nine horses when I was 15. I’m saying too many kids graduating from college they never learned any work skills. You know the meat packing plants tell me? You know, I go and visited great big meat packing plant in Missouri right after they opened recently, probably like 5 years ago, 6 years ago. The locals just thought the work was too hard. But the thing is, if you’re working that plant for 2 years, you can get off that line and you can work up in a company. Yeah. It is hard work.
Now how do I think about really abstract things? Like when I was a little kid I had to learn the Lord's Prayer. So when I get to that power and the glory I visualize it as a rainbow with an electric tower, the base of the rainbow, that's the power and the glory. So if I don't have a picture, I don't have any thinking.
All my thinking uses specific examples to create concepts.

It is bottom up thinking and not top down thinking.

I learned ALL concepts using specific examples.

This is an important slide. All my thinking uses specific examples to create concepts. It’s bottom-up. Not top-down. To solve a lot of problems in the world today, I think we need to be doing more bottom-up thinking. If I want to like figure out how to make schools better, my approach will be pick out the five really super good schools and I want to make sure they’re not all just super rich ones. I want to find some of those schools in the poor areas that are doing well, then the five worse schools, okay. What are the common denominators to make a school either bad or good? Okay, one of the things is having really good teachers. That's a really important part of it. Some kids thrive in a structured school where you wear uniforms. Other kids don't thrive in that. You have a variety of teaching approaches. But everything is learned with specific examples. Specific examples form concept. You want to teach a kid not to be rude? It's taught out in the real world in specific examples, okay. He stuck his tongue out in church, that's rude. You pointed at a fat lady at the grocery store, that's rude. You want said that F word, that's rude, okay. You see those are specific examples. And then when they happen out there in the real environment, you just say, you know, that's rude, that goes into your rude category.
You know, play games with categorizing. You got to learn that an object could be in more than one category. It could be rectangular, it could be yellow, it could be cloth containing, it could be used to work. You know, we used to play a game in the '50s, 20 questions, that's a great game, teaching flexibility of thinking.
The autistic minds and the details, they'll pick out these little letters a whole lot quicker than they going to pick out the big letters. It's details, just help me in my work with livestock 'cause I saw the visual detail what the cattle were seeing.
Now some people think autistic learning is just memorization scripting. And when I was in high school I got teased and called tape recorder and all kinds of terrible names. And I couldn't figure out why I was called tape recorder. Well, I always the same phrases, but you've got to get kids out and expose them to lots and lots of stuffs. You got to fill up the internet. Think of the head as an empty internet with a really good Google but you got to fill it up. You go tot fill it up with web pages. Because to understand something in the future, I have to relate it back to something in the past. And one thing they learn on a brain scanner at Pittsburgh is I got all these extra parietal fibers that come out of the corpus callosum in here, which makes me a real--associate a lot. And in order to understand things, it always has to be related back to something else. So you got to fill the brain up with lots and lots and lots of information. Get him out doing things. You know, get to show kids interesting stuff. You know, in the movie I show how I saw the optical illusion room. Oh, I got all fixated on that, but that's good.
Teach number concept. They got to learn numbers apply to many different objects, two pennies, two cops, two people two dogs, two houses, two airliners, two mountains, many, many different kinds of objects. Teach adding and subtraction. You know, with different things. Cooking is a great place to teach measurement. These kids aren't taking cooking anymore. You know, let's not double the recipe. Let's really learn some fractions doing cooking and learn some math. You know, cut up circles to cut up fruit, cut up pizza, and now whenever you do those things, work the math into it. Some people think that to do no child left behind you got to like take all these things out of school. That's a bunch of PS. There are schools that do hands-on things, they ace those tests. They ace the top international tests.
Okay, another example of teaching by specific example. I got to shows—maybe four, five different ways to use the word down to teach the concept of down. Because if I just thought I'd walk down the stairs, the kids are going to think it only applies to walking down the stairs. You got to show them that there's a lot of different situations where you use the word down. You know, do the same thing with the word on, under, and in, all those kinds of words.
I found objects a lot more interesting to look at than faces. But the thing is, if you didn't have people on the world interested in objects, you wouldn't have any electricity in this building. Tesla who invented the power plant would definitely be diagnosed as autistic today, very, very definitely.
Let's get social interaction through shared interest. The only place is where I was teased were the shared interest things like model rocket club, electronics and horseback riding. You now, get kids involved in things like, you know, making robots, boy scouts, FFA, and the chess club, drama club, band, art clubs, all of these sort of things where they can get in with other kids that have their shared interests. This is where I get all my social interaction today. Chit-chat, for the sake of chit-chat that's not something I'm very interested in.
When you got a behavior problem, with a kid with any label, you got to figure out. Is it behavior or is it biology? And there're two main things you got to rule out, biology. Sensory problems, this kid screaming in Wal-Mart, maybe he feels like he's inside of speaker at the rock concert. That would be a biological problem. Or maybe he's afraid to go on this classroom because last week the smoke alarm went off in there. So now every time he sees a smoke alarm, he's screaming because he's afraid he's going to go off and blast his ears. Microphones can be dangerous. There are some kids and once they find out these things gets scream, they get afraid of microphones. Or if it's nonverbal person, maybe he's got a hidden painful medical problem. Well, you better treat the medical problem. You've got to figure out what it is and treat it. Or if it's probably behavioral, I can remember throwing a fit because I couldn't ask for things I wanted because I couldn't talk. Sometimes they do it to get attention, other times they do it to get at doing something. Some reason I find a lot of people and this is must be something different how my mind works, I have a hard time doing categories like this. I found in my livestock handling equipment, you know, is it a behavior problem with the people or something wrong with the equipment? People don't seem to be able to figure that out very easily.
Okay, here are some sensory problems we may have to accommodate. There're some kids where it's such a disaster when the fire alarm goes off that we got to just take him out before the fire drill. Tantrums at the supermarket, there are some that can't tolerate the supermarket. There're others that can tolerate it. But you let the child control how much supermarket he's going to have to do. So we take just a little trip in there when he gives you signal you take him out, then you try to just get him tolerate more and more and more supermarket. But let him control it and then it's better tolerated. I can't tolerate scratchy clothes. Then I discovered Old Navy pants, you know, I know western supposed to wear Levi's but discovering Old Navy maybe that's kind of a bad thing because I really like their pants, they don't itch. And different cottons, some cottons itch and some cottons don't. Fluorescent lights that is the big one. That's the one that can really mess up a lot of people. Handwriting, you know, there's a reason why computers were invented, you know, type. I'm not going to be very concern about handwriting. The other thing that's really hard is multitasking. I cannot multitask. I have a lot of problems and a lot of entry level jobs, you know, where you going to like remember all these orders and do things, all bunch of stuff at the same time, type and talk on the phone at the same time, it's not going to work. I also cannot remember long strings of verbal directions. I need to write it down. Even today I have to write it down.
This is where one of my '50s upbringing helped me, 'cause I'm seeing a lot of kids that are labeled autistic today, labeled a bunch of different labels, you know, and they're not going anywhere. And this where a '50s upbringing help in the '50s manners are pounded into kids. Taking turns in conversation, like if I monopolize that conversation, mother would say, you got to give, you know, granny a chance to talk. Being on time. I'm seeing kids get into college they can't be on time for class. You know, yeah, I did have to go to church with the family and I had to behave, so I'm just going to do stuff that the other family wants to do. Saying please and thank you. If I forgot to say please, my mother would go, you forgot to say, she'd cue me. And when I made a social mistake, she didn't scream at me, she just gave the correction, like if I reached across the table for the piece, she'd say, ask your sister to pass it. She didn't scream no. She would simply give the instruction, ask your sister to pass it. Or if I run behind the counter in a store, she'd say, only the clerks can go behind the counter. She would just give the instruction.
This is a bad behavior it's not tolerated in the '50s. Bad table manners, also those absolute consistent disciplines between home and school. There's no way I could play the teacher against mom, not in the morgue. The rules were the same in both places. Being an absolute slob, there's a scene in the movie with my boss slam down the deodorant. That actually happened. I showed Mick Jackson's, the director, exactly how it should be slammed down to.
I'm appalled at the number of smart kids that come up the book table and they do not know how to shake hands correctly, they grabbed me in a very inappropriate ways because nobody has taught them. Basic things you shake hands, you don't do a dead fish and you don't rip off their arm. You got to just demonstrate. Ordering food in restaurants. Table manner, shopping. Smart kids, they can't do these things. All of these stuff here I could do but the time I was 8 years old, I could do all these stuff. And I'm seeing kids older than me that are less severe, they haven't been taught these really basic things.
Another thing that kids are not doing today and I think it's really bad for all kids, is kids don't get together and just do their own play groups and make-up rules. Where three or four kids are going to get together and they're going to decide together how they're going to build the sand castle or make-up rules for game and play a game. Because when you grow up, it's called work groups. They're not learning that. Things are almost like too structured.
Eccentric is okay? Yup, I'm kind of eccentric. You can't make the geek into a not geek. That's not just going to happen. You know, you want to make him into a geek, they can go work for Google or some place like that where you they can just go to geek heaven. But the thing that I find frustrating is one geek gets to go to Hollywood and do fun stuff, another one gets to go Google and go to geek heaven there, But I'm seeing another one standing up in the basement on disability. He just shouldn't be there. And that is wrong and I'm coming out the new book at the end of March should be available of future writers, it's going to be called "Different Not Less" and it has 14 profiles or contributions on old people, my age, that were diagnosed with autism or Asperger's later in age and that all had jobs. They've also recorded themselves. They are on disability payments. There were two things it had to be in this book. They had to financially support themselves all their life and they had the formal diagnosis at a later age. And they range on a lot of different jobs, it wasn't easy. The reason why they got the diagnosis later in life was because their relationships were a mess more than their job problems called Different Not Less. And every one of those guys had a paper route when they were little. Well, we don't have paper routes now. But how about dog walking? That's a new paper route. You know, something they got to do everyday outside the home. Mowing lawns, I have fixed some people's gardens, fixing computers, there're a lot of things they could do.
It's okay for geeks to cry. I watch the NASA space scientist cried at a career fair one week after the shuttle was canceled. He was talking to the students about his work at NASA. He's even throwing things and throwing anger fists, he wouldn't have been working for NASA. When I had to learn how do, I've to get and kicked out of school for throwing a book at a girl who tease me, I just switch from anger to crying. It was turned the anger off. I cry. I don't get angry. No, just got to shut it off, the switch emotions. Now sometimes I get to giggling hysterically. I can get to giggling about a world's worst vomit flights, boy, and get on that subject. I get really get to giggling. You know like, how about a guy who walked down the isle vomiting and he managed to trash 1/3 of the entire airplane and doing on that many people.
Now I've taken all the rules of the world for society and I put them in four categories. If you wanted a civilized society, you can't do really bad things like burning up this building and killing people. You go to have the courtesy rules. They help people to get along. But then I got to have some place where I can break some rules. How about stupid rules like, you know, you got to take the algebra before you take geometry. Then at the sense of the system, you get problems with things like the sex offender system, it doesn't differentiate between stupid and really seriously dangerous. Yeah, there're certain things where you got to get in the play all the trouble. You don't want to be on that website. Boy, that's one website you don't want to be on. Wear a GPS for the rest of your life, who wants to do that? You know, it's not for driving your car. I, you know, there's things where stupid things kids can do, can have draconian [inaudible]. That's why I called the Sins of the System. You don't touch these babies. And they're very society specific. You know, you go over to some other country and you criticize the government, you get thrown in jail for that. That'd be a sin of the system.
Okay, let's look at some of the hidden painful medical problems. The big number one is gastrointestinal issues in autism. You know, a nonverbal, all of a sudden his behavior is terrible. In fact, you know what, he probably got acid reflux. You see any brown stuff on his pillow, he's got acid reflux. Get the head--well, the bed up, raise up the head of the bed, give him some Prevacid. Boy, I had one mom called me, she says, oh, man, I put my kid on Prevacid now. Give him some Prevacid, now he sleeps through the night, but he's having terrible acid reflux. The problem solves here, the other thing he'll do is what stomach doctors called [inaudible]. They're doing lot of weird behavior where they kind of go like this, sort of like that. When you see somebody who's a nonverbal doing that, their tummy is probably hurting. Constipation, urinary tract infections, yeast infections. Ah! That makes me miserable. I have to take stuff with yeast infections. I take some probiotics, acidophilus probiotics to help, you know, control the urinary tract infections. Ear infections, maybe they got a root canal gone bad. You know, that's going to make a lot of bad behavior. You don't want to be going in there with heavy duty psychiatric drugs and all what's wrong is the guy got a yeast infection. Maybe you better get that treated.
Now my squeezing machine help my panic attacks because when I got into puberty I started having a nonstop panic attacks and that was controlled, you know, I would do a lot of exercise, used a squeeze machine that helped to prevent these problems.
But I found out in other brain scan study that my fear center is three times bigger than normal. I've also got a genome scan at the University of Pittsburgh. I'm going to find out from the short version with the serotonin transporter gene and because I had a very good response to antidepressant medication. And where antidepressant medication really works is for anxiety. I don't think it doesn't hang with depression. It works for anxiety and fear. It's damping down the fear. I've been on antidepressants for 35 years. I was being thorn apart stress-related health problems until I went on that medication. Now, medication when it works it's like magic. And when it's abused, I'm going to talk about that in a minute, it's terrible. The amount of medications given out to young kids like candies is absolutely terrible.
There's a rear view of my squeezing machine but I found the pleasure help to calm me. There's one in my 20's, the anxiety attacks got worse and worse.
Now there is a therapist in OT doing some pressure things, try doing some things like this when do some of your AVA, you do something in your speech therapy. Remember how I talked about the ear being like a bad mobile phone, cutting in and out? Well, sometimes doing some of these calming activities is sort of like taking that phone outside and you get a better connection.
Sometimes speech is easier when the child is swinging.

Or try some slow swinging while you're doing your speech. Another thing to try is singing, music, has a music, because the singing circuits are different circuit. Sometimes those work, sometimes you teach kid to sing the words before they can speak words. That's another little thing to try.
Some kids wear a weighted vest that can help them to stay on task, but it’s going to work best 20 minutes on then 20 minutes off. Now the thing is these sensory things I’m telling about you, they don’t work on every kid. This is the thing, if you want to do one-size-fits-all, that’s not how it works. There’s only one place we have one-size-fits-all. 3-year-olds need 20 hours a week of one-to-one if they’re nonverbal. That every one will agree on that. But once you get a way from that, you know, you try some of the sensory things. You know, you’re not talking about expensive stuff here. Yeah, it’d be kind of silly not to try it.
It is important to desensitize touch sensitive autistic children so that they will enjoy affection. Feeling the good feelings of being held helps to develop feelings of kindness.

I think it's important to get these little kids desensitize so they going to like the feeling up being held and desensitizing that is actually one of the easier things to desensitize. So when I first started using the squeeze machine, I want to pull away. But then I gradually got to where I like the feeling of being held. And now I'm hugging lots of real people now. But it's important that the child control it.
Okay, employment. Mentors, my science teacher he was shown just great. We need more science teachers like Mr. Carlock and he got an honorary doctorate for the movie and he was not accredited teacher. But he was a NASA space scientist. We need to be tapping into all the retirees that from all different kinds of professions that are be going to the high schools and working with some of these kids. We got to change the bureaucracy. I don't know why a chemistry teacher has to have an ed degree. I think this is ridiculous. Let's say somebody has been a chemistry specialist all his life, I don't think we just throw him in a classroom either. You know, put him in there with the experienced teacher gradually but if you have a degree in chemistry and you've spent at least half, this would be my criteria, would be you have to have a degree in chemistry and he has to spent at least half of his professional life using, doing stuff involving chemistry or doing things biology, maybe a wild life biologist or doing something with a reporter. So his doing stuff with writing. You know, and get kids interested in things that can turn into employment and teenagers need to be doing jobs. They have to learn work skills. Boy, those paper routes, I put all these quirky kids on the paper routs, but we don't have them anymore. And visit interesting places. They need to find out that oil rigs have joysticks. You know, well, that sounds kind of silly but that's a sort of thing that could get a kid turned on. You know, instead of just, you know, going where and doing nothing.
When I was in high school I was not studying very much until my high school science teacher got me interested in the goal of becoming a scientist. But I was doing plenty of work. When I was 15, I took care of nine horses. When I was 13, I did a selling job. I was like fixing up our ugly old ski house, but I was doing it in a way that other people would appreciate, learning lots of work skills.
Jobs for Middle School and High School Kids

- Walking dogs
- Maintaining computers
- Making PowerPoint presentations
- Selling artwork or crafts
- Working on church or neighborhood website

Here, good jobs of middle school kids. How about making PowerPoint presentations for local business people, selling artworks and crops? How about maintaining a church website? Yup, and you got to do the virus scans on it 'cause church web sites are horrible thing, viruses. When I went to get those pictures of those churches, I wreck the computer doing that. You see the problem is, you know, they don’t do their virus stuff and they got all loaded with viruses getting those pictures. Walking dogs, something you got to do every day. Fixing computers for local businesses. We need to be setting up these kinds of things.
Things like LEGO Mindstorms, and the thing I like about this is that robot is going to do an assigned task. As you go and learn how to do work that other people want. A Google has all kinds of good things now.
There're great stuffs online, you can get into, always like show my drawings off and there is one of my designs at Google's SketchUp. Googles got great programs teaching kids SketchUp. You know, teaching them how to draw 3D drawings on computers.
We got to look at our educational resources. You know, there're a lot of kids where the two-year college--community college course in diesel mechanics. That might be the best place for the kid to go. There're all kinds of career stuff at community colleges. People don't think to look at those catalogues. Now the guy on Fox News last night said, "Yeah, they need to learn to trade," I agree with that. You know, they--that's something going to be a good job. We got a shortage in lot of the skilled trades right now. Things like computer-operated machine tools.
Here are some great science websites and I'll tell you a few others. Some other good websites is Khan Academy, K-H-A-N Academy. There's website where you can take programming courses. There's Audacity. There's also--I can't remember the other. There's a research gate that's a scientific social networking site, science on line, social networking site. And, you know, there're some really great things. There's a lot of junk on the internet, but there's a lot of really great things on the internet. You know, there's Foldit, you know, crowd sourcing, figuring out organic chemistry stuff. There're all kinds of good things. Open Courseware Consortium, Stanford and MIT, they got all their sciences classes online. There's a lot of good stuff out there.
And when I was in high school, I got to say there's optical illusion room. And I got totally turned on to that. I actually did build it, just like the movie showed.
And then, you know what, there's the movie site, they have a lot of Asperger's on that movie site. And how did they get these jobs? They got them by going into the backdoor. They had a friend. We got to look for more of these backdoors. Forget about interviews. You got to sell your work off. That's how I sold myself.
There's the plant where I first started working.
And that is the shirt I was wearing that got me into the plan because the life of the insurance agent saw it. And, you know, I hand embroidered that shirt myself. I was wearing my portfolio and I didn't realize that I was wearing my portfolio. People respect ability.
Let's look at good jobs for the visual thinkers. See, what I do with the livestock design is a thing called industrial design. See, when you design a product like Steve Jobs using that—he's not an engineer. He's an industrial designer. You see everything, if you look at all his patents, they have to do with the look and feel to the project—of the product, the user experience. Then the engineers have to make the energy work. Graphic arts, crafting, fixing cars, setting up AV equipment in big conventions, photography, animal trainers, art attacks. This is all good jobs for my kind of mind.
And how about the mathematicians? These are the engineers, the physicist, the statisticians, programmers. These are the kind of people, you know, they’re good at these kinds of jobs, chemistry, organic chemistry. Then you got the word thinkers.
Journalism, library jobs, accounting jobs, especially retails are good job because they'll know all the merchandise really, really, well. When I was at the University of Illinois, there was this weird guy that work in the paint store. And I'm almost sure that he was autistic and he had this crazy add he did on the local TV channel. Now you got to remember this is all pre-electronics so this is like a paper, superman, the name of the hardware store flying across the City of Champaign, Illinois, just a photograph of a little cloth cape and he like pulled it across on the string and he would do this on a local television channel. And--But you know what, he really knew paint. He knew more about paint than anybody else did. He was appreciated for his knowledge. Stage actor. See the thing is about being autistic, you always got to act on the play.
Bad jobs, anything that taxes working memory. There's no way I could work in a restaurant and try to balance all these plates like these 'cause I'd drop them and the cashier in a real busy place trying to talk to people at the same time, unless it's Walmart. That's fully automated. I could do that. Scan it and do that. Yeah, I could do that. Yeah. That's about it. A cashier at Walmart.
You know, then we got people with poor verbal skills. But there're a lot of jobs they can do. Want jobs in agriculture, lawn and garden work, stocking shelves. There're a lot of things they can do.
Now let's talk, just end up and I want to speak briefly about medication issues. I am appalled that the amount of powerful antipsychotic drugs being giving out to 5-year-olds. It's actually appalling that they got antipsychotic drugs approved for autism in 5-year-olds. And you're getting a lot of bad side effects like making them fat and giving them diabetes and getting a nerve damage problem called tardive dyskinesia where they do weird movements. And to give a powerful drug to 5-year-old, you better have an awfully good reason for it. They're being giving out sleep aids, make them less frigidity. That's not a very good risk benefit. Little kids I'd rather do things with special diets. Try taking a weed out. Take out tons of sugar. Taking the dairy products out. Some individuals, that really works. Try fish oil supplements. The American diet is deficient in Omega-3s, and they were starting to get very good research. Now, the backup, they use all the fish oils supplements. You know, some of the B vitamins, there's problems with the whole B vitamin metabolism of mass. I take a very strong B vitamin. And there're a lot of vendors out there selling a lot of super expensive treatments. Evidence of effectiveness, good scientific studies, but I don't think an eight-week trial, were you test Risperdal against placebo is a very good trial because that's not long enough to show that you're going to have side effects. They don't get fatten up to get a significant difference in eight weeks. That is what I called PS scientific study. So I want to say, decent scientific studies. And the other thing is, again, enough families, doesn't convince me it actually worked. Because it didn't start something else at the same time and they can withstand a half an hour of deposition style questioning. They actually convinced me it actually did work, and it wasn't something else they did that worked.
Okay. I like to divide the medications into the light weapons and the heavy weapons. And antidepressants like Prozac, I'm going to put the light weapon of area where these drugs really work is for anxiety and panic attacks. They are anti-fear drugs. They shouldn't be--they probably should be called anti-fear drugs. They really ought to be renamed when you look at all the research. Because depression, you get treatment resistant depression. These drugs don't work. Well, you know it might work for treatment resistant depression and it's right on the shelf at the pharmacy, motion sickness patches. It's called scopolamine. Put it behind your ear. Now, you can't take that stuff all the time but there's starting to ge a little bit of signs showing that deep and dark, you know, where they're talking about shock therapy, one lace you put that behind your ear and it worked. Can't take it all at time, it will give you glaucoma, scrap your eyes, but if I had deep and dark depression, it's not my problem. My problem is all anxiety. So these antidepressants they work just fine for me. I've--Maybe start experimenting with scopolamine. It's a lot safer than lot of the other crap that's out there. You know, now they say, well, you don't have science to prove that, well, you know, deep and dark depression, people get suicidal. You know, what if the scopolamine works? The only thing it'd be dangerous with that is you can't use it constantly. You've got to like use it for a little bit, then you got to stop using it, because the glaucoma risk and some other problems with it.
Now if you look at the medications on this list, Prozac, Zoloft, and Celexa, they're probably the best three. Paxil, probably not the best first choice, I've got memory complaints on Paxil. But if you're on Paxil, and it works well for you, you stay on. If it ain't, broke, don't fix it. Paxil is probably not the best first choice if you start on something new. But if you're on it and it's working for you, you stay on it. The other thing about these anti-fear drugs you got up here is tiny doses. When you use this for fear and anxiety, little tiny doses, 1/2 to 1/4 to start a dose. The big mistake made with this meds is giving too much. And then you get agitation and you feel like you drank 55 cups of coffee. That's serotonin poisoning. You say--and so the big mistakes made is works great in little dose, you up and it's terrible.
Here're your heavy weapons, is your antipsychotics, and boy the drug companies are pushing Abilify and Seroquel because they're still under patent. The question is not just patented. When the patents run out, they don't push them anymore. Risperdal is off patent. Now, you can that as a generic. There are some places for heavy weapons, especially on older children and adults with terrible anger problems. Now, they can switch to crime then they don't need to take these. But there are some where the only way to control their anger is in--it's on the irritability problems is these medications.
A basic principle is, a drug should have an obvious really good effect. Now use a low dose for Prozac and all of those, the tricyclics and the atypicals. Now, on the medical information, I've got in thinking of pictures, I have another book called "The Way I See." The Way I See It. It's easy just to order that online from Future Horizons, templegrandin.com, and that's got all the medical information that's--but it has to be the second edition of that book. Second edition of The Way I See It. Here some important stuff.
Principles of Using Medication

- **Try one thing** at a time
- **A medication should have an obvious beneficial effect**
- **Withdraw a medication slowly**, if a person has been on it a long time
- **Be careful switching brands**
- **Don't expect 100% control** of a symptom

Try one thing at a time so you could figure out what the heck works. You tied toilet, diet, at the same time, [inaudible] diet drug, how do you it worked? Here's a real basic principle, a drug better has a wow factor. If it does have some wow factor, you shouldn't be using it. And be careful switching brands. The company that makes morphine and which is my antidepressant just took the brand name stuff off the market, I'm switching to the generic and I don't think it works quite as well as the brand name stuff. You know, I have to switch now. I may have up the dose a little bit. But they're not bioequivalent. If you're taking Walgreens white pill, you stay with it. If a pill changed it's color, you need to make sure that prescription is not mixed up. If it's just a different vendor, you got to watch and make sure was the stuff still work in the same way. You might have to adjust dose. And don't expect any drug that can give you 100 percent control 'cause it won't. The big mistake that everybody makes in medication is every time there's a crisis. They're upping and throwing prescriptions and stuff. Not thinking about stuff. Not thinking about what they're doing. Okay, you don't give a drug out for autism. You give a drug out and then hopefully it changes some behavior in some good way.
Blood Pressure Medications Reduce Anxiety and Are Used as Sleep Aids

Much Safer than Atypicals

- Beta blocker propranolol
- Clonidine

Here are some other good antianxiety things, good for sleep aids. Clonidine, it's a blood pressure pill. The army right now starts doing a lot of stuff with beta blocker propranolol for treating posttraumatic stress syndrome, that Prozac. You know, you give them some Prozac and then they got to relive the bad thing and Prozac does good things in the fear center. I know visual thinkers that are not autistic to take a Prozac in the morning and a beta blocker at night. It's wonderful. They'd be on drugs and alcohol otherwise. They'll be drug addicts. I'm serious. They weren't doing that combination. There are certain people that are like instant drug addicts. It's genetic.
The science is attracting those mechanisms down. Now, mood stabilizers. These--Other name for this--we’re almost done here--is epilepsy drugs or anticonvulsants or antiseizure medication. And these can sometimes really work well especially on--in someone who's nonverbal where you get a question out of the blue. It's psychomotor epilepsy. You know, just comes out of the blue and blows a [inaudible]. So seizure. Just try to diagnose it. Now the bad thing about the drugs on this list is you got to do blood samples out of the arm. That's the part that's fad and you got to do 'em. ADHD drugs, the stimulants.
There are some mild Asperger's, well this worked. You see, there's a genetic crossover between ADHD and high functioning autism. There's a genetic crossover. Then you get into the more classically autistic kids. These drugs make them crazy. One pill that [inaudible] or not. Think about the stimulants as love them, hate them. You're going to know after one or two pills. If they're bad, and you don't take 'em. But there are some kids.
There are certain kids where stimulants work like magic, absolute magic. So the thing I want to get you thinking about what drugs is, careful conservative use not just throwing stuff. Okay. Then you try to struggle what did it do? Don't start a drug when you start a new school. You know, you've got to be able to watch and see what it does and it should do some wow. And if it doesn't do some wow, then you probably shouldn't be using it. Now, I'm not talking about drugs, you know, like they got diabetes or something, you know. They got to have take something for that. But, you know, when you're using drugs for behavior, it should have some wow factor. Look up your interactions. Everything interacts. Things like St. John's wort, boy, that interacts badly on antibiotics. Like makes them not work, bad interactions.
Exercise, I cannot emphasize enough the importance of exercise. There's tons of science buying that. Eating 10,000 tons of sugar, bad, bad, bad when you get a lot of sugar out of the diet. God, it's disgusting how much of sugars in 20 ounce coke. That was like 10 or 15 teaspoons. It's like disgusting. When I was a kid, a coke with 6 ounces, and it was a just treat.

| Special diets work for some individuals | Vitamins and supplements B6 and Magnesium |
| Vigorous exercise for calming           | Weighted blanket or vest for calming      |
| Omega 3 supplements help the brain      | Poor diet – more depression               |
Well, I've got a pretty typical autism family history with an MIT trained engineer on my mother side, my grandfather. We had anxiety and depression. Lot of markers both sides of the family. You know, some Asperger's on my father side of the family. It's a lot of little genes, little tiny genetic variations that add up to autism and they're all in genes that control brain development.
Einstein had many autistic traits

What would happen to little Albert today, in today's school system? He's 3 years old, he doesn't have any speech. Now how many drugs they're going to load little Albert on. Is he going to be sit and play video games and social security today? Or is he going to go out and figure out theory of relativity. What happen to little Albert today? I kind of get the hibbie gibbies when I think about that.
Well, I think we got some time for some questions.

Audience: Ms. Bandon, you're a rock star. I mean, to a lot of us here. You're a rock star. Bigger than, you know, Madonna or any videos. You're an inspiration. I think we all have to say that. Really. I mean, I'm not big on emotion but I'm tearing up just meeting you because you've given me a gateway into seeing into my son's mind.

Dr. Grandin: Well, how old is your son?

Audience: I actually have three boys. My oldest is here. He has Asperger's. And I have a 15 and a 14-year-old. They're both moderate-severe and for many, many, many years we didn't understand what was wrong with him and it was real struggle, but I did have some questions. I agree with your old school values. My boys when they first became verbal said thank you, please, easiest things to teach. Very close knit family, I believe that autism is very over diagnosed these days.

Dr. Grandin: Well, I think there is some over diagnosis, the other thing that bothers me today, especially with kids like you right there, is I'm seeing too many kids come to me and they just want to talk about their autism. Well, when I was—you know, when I was a teenager I was interested in horses. I was interested in optical illusion rooms. I don't like it when I'm seeing kids getting all hang up on their autism and that's all I want to talk about.

Audience: He hides it, but he, like me, is very inspired by you.
Dr. Grandin: Well great.
Audience: So he had to write an award winning essay to win tickets to meet you today.

Dr. Grandin: Well, great. I'm glad you did that! Wonderful!

Audience: Yeah. But I did have a question. I was hoping one thing I missed in your speaking is my middle son. He was the most severe and we take him different places and we encouraged him to go different places and we let him set the limits.

Dr. Grandin: You have to stretch. And the trick is if you push too hard then you're going to have big meltdown, but if you don't stretch at all, that doesn't make any advancement.

Audience: He is so much more capable then what other people thought he was.
Dr. Grandin: No, but you see that's the same thing with me. Nobody thought I would go anywhere.

Audience: He exceeds our expectations every day, and every year. But I wanted to know as he's turning 16, he's a boy, so the testosterone is racing, and he tends to be a little bit echolalia. He tends to repeat a phrase he heard, but he got to express his own emotions, As he gets more argumentative, I was hoping you could give a little more insight on when he's trying to assert himself, even if he doesn't always have the words. How we can help him through that frustration? My son's name is Blake. Blake you need to turn down your music. "Mom you're so mad at me." And I say "I'm not mad at you but I would like you to turn it down so you can hear me when I speak to you, too." And he tolerates us trying to discipline him occasionally.
Audience: So he had to write an award winning essay to win tickets to meet you today.

Dr. Grandin: Well, great. I'm glad you did that! Wonderful!

Audience: Yeah. But I did have a question. I was hoping one thing I missed in your speaking is my middle son. He was the most severe and we take him different places and we encouraged him to go different places and we let him set the limits.

Dr. Grandin: You have to stretch. And the trick is if you push too hard then you're going to have big meltdown, but if you don't stretch at all, that doesn't make any advancement.

Audience: He is so much more capable than what other people thought he was.
Dr. Grandin: No, but you see that's the same thing with me. Nobody thought I would go anywhere.
Audience: He exceeds our expectations every day, and every year. But I wanted to know as he's turning 16, he's a boy, so the testosterone is racing, and he tends to be a little bit echolalia. He tends to repeat a phrase he heard, but he got to express his own emotions. As he gets more argumentative, I was hoping you could give a little more insight on when he's trying to assert himself, even if he doesn't always have the words. How we can help him through that frustration? My son's name is Blake. Blake you need to turn down your music. "Mom you're so mad at me." And I say "I'm not mad at you but I would like you to turn it down so you can hear me when I speak to you, too." And he tolerates us trying to discipline him occasionally.
Dr. Grandin: So when I was his age and I got kicked out of school in 9th grade for throwing a book, I went to a special boarding school. You know what they told me there? I got in a giant fist fight in the cafeteria, so they just took horseback riding away for two weeks. If there was something very simple, there was some penalties and after I calmed down they would just say, "Well, thank you for calming down, but now there's going to be no TV tonight." You know the rule was meltdown, it was called the temper-tantrum in the '50s. If I had a temper-tantrum, that meant no TV at night. That was the rule.

Audience: Thank you.

Question: Based on the movie, if your mind was very busy and you mentioned like the shoe where you see all the pictures. Our son has had brain scans done and he has a lot of trouble getting his homework done and one thing you said is that his whole brain lights up. So instead of just focusing on a map, he's looking at the map as a problem.

Dr. Grandin: Well, what kind of stimulus were they doing in a scanner when he said his whole functional MRI, what stimulus were they giving him to light up the whole brain?

Audience: They did two, where one was a forehead scan, and then they did a few stimulus scans. I'm just curious, does that been in your way and do you have way it's lighting or have you found a way to
Dr. Grandin: I have to figure out exactly what they were doing with the scan and was it in a research setting?

Audience: Yeah, like neuropsychology.

Dr. Grandin: Well, I can’t answer that without knowing how they were reading stuff. I mean a normal brain lights up a lot.

Audience: Right and they showed pictures of like a normal brain along with his. His problem is that he has so much going on in his brain.

Dr. Grandin: Wait, how does this affect his life? You’re still talking too vague. How does it affect his life?

Audience: He can’t stay on a specific topic. I mean he can't in some situation but like with academic work they provide in the school, he has trouble focusing on the other stuff like homework.

Dr. Grandin: Right, first of all, let’s give him a quiet place to study. You know a really quiet place to study. No fluorescent lighting probably and, you know, some of this is just the motivation they need. And he's fully verbal?

Audience: Yes.
Dr. Grandin: Reading? Does he read at grade level, math at grade level?
Audience: Yeah.
**Dr. Grandin:** You know, some students are going to get down on the motivation whether he wants to do it. You know, the thing that motivated me was when I had the goal of becoming a scientist.

**Audience:** Is it only when you’re in a certain mindset?

**Dr. Grandin:** No. It's always there. But when I'm writing something, well then I am seeing the stuff I'm writing. It's always there and he's just going to have to learn how to do these things. Give me an example of a homework assignment he can't finish.

**Audience:** Writing assignments or math assignments, if he can tell it to you, great.

**Dr. Grandin:** In other words, it is better auditory?

**Audience:** Yeah.

**Dr. Grandin:** He's better with auditory. So you see now this doesn't have anything to do with the brain lighting up all over, sounds like this guy is an auditory learner. Some people are visual learners, some people are auditory learners. He's an auditory learner. Well, then he is probably going to do well in a class where there's a lot of lecture. How does he do if he uses audio books?
Audience: Yeah, he likes to use audio books.

**Dr. Grandin:** Well, maybe he needs to study with audio books. You know, go more on his style of learning. It might help. And the thing is, that has nothing to do with the whole brain lighting up. See the thing is there are a lot of people out there selling a lot of stuff. One thing I’ve learned about research things is that everything that shows up on the brain scan shows up clinically. Okay, yeah I found out my fear center is 3 times bigger. Yeah, that explains why the antidepressants work so well. And, you know, all the pictures on my mind got that big circuit. Language output circuit is a mess. That’s why learning to speak was like a big stutter. I would rather look at a lot of these things more on, I want to forget about a lot of these diagnoses, it’s not the size. Half of the new DSM-5 is based on science and the other half is chitchat around their conference table. That’s the reality. So let’s look at what the kid’s actual problem is. Okay, he’s an auditory learner. You know, I’ve tried to get as many of his materials in auditory format as possible, like history books and things like that. I had to get this stuff on audio book. I think there are programs that you can get where you can just read it to him. You scan a book and you can read it, it’ll read it out to him.

Audience: No, because they want him to write.
Dr. Grandin: But it sounds like this guy is an auditory learner. So this is the problem in putting a label on it like autism because they try to jam all the autism in the same thing. I would rather look at what the specific problems are. I had a student that was an auditory learner and she did really well in all the classes like English and history where she could talk and just do a multiple-choice test. But I think we need to be looking more on what his specific problems are. You know, I would maybe get some educational consultation. I don't really care what the brain scan is doing, because I question how they're interpreting that. Unless that is done in an actual scientific research lab, I question them. Like if they are using the MRI to make a bunch of money with it or something.

Audience: In your presentation, you didn't mention anything about the connection of autism and vaccinations; could you talk about that for a moment if you have ideas or opinions?
Dr. Grandin: Well, basically, there's getting to be more and more research showing that environmental insults during the first trimester pregnancy, you know, various different chemicals, plasticizes, these things like this could increase developmental problems and as far as the vaccine goes, the MMRI, the--oh, God I can't never say it right. That tickler vaccine, the rubella and mumps and the--that one has got the worst safety profile, all the vaccines. And the only thing that's going to totally close the book is to do a study on the regressive group separately. That was the group that gets some words and then losses it. Until you study the regressive separately, you can't totally close the book and when I bring that up in front of the experts, I get that silence. There's also some stuff that could be done and go back and look at error bars and standard deviation, or the means on data too that could be done with the existing papers. That would be a good master's project for someone in statistics to do that, they got to dig up a lot of papers and read them.

Question: I notice that in your movie, your diet was very limited.

Dr. Grandin: Well, that's why the diet was limited because I had nonstop colitis attacks that when I went on the antidepressants, guess what, colitis stopped. It's not limited now. But I did have times where I'd have to go two weeks eating nothing but yogurt and Jell-O, because everything else wasn't right for me.

Question: My little one, I can't get her to eat anything but very specific things. Do you have any suggestions?
Dr. Grandin: We need to be working on trying to broaden that. Take a favorite food and put it on a plate and put something that's sort of like her favorite food next to it and encourage her to eat that then reward her, gradually try to broaden that out.

Audience: Okay, thank you.

Question: Hello my name is Trevor, and there are two things I want to say. First of all I was diagnosed with Asperger's syndrome at the age of 15 and I want to thank you for being an inspiration to me.

Dr. Grandin: Well, you might find this book that's up on the screen helpful, it's about famous scientists and musicians that probably had Asperger's.

Audience: I believe I have that one. And second of all I just had a question, would you consider Asperger syndrome to be a mild form of autism or a separate diagnosis.

Dr. Grandin: It's a mild form—it's on a continuum with autism. When you're looking, we really get into the science. Never mind what the games are playing with the DSM-5, but the science is showing that the social problems are a true continuous trait. Then you get into where there are some differences, where there's delayed language or there are some differences, that are not continuous, and then things like the fixated interest, repetitive behavior, that's kind of continuous, but that's a separate trait, and most Asperger's have got someone to fixate interest in and repetitive behavior. You know, with language problems, that used to be the things they would use to divide autism from Asperger's was the speech delay. But the social deficits are two continuous traits. He can learn just to drift
soft and do, well, a little bit not a social normal, 'cause there's like three different traits in there, social, repetitive fixated, and language.
Audience: Okay, I was just wondering because I consider myself something of a nerd, I go on about my favorite subjects a lot.

Dr. Grandin: What are your favorite subjects?

Audience: The books, I'm writing.

Dr. Grandin: What kind of books are you writing?

Audience: It's a fiction book. I plan on becoming an author one day.

Dr. Grandin: Well, why don't you try to publish it on amazon and read today's USA today on self-publishing.

Audience: First of all I have to finish the book. I'm hoping to get that done, and I have about four people I intend to have look it over after my own revisions.

Question: Hi Ms. Grandin. My name is Chad, I just want to start by saying, I think you're brilliant and this question is in regards to your drawing. I know early on you did a lot of drafting to convey your message. Do you use any of the more intensive CADs, software programs such as AutoCAD or SolidWorks?

Dr. Grandin: Well, unfortunately, all of that is being done now by my assistant who was sent to computer school, I never made the jump because I was just too busy doing other things. But one thing I did with Mark, who does all my drafting now and he's been complimented by CAD instructors. I made him do a year of hand drafting before he got near a computer, then we went to computer school, and he draw the CAD drawings that look a lot like this. The humane handling book that's out there has Mark's drawings in there.
And I've seen some really weird stuff happen on them. Meat industry went from hand-drafting to CAD, young people that have never drawn by hand and never build anything, drew bunch of weird stuff on CAD, like they didn't know where the center of the circle was, because they've never drawn with a compass, they'll a make weird mistake on drawings. And I've talked to people at Pixar and Disney about this problem too. And now those kinds of places use a 3D printer like the one into one in the CAD places where they're doing the 3D drafting for the, you know, when making the movie characters. Well, they can print out there little movie characters on a 3D printer; you get a little sculpture about this big. You know where those sculptures were? They were all around the computer terminal where they can hold them. You see, because there's a touch aspect to drawing. And I think the thing that's interesting at Pixar is all their movies start out as sketches pinned to wall--the wall on the hall, there're hand sketches. You see you have to feel. If you don't feel your drawings, then there will be a lot of problems with them. I have drawings in every major meat company with really strange mistakes on them. And every single one of those drawing, the weird mistakes, came from a young kid never built anything with his hands and had never drawn by hand. But Mark's been complemented and I have to say, I trained him on the drafting board first, and I made sure he got really good at hand drafting, then he went to computer school and he drew as beautiful CAD. Mostly CAD, I'm seeing commercial as garbage.
Audience: Drafting by hand is something you pretty much taught yourself correct?

Dr. Grandin: I taught myself. And the way I taught myself was that there was this draftsman named David at the Coral Construction Company. But the other thing I had to do is I had to do teach myself how to read drawings. Okay, now, if you look over there on the wall you can see where there’s a concrete column there, it’s kind of decorated. Well, that would show up as a square on a drawing. If you look at a floor plan, that concrete column will show up as a square. Well, I had to learn how to relate a square on a floor plan to a concrete column. I had the site plan for the entire plant. And I had every piece of equipment on this huge great big drawing. And I carried it around the plant until every line on that drawing, I can relate to the actual physical structure like a square column, the square was a column, this oval thing was a hide washing tank. Another round, circle was the water tower. This other little thing was a hide floor. This is a cattle buyer's office and here's the bathroom in cattle's buyers office, and I could see the plant on every line on that drawing. And that took about a week of just walking around that plant with that drawing, because I had to learn how to relate, the more abstract the lines to the actual real thing. And then the drafting kind of appeared like magic, then I pretended I was David, but I had to go through all this whole process of learning how to read drawings. And I saw my hand drawings, they’re up on the internet, go on grandin.com, that's just my last name, grandin.com, and you go in the book section and click on picking pictures, there’s a link in there that goes to pay for the sketch on my drawings.

Applause: Folks what a remarkable story. Please join me in thanking Dr. Temple Grandin.