INFORMATION FOR TEACHERS

STRENGTHS, CHALLENGES & STRATEGIES FOR WORKING WITH YOUNG STUDENTS WITH WILLIAMS SYNDROME

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Children with Williams syndrome in the classroom: Strengths, challenges and strategies

Introduction

This booklet was developed to assist teachers who have a child with Williams syndrome in their class at school. The most important sources of information about any child are, of course, the child himself, and the child's family. Parents, brothers and sisters, and environmental factors strongly influence the development and personality of all children. Other genetic influences also affect the child. It is important to remember that for a child with Williams syndrome, the syndrome is only one factor in who he, or she, 'is'.

Children with Williams syndrome are often particularly appealing. Many of the associated characteristics are rather desirable (bright eyes, very broad engaging smile, enthusiastic manner, socially engaging and conversational, strong sensitivity to the emotions of others, cute upturned nose, excellent memory for people met infrequently or long ago, very expressive of own emotions - especially happy excitement). It is important to keep in mind that these are indeed "real" characteristics of the child, not part of “pathology”. That is, it is important to capitalize on, and enjoy the very real charismatic appeal of many children with Williams syndrome, and not dismiss these behaviors as simply, "Williams-isms." All children need to feel appreciated and enjoyed and there is so much to appreciate and enjoy in your student with WS!

In spite of the many wonderful qualities, there are also many challenges associated with Williams syndrome. Familiarity with common trends or propensities and beneficial strategies can be very helpful, especially in terms of understanding and working with children who have personalities, emotional, behavioral and learning patterns that are quite unique and often confusing.

Children with Williams syndrome are predisposed to certain strengths and difficulties, but with a great deal of variety across each of the characteristics associated with the syndrome. For example, some of the children have few or no associated medical problems, while others may have complications from cardiovascular, gastrointestinal and other medical issues. The degree of learning difficulty also varies greatly, as does the presence and degree of attention difficulty. The classroom guidelines and patterns of social, emotional, behavior and learning discussed in this pamphlet reflect ideas, strategies and potential areas of difficulty, rather than characteristics of all children with Williams syndrome. The particular child in your class may have few or All of the tendencies discussed below.
Classroom Placement for the child with Williams syndrome

**Should children with Williams syndrome be in regular or specialized school settings?**

There is a great deal of variation in terms of classroom situations for children with Williams syndrome. The best situation for a particular child depends as much on the needs of the child as it does on the supports the school system is able to provide in regular and specialized settings.

A growing number of children with WS are doing well in regular classroom settings, while obtaining needed therapies or special help in both “in-class” and “pull out” sessions. Curriculum adaptation and supports are generally needed, as well as a teaching approach tailored to be accessible to a range of learning styles (e.g. consultation with a behaviorist or counselor around managing attention or anxiety issues, social skills support around friendship development; Assistive Technology consultation and supports, etc.). Other children with WS will do best in a combination of regular and specialized classroom settings, such as going to regular education music and science classes and specialized math and social skills classes, while still others may do better in a self-contained special education classroom.

It is important to consider that “inclusion” as a philosophy is vital. Children with WS, deserve the same benefits, rights and access throughout their school life as all children. Children with special needs should not be segregated or relegated to lower quality separate programs. All children, with or without special needs, deserve to be educated in settings in which they are able to experience success, including social, and academic success, emotional well being, and an environment in which they can grow and develop. For some children this will be in high quality, specialized programs with smaller class sizes and where teaching is tailored to the social emotional and learning needs and for others this will be in the regular education setting.

Many children do well in regular education with supports in younger grades and may benefit from more specialized teaching and supports in older grades. This is largely a function of how our education system works, with class size increasing with each grade, and, generally, individualization in teaching decreasing in older grades. Some towns however have a greater range of program options in middle and high school than in elementary school and so inclusion in the regular education setting becomes easier. Each situation is highly individual. *Keeping the “compass” for decision making around education and the needs of the individual child is both consistent with the education laws, and most likely to result in the best classroom setting for that child.*

School is only a part of a child’s life experience. Children who are educated primarily with other children with special needs should have opportunities for community inclusion outside of school, in family and community activities, and children educated in regular education settings are likely to benefit from time spent with other children who have special needs. Events like the
Williams syndrome regional activities or music camps, Special Olympics or Best Buddies types of programs are great ways to facilitate this interaction.

Classroom Aides
Some children do best in regular classrooms when they have an aide to support them. Whether the aide is primarily utilized by a group of children or "1 on 1", it is often most effective for the aide to spread him/herself across several children rather than be with the child with Williams syndrome at all times. Children with WS love to have someone dedicated “just” to them, but it is usually not the best choice. In a “1 on 1” situation they will often become very attached to the aide and grow to depend on them rather than developing independence. It is important for the aide to understand this tendency and work to develop both skills and personal independence.

Managing Behavior
Children with more significant learning or behavioral issues, and/or who are in school systems with large classes and few supports often benefit from a more specialized classroom placement. This may be a classroom for children with learning disabilities, or one for children with intellectual disabilities, depending on the educational needs of the child. It is generally NOT recommended that the child with Williams syndrome, even those with behavioral issues, be placed in 'behavioral' classrooms. This is because the behavioral issues of a child with WS, and the needs around behavioral support are very different from those children typically placed in such classrooms.

Similarly, since most children with WS are highly social, placing them in classrooms designed for children with Autism spectrum disorders is generally not effective. Sometimes classrooms for children with a range of special needs including some with ASD can be effective, depending on the classroom orientation, teaching style, peer group and needs of the child.

Social, Emotional and Behavioral Patterns: Challenges and Strategies
Certain personality characteristics are especially common in children with Williams syndrome. These characteristics include: an outgoing social nature, an exuberant enthusiasm, a sense of the dramatic, overfriendliness, a short attention span, extra sensitivity to sounds (and sometimes hyperacusis), and anxiety (especially about upcoming events and/or sound related events such as fire drills). Listed below are several common traits along with questions, and strategies for managing them in the classroom.

Friendships
Students with WS are generally very friendly but have trouble making friends.
Most children with WS are very outgoing. They seek out and really enjoy that spark of emotional connection. Greeting people with a warm “Hi”, remembering people’s names, and responding quickly to the emotional states of other people (e.g. offering comfort to someone who is sad) are very common. However many of the skills involved in sustaining on going friendships are more difficult. Challenges and strategies include the following:
• Challenge: Students with WS want to talk about their own favorite topics, which are not necessarily the topics of interest to a peer.
  
  o How it manifests: Many children with WS, from a young age, develop a range of favorite interests and conversational topics. These may relate to music, or sounds, or topics that have caused them some anxiety. Some common favorite topics include those that are fire engine related, lawn mower or other yard equipment or vehicle related, or machine/ vacuum cleaner or storm/weather related. Other favorite topics may be more typical such as family pets or family members, (their own and others) or different cultures. Favorite topics may evolve with age and although some may overlap with favorite topics of their peers, many will not.

  Children with WS often become skilled at bringing topics around to their favorite ones and may have difficulty sustaining conversation around topics of interest to peers. With age, development, experiences and especially support, topics of interest can be expanded. In the meantime, there are ways we can help to foster friendships for the child with Williams syndrome.
  
  o What you can do to help:

  ▪ Help peers develop an interest in some of the interests of the child with WS. Include curriculum that can showcase the special interests of the child with WS (e.g. in a unit on Community Helpers the child with WS with a fire engine interest can help provide information to the class)

  ▪ Develop special interest “clubs” during or after school that relate to the special interests of the child with WS

  ▪ Help the child with WS expand their knowledge base and interests by introducing new topic areas in a manner that carries emotional meaning (e.g. when teaching about another country in Social Studies have the child with WS with a special music interest learn about music in the country being studied).

  ▪ Teach the child with WS some ways to stay focused and expand conversation in topic areas in which they don’t have much natural interest. This is best done in small social skills dyads and groups with adults facilitating. Social skills games to foster this skill area include “Positive Negative”, “Freeze” and “Sell my friend” *
• Challenge: Short attention span and rapid shifting of topics
  o How it manifests: Often children with WS will start off a conversation well and then it falls apart as they shift quickly from topic to topic or don’t follow the shifts of their peers. For children who have short attention span and ADD/ADHD there can be additional difficulty.
  o What to do about it
    ▪ Social skills games *
    ▪ Adult facilitation/help during peer unstructured times. Participatory facilitation at lunch and recess is especially helpful. An adult who is liked by the children and is outgoing, can participate in the children’s conversations in a natural way and help link the child with WS to the flow of conversation (“Hey Jean, that’s like when you went to Disney…”)

• Challenge: Coordinating verbal and nonverbal components of sustained conversation and interaction
  o How it manifests: Children with WS make good eye contact, use gestures, and use a great deal of expression as they speak, but don’t always coordinate this all together or coordinate this with their peers. It is common to see a child with WS start to talk to a peer, and then walk away, perhaps still talking, and not realize they have lost the attention of their peer. Or they may stand too close or talk too loudly for the situation. These difficulties are often called the “pragmatics” of communication.
    ▪ What to do about it:
      • Practice these skills in small, activity based social skills groups. There are many games that teach specific components of social pragmatics to help children coordinate verbal and nonverbal communication with their peers. “Pass the clap”, “Zip zap zop”, “group story” are a few. Social skills teaching, and social skills groups (1 or 2 times weekly) can be in the child’s IEP. This is often done by a Speech Therapist, and sometimes with an OT and/or Special Education teacher.
      • Adult participatory facilitation during low structured times so that the adult can naturally cue the child with WS and the peers (e.g. “Joey are you trying to tell Ben about your weekend? Try calling his name and looking at him first”) is very helpful.

• Challenge: Sticking to the ‘true story’ in conversation.
  o How it manifests: Sometimes children with WS are more focused on the emotional content and response of a conversation than on the literal truth of what they are saying. One child may announce “We got a new PUPPY!” and get warm excited responses from teacher and peers. The child with WS, seeing and enjoying this warm emotional interaction may announce “WE got a new puppy TOO!” to recreate these same warm excited interactions. While its important over time for children with WS to increasingly learn the value of telling the truth,
it is also important for adults to recognize that very often this sort of ‘lie’ is not a moral transgression or an attempt to deceive, but rather what seems to be a deeper than typical valuing of strong emotional engagement in a situation

- **What to do about it:**
  - In the moment, it is important not to embarrass the child. If it isn’t necessary to address immediately, move on in the group setting and address it individually at a later point.
  - Sometimes the made up component can be addressed, especially with younger children, by shaping the comment into a shared wish (e.g. “I WISH I got a puppy too! How many kids wish they got puppies?”).
  - Later, at home, in Speech Therapy and in Social Skills groups, games around “Fact or Fiction” can be played in a non-judgmental way, helping raise a child’s awareness of this distinction.
  - Reasons for telling the truth can be explicitly explained using Social Stories.
  - If a child is doing this often it is important to assess the Big Picture to see if they are getting enough emotional engagement and responses to their true stories and comments. If they are not, adding this engagement to help decrease their need to use “tall tales” will be helpful.

- **Challenge: Intellectual differences**
  - **How it manifests:** Children with WS, especially when grouped with same age peers, may have intellectual delays including delayed language processing, as well as difficulty following complicated conversational topics. Executive function difficulties can make it more difficult for the child to understand the ‘main idea’ of the conversation, and comments may be tangential or off topic.
  - **What to do about it:**
    - Make sure there are social times regularly where the adult can take part in social experiences and facilitate to bridge the child’s participation. The adult can find some common ground where the child’s intellectual differences have less of an impact (e.g. recent shared fun events the class has participated in; excitement about upcoming events such as holidays/school plays/concerts; special interests/areas of expertise of the child with WS).
    - Exposing the child with WS to popular conversational topics when appropriate can also be helpful. (e.g. if many peers are talking about a book or show the child isn’t familiar with but could potentially be, suggest to the family that they read/watch this).
    - Having times where the child with WS can spend time with others who have more overlap in intellectual, social and language ability can also be beneficial to prevent loneliness. Participate in social skills group time!
**General approaches to help children with Williams syndrome develop friends**

Many children with WS express feeling very isolated in spite of being so outgoing. They feel (and it is often true) that they have no real friends. It is very important to address the issue of social isolation. It is extremely important to address this quickly when it is noticed, and continuously over time by creating many opportunities where the child with WS experiences social successes throughout their days. Social isolation places children at risk for a variety of additional problems including heightened anxiety, depression and behavioral problems. We have coined the term Social-Affective-Diet (Levine, Chedd and Bauch, 2012) that can be put into children’s IEPs to insure a child is not experiencing social isolation. Additional strategies include the following:

- Support the creation or expansion of special interest clubs during or after school related to special interests or skills of the child with WS (e.g. a dance club, if the child with WS loves to dance)
- Incorporate a program into the school such as Best Buddies [http://www.bestbuddies.org/our-programs](http://www.bestbuddies.org/our-programs) that overtly pairs children with developmental disabilities with typical peers for mutually pleasurable activities
- Social Skills teaching and social activity based friendship development groups in child’s IEP.
- Have the child with WS be in a helper role that brings them social success on a frequent basis (e.g. a high school child leading a daily or weekly music time for Kindergartners or helping in the school store where there is much social contact)
- If there is a substantial difference in intellectual ability between the child with WS and the peers, as there often is in inclusion models, it may be beneficial to have the child with WS spend some time with other peers with whom they share social and cognitive styles and abilities. This could happen either in, or outside of, school. It is understood that not every two children with disabilities will be friends, but often specific children have interests and social styles that match well.
- With family permission, educate peers about Williams syndrome. Older children with WS can often be an important part in this process whereas for younger children, having parents and teachers work together to do this can be very helpful. See williams-syndrome.org for some approaches for doing this. Often peers notice differences and this can make them unsure how to respond, whereas having further understanding and feeling comfortable asking questions about their peer with WS generally leads to much more acceptance. Exactly when and how to do this is very individual depending on the child, family and school culture and there are many good ways to do it.
- Encourage families to foster connections for the child with WS in many ways including family friends, relatives, other people with WS (through the many WSA supported regional and national activities many children form strong connections with peers with
WS) and activities such as Special Olympics, local ARCs, community music and drama, etc.

- Employ Autism developed social skills curricula and groups (see Appendix). Michelle Garcia-Winner has developed a Social Thinking Curriculum adopted by many schools. This can be very useful to address social understanding. Drama Based social pragmatics is a very effective approach to teach subtler aspects of social functioning in a fun and highly motivating context that also builds social connection. There are many resources for this approach (e.g. Theater Games for the Classroom, A Teacher’s Handbook, by Viola Spoli). However it is important to recognize that doing one or two hours/week of “social thinking” or social skills teaching is not likely to make a significant change in a child’s social functioning unless social support and strategies are integrated in real life throughout their school day.

- While Social Stories can be helpful to a) help a child learn how to act in certain social situations such as in the cafeteria or school bus, and b) to help a child preview what happens in new situations, Social stories in spite of their name aren’t generally effective in helping children develop friendships. Reading stories to children about ‘how to be a friend’ can teach specific behaviors to do or not do and can help explain others’ behaviors, but does not help a child with the complex verbal and nonverbal and emotional feedback processes involved in social interactions.

**Teasing, bullying, exploitation**

Due to the combination of strong desire to connect with others socially, to please others, and social naiveté and difficulty reading subtle social cues, children with WS are generally at greater risk for subtle or overt teasing, bullying or exploitation. A higher level of supervision is often necessary during unstructured social times, as is adult participatory facilitation, and creating circles of friendship around the child with Williams syndrome. Direct teaching of social safety and self-advocacy to the individual with WS, especially as children approach adolescence, is key. Goals around these important areas should be in student’s IEPs. Additionally, school wide and classroom wide efforts at creating an atmosphere of celebration of difference, of looking out for one another, and of adult support around conflicts or teasing incidents are also key.

**Anxiety**

*How can we help the student with Williams syndrome and anxiety?*

Anxiety is very common in children with WS. It often presents in the form of specific fears and especially anticipation of specific feared events. Common fears include anticipation of, and presence of certain types of sudden sounds such as scoreboard buzzers, sports whistles, fire alarms, fireworks, thunder, and sometimes certain PA announcement systems. Sometimes people-produced sounds such as bursts of applause, loud group laughter, or coughing can be feared as well as the anticipation of these occurrences. Anxiety about upcoming events, (good and bad), is also common and often presents as repeated “question asking” about the event. Some children want to be reassured every day at the start of school, and sometimes several times per day that there won’t be a fire drill or that they won’t be getting a shot at the doctor. Anxiety around whether people are angry or angry at them in particular is also common.

In general, forms of adapted Cognitive Behavioral Therapy (CBT), gradual exposure, and
Replays (Levine and Chedd) can be very effective. See Appendix for resources. These approaches involve breaking down the anxiety provoking ‘trigger’ and doing gradual exposure to each component, while pairing this with something that is relaxing (e.g. being with a much liked adult; listening to music; learning and doing relaxation strategies) to gradually decrease anxiety. Environmental adaptations (e.g. providing a warning before fire drills for the child with WS) may be necessary.

Social anxiety/shyness is extremely rare, and most children with WS are eager to greet and get to know new people such as visitors entering a classroom. It’s important not to misinterpret this social outgoing nature as indicative of a lack of anxiety.

- **Challenge: Child is anxious when there is an upcoming event such as a special assembly or field trip or something outside of school such as a doctor visit:**
  - How it manifests: Perseveration! Often, the child will ask repeated questions about when/what/where something is going to happen, even when the child knows the answer.
  - What to do about it:
    - Have a schedule or calendar available and if the child is able to, direct them helpfully to check when X is happening (“Oh, I wonder when that IS coming up? Go check our class schedule!”). In this way they can reassure themselves.
    - Help the child communicate specifically what they are worried about or excited about regarding the event that is causing them to focus on it (e.g. “Are you worried the clapping will be too loud at the end? Shall we figure out what to do about that?”)
    - Preview as much of the event as possible if the child is not familiar with it (e.g. assembly; field day). Preview with video, role play, Social Stories when possible.
    - Have times for question asking and times for “no more questions” (e.g. “We’re doing math NOW but we will definitely talk about x later, at lunch, OK?”)

- **Challenge: Child is worried about others, especially adults, being angry at the child**
  - How it manifests: Child asks repeatedly “are you mad at me?” This is especially likely although not exclusively, to occur with adults who either have mild, harder to read facial expressions and voice tones (e.g. sometimes shy quieter adults) or adults who are very expressive but may, to the child with WS, have similar expressions when expressing something intensely (e.g. how important it is to work hard) vs. with anger. Perceiving neutral input, such as a neutral face, as negative in some way is very common in people with anxiety.
  - What to do about it:
    - Work explicitly on helping the child recognize ‘shades of gray’ in emotions. Make video clips of familiar people showing different emotions in typical contexts (e.g. reading teacher helping a student), role play,
watch parts of TV shows/movies together, with and without sound, and talk about the meanings of voice tone and facial expressions. Most children with WS can readily interpret the basic emotions but can have difficulty determining just how upset or angry or happy someone is, and can be confused about the intensity of concentration vs. intensity of, for instance, anger.

- Consider use of Kari Dunn Buron’s Incredible Five Point Scale (http://www.5pointscale.com/). The colors in it can be used for children who haven’t internalized the number sense. This can be used both for the child to identify their feelings and for the adult to identify theirs (e.g. “Did you THINK I was angry in RED, at a 5, but really I was just a little impatient more like a Blue/2?” You can find many creative uses of this on the website.

- Asking “are you mad at me” can also become habitual. If you think the child really knows and is simply seeking reassurance, consider asking it back playfully “Do you really think I’m mad at you?” Then laugh together “NO!” I just want you to hurry up and finish that math so you can get out to recess.

- Consider a ‘secret signal’ meaning “We’re good” such as a “thumbs up” exchange, for when a child asks or periodically when the child catches your eye.

- For adults who naturally have less expressive voices and faces, consider putting in very small playful comments as you work with the child with WS or teach the class (“Whoops, my 6 looks more like a snake!”). You don’t need to be a clown, or put on a show, but putting in little emotional playful comments can greatly reduce anxiety and increase available brainpower for attention.

- Put goals related to Reading Emotional Cues of adults and peers in IEP

- Include work on this in Social Skills group and across the child’s day as needed.

- **Challenge:** Child is fearful about an environmental sound or event to a degree and frequency that interferes with their successful functioning and happiness
  
  - **How it manifests:** Child won’t go in the gym because the scoreboard buzzer “might” go off. Child is distressed every day at the start of school fearing a fire drill or the daily announcements. Child won’t go into the cafeteria because of the noise, or the child can’t concentrate on cloudy days, asking repeatedly if there will be thunder.

  - **What to do about it:**
    
    - Specific fears/phobias can often be treated very effectively with strategies related to Cognitive Behavioral Therapy, gradual
exposure and/or Replays (Levine and Chedd). See appendix for resources. The key to these approaches is breaking down the gradual exposure into steps. Often people first working on this make the mistake of thinking gradual exposure means spending 1 minute than 2 minutes in the cafeteria instead of realizing the many other, creative ways for developing “steps” of gradual exposure. For instance, for the child afraid of going in the cafeteria, steps can include being in the cafeteria with just one or two people and playing a favorite game, watching video of the cafeteria (with permission), with the sound off, then getting louder, passing through the cafeteria doing an important errand with a liked adult, or being in the cafeteria with music playing etc.

- Work on increasing the child’s comfort level across different components of school life should be included in the IEP and can be worked on by an OT, SLP, Special Education Teacher or Counselor.
- **IF experiences create a very phobic response in a child, forcing them to endure it is not recommended, as it is likely to cause an increase in anxiety. In these more extreme cases, accommodations in the IEP so the child does not have to do x, as well as working to increase the comfort level using above strategies are important.**

**General strategies to help the student with anxiety:**
In addition to the above strategies, especially CBT, Replays, gradual exposure, below are general strategies that can help keep the child’s baseline anxiety level down and therefore help with specific phobias:

- **Teach yoga.** This is increasingly being done in schools as part of gym class or as an elective. Students with WS are often very quick to relax with this sort of breathing and movement relaxation. Once a child knows some yoga they can be encouraged to do this (with an adult and/or peers) a few times during the day to reduce elevating anxiety. Relaxation breathing that is part of yoga is often very helpful. This can also then be used in times of increased anxiety.

- **Make a relaxation music playlist.** This can be used in different ways depending on the circumstances and class set up. It can be incorporated into a listening center or computer area, or if the child has an iPod or other mp3 it could be used individually.

- **Have headphones available.** For some children this can be an ‘in between’ strategy for especially loud predictable events. While it will be helpful to work on desensitization, if headphones can help a child cope with an event such as a daily buzzer this can be very useful. Sometimes just knowing the headphones are available can be helpful.

- **Incorporate consultation with or treatment by an Occupational Therapist:** Some OTs are very helpful at developing relaxation approaches individualized for a specific student.
- **Incorporate consultation with a counselor, school psychologist or behavior specialist experienced in treating anxiety**: Some behavior specialists are experienced in CBT and related approaches whereas other behavior specialists are not. While behaviorists can be very helpful in treating anxiety it is important that this is their area of specialty. Someone not experienced in treating anxiety might misunderstand anxious or phobic behavior as, for instance, willful noncompliance. Punishing a child for a phobic response is counterproductive.

- **Collaborate with outside providers**: If the child has a therapist, counselor or OT outside of school who is working on anxiety, obtain child and family permission to work together. Working together on specific challenges and relaying what comes up as challenges for the child, so you can both work on these issues when possible can be very helpful.

- **Use social “co-regulation”**: A Social-Affective Diet can be very useful to keep a child’s anxiety at a lower level. This involves regular, frequent, even if very short, times of adult or peers connecting with a child at a pleasurable level, to share a quick joke or laugh. This can also help a child through a stressful experience such as a fire drill.

- **Environmental adaptations**: For some children, the best solution is to allow them to skip predictably anxiety provoking events. This is generally not a good long term plan, but may be an effective interim strategy. After all, we want to increase what a child can successfully participate in, but we must also ‘pick our battles’. If going on a field trip to an especially loud place (for instance) is going to add enormous stress for the child in spite of careful preparation, having them watch a video or read a book about it, and do something alternative that day may be a good “short term” solution.

- **Anxiety Goals in IEP** (e.g. “child will, with adult support, participate in X activity without signs of distress at least x times/x”)

**ADHD**

While anxiety in children with Williams syndrome can have a unique quality to it, and be a bit different from how it manifests in many children, the strategies for ADHD in children without WS are generally useful for children with WS, and are generally known to regular education and special education teachers. Below is a brief overview. For excellent writing on ADHD, see the work of Russell Barkely [http://russellbarkley.org/](http://russellbarkley.org/).

Some general tips:

- Build in frequent opportunities for motor-social-sensory breaks (e.g. have the child with WS go on errands alone or with an adult - depending on what is appropriate; use the OT room (for instance) as a break area if possible)
- Have an OT and a Behavioral consultation to work out as many proactive strategies as possible.
- Give classwork emotional meaning and an interactive component when possible.
• Use Assistive Technology for classwork when possible to decrease frustration and increase success
• Have accommodations in IEP
• Make sure the child is achieving sufficient social and academic successes and can process most of what is going on around them. Children who are overwhelmed or frustrated are much less able to focus.
• Use a Social-affective diet (see Appendix)

Other behavioral challenges
Listed below are various behavioral challenges we have seen in schools which don’t fit readily into the categories above.

Hyper focusing on one student or teacher
Sometimes students will have a peer or teacher who they adore and want to be with all the time. This can be fine, but it may become interfering. How to handle it depends very much on the situation. Helping the child forge positive connections with other adults/peers, and making clear times the child can/can’t be with the “special” person can be helpful.

Sometimes students have a peer or teacher they strongly do not want to be with. It is of course important to explore why and if there is a problem such as bullying that needs to be addressed. However sometimes the ‘target’ person simply has a quality that is unpleasant for the child with WS, such as a loud cough or unpredictable behavior. How to help this situation is very individual but sometimes relationships can be fostered through planned positive time together.

Getting ‘out of synch” with peers
Children with WS, especially in inclusion classroom settings can become “out of synch” with their classmates - usually due to fine motor or organizational difficulties. For instance, I was in one Kindergarten where the children were to write their names at the top of the page at each “center” during their work time. The child with WS was able to write his name well, but it took him much longer and hence he was behind the other children throughout each center and then missed the start of the break/recess times. IEP accommodations, as well as teacher/assistant supports to help children keep pace with peers is key. It’s important to decide as a team what the priority is for an activity and make sure the child is able to gain the expected result. While handwriting was one goal for the child in the above example, learning the math and reading skills, and socializing, were also goals within the activities and he was missing out on them due to the inadvertent over focus on handwriting. For this child, a name stamp or simply writing his initials would all be potential solutions to the problem.

Work refusals
Often I am asked to consult about children who won’t do work that their teachers know they can do. This is often just the “tip of the iceberg” - part of a larger problem. It is important to gather information about the Big Picture. Is the child receiving enough
academic, social success and emotional well being? If not, what can be changed so this is the case. Is the work intrinsically interesting and meaningful to the child? If not what can be done to change this. Consultation about the child’s learning profile and an evaluation from a behavioral specialist can be very helpful.

**Frequent Bathroom trips**
Some children with Williams syndrome make more requests than is typical to use the bathroom. As with any child, it’s important to discuss with the family whether diabetes or a urinary tract infection have been ruled out by the pediatrician, or if this behavior is typical for the child at home.

When there is no medical cause and it is not repeated at home, it may be that the child requires breaks due to ADHD, sensory needs, or not being able to understand or engage in the class activity. Children with WS, at a very young age, seem to grasp that this tactic is an excellent way of “break-taking”. Providing the child with other options and ways to ask for breaks is important. Adapting the curriculum so the child can access it successfully is also key.

**Engaging in silly disruptive behaviors during class**
Children who are very desirous of social attention and engagement but who aren’t skilled at getting it, or are feeling left out of peer engagement, will often resort to trying to get interaction by being “silly”. This can be a very fast and effective way to gain peer interactions. This is not a pattern specific to children with WS, but children with WS, especially young children, are more at risk for developing this pattern due to their personality combination of generally having a great desire for interaction but having difficulty “connecting” with peers in a sustained way. Below are some strategies:

- Make sure the child is experiencing sufficient social successes. Do they have Social Skills groups in their IEP? Is an adult facilitating interactions during low structured times such as lunch and recess if the child can’t independently access peer interactions? Would they benefit from more small group times?
- Is the child able to access the curriculum that is being presented when they are being silly? If not make sure there are sufficient accommodations.
- Consider having a behavioral specialist conduct a formal or informal “Functional Behavioral Assessment” looking not just at immediate antecedents but also the Big Picture of the above issues.
- Consider a “replacement behavior”. For example, consider giving the child a key role that gains much attention and is appropriate, when possible (e.g. have the child go get x for you to use; demonstrate y etc.).
- Consider a “class joke” time. One classroom had “open mic Fridays” and children and staff who wanted to, could tell a joke. The joke had to be screened by the teacher first, and if it was inappropriate, reasons for this...
were discussed. Children greatly enjoyed this time and also learned a great deal from it about humor and about each other. When the child was silly during class times the teacher often said “Save it for Open Mic”.

**Wandering**

*How it manifests:* This behavior is not specific to children with WS, and many children with WS do not do this, but it is not uncommon, especially in younger children with WS who also have ADHD. The combination of being very drawn to interaction, and being distractible can lead to children wandering when sent on an errand at school or to the bathroom.

*What to do about it:*

- IEP goals can be created around not wandering (e.g. completing “errands” independently in the school across longer and longer appropriate locations) with the support of a behavioral specialist.
- For children for whom this is a problem, appropriate safety measures must be in place (e.g. an assistant always within sight; sometimes locked exits to outside; gates on the playground etc., depending on the school set up and intensity of wandering behavior)

**Seemingly random or tangential comments in class**

Difficulty following complicated verbal lecture style and class discussion, and difficulty understanding the “main idea”, while very much wanting to be a part of the discussion, can contribute to students with WS raising their hand and making contributions to the discussion that may be tangential. Sometimes a student will pick up on an emotional detail of a discussion and make a comment related to that even though it wasn’t the point of the discussion. Sometimes a student will try to bring the discussion around to a “favorite topic” (see above).

Ensuring that the child has sufficient social and academic success and can access the curriculum are key. If this is happening often, the child is likely not able to independently access discussions and appropriate accommodations or changes may be needed (e.g. pre-teaching; teaching in a way that is more accessible to a range of learners; more small group teaching etc.).

**Yelling/agitation/anger**

*How it manifests:* Some children with WS are quick to escalate across many emotions from happiness to frustration and anger. This pattern is not present in many children with WS, and for some children it is mainly present in especially frustrating situations or situations where they are overwhelmed or when they are tired. Some children with WS may sound more angry or agitated than they feel, they may not possess a range of expression for the “shades of gray”. In general this pattern improves greatly with age, development and support.

*What to do about it:*

- Make sure the child is experiencing sufficient academic and social success and emotional well being. Children who are having to work very hard to
keep up, and/or who are not connecting with peers sufficiently, often have an overall lower tolerance for frustration. Academic and social accommodations to maximize successes as discussed throughout this booklet are likely to help the child’s overall frustration tolerance.

- Ask a behavioral specialist or counselor familiar with the child to conduct a Functional Behavioral Assessment looking at the Big Picture as well as immediate antecedents to frustration, ideally exploring this pattern at home and at school. The focus of the findings should be on strategies to help prevent emotional escalation.

- Teach ways of expressing frustration using tools such as the Incredible 5-Point Scale [http://www.5pointscale.com/](http://www.5pointscale.com/). The school counselor or behavioral specialist, special education teacher or OT may be the person to oversee this effort.

- *Include Emotional Regulation goals in IEP.*
Intellectual Assessment...

Common Profiles and Testing Tools

Assessments are conducted at regular intervals during a child’s development to qualify the child for services and to better understand his or her current abilities, strengths and weaknesses. Testing also helps us to see how well a child can generalize what he or she has learned. Different tests provide different information, and some tests are better than others for documenting the intellectual strengths and weaknesses of children with WS. Several tests that are commonly used when assessing children with Williams syndrome are described below. The “right” test will vary for students with Williams syndrome at different ages and the recommended tests for students with WS may be different from the tests that are typically given by school psychologists. Therefore it is very important for families to ask what tests will be given and provide school districts with the following information to help insure that your child’s team has the best possible information.

Assessments for Children - Infant through Preschool

In the very early years, the Mullen Scales of Early Learning is a good choice. It is normed for children from 1 month to 5 years, 8 months. It is best used for children aged 54 months or younger.

Advantages for children with WS: It yields scores for 4 separate ability areas so it can show patterns of strength and weakness, rather than averaging everything together. Children with WS often have the most difficulty with visuospatial construction and the Mullen Scales highlight this need area. Goals for the OT and classroom teacher will often come to light as well as challenges that will have to be overcome.

Disadvantages: The norms do not have a large enough range to show differences for children who score at the ‘floor’ of the test. Note that this problem occurs with most tests for children in this age range. Additionally, small differences in the age of the child at the time he or she is tested can create artificially large differences in scores.
Assessments for Preschool and School Age children

For children aged 4 – 17 years, the Differential Ability Scales-II (DAS-II) is an excellent test. There are two versions of the DAS-II, the Early Years version for ages 2 ½ years to 8 years 11 months (not recommended for children with WS who are younger than 4 years), and the School Age version for children 5 years to 17 years 11 months. The Early Years version should be used for children with WS aged 4 years – 8 years 11 months.

Advantages for children with WS:
The uneven pattern of strengths and weaknesses typical for children with WS can be clearly identified in the 3 core ‘clusters’ of this test - the Verbal Reasoning, the Nonverbal Reasoning and the Spatial clusters. In addition, three diagnostic clusters that are not included in the IQ score also are available: School Readiness (for ages 5 years – 8 years 11 months), Working Memory (recommended for ages 7 years – 17 years 11 months), and Processing Speed (also recommended for ages 7 years – 17 years 11 months).

Conversely, in the more commonly used Wechsler tests (the WISC-IV and the WPPSI-III), the “Performance” scale (or the Perceptual Reasoning Index) lumps together subtests on which children with WS generally perform relatively well (e.g., Matrix Reasoning) and those they have the most difficulty with (e.g., Block Design) and hence their uneven pattern of abilities is not readily discernible at the Index level and overall scores are less meaningful. In addition, the DAS-II has norms for children across a broader range of abilities than the WISC-IV or WPPSI-III. Hence, DAS-II scores obtained by children who are performing further below their same age peers can still be meaningfully interpreted and patterns of relative strength and weakness can be more easily identified.

Determining an IQ score from the DAS-II

The “GCA”, which is like an IQ score, from the DAS-II is meaningful if the 3 core cluster scores do not differ significantly. However, this is the case for only about 10% of children with Williams syndrome. About 50% of children with WS show a clear pattern of higher scores on the Verbal cluster and the Nonverbal Reasoning cluster, with scores on these two quite similar, and substantially lower scores on the Spatial cluster. Only 2% showed
higher scores on the Spatial cluster than the Verbal cluster and the other children show a variety of patterns. When children’s cluster scores are uneven, which is true for about 90% of children with WS, a single score such as an IQ or GCA is not the best estimate of their intellectual abilities. Instead, each cluster standard score should be considered separately.

Other Commonly Used Tests

**Wechsler Preschool & Primary Scale of Intelligence (WPPSI-IV)**

The WPPSI-IV was released in the fall of 2012. This test is normed for ages 2 years 6 months – 7 years 7 months (not recommended for children less than 4 years old who have developmental delay). It is completely redesigned and appears to be more similar to the DAS-II than to the WPPSI-III. For example, the WPPSI-IV has a separate Visual Spatial Index (similar to the DAS-II Spatial cluster) and the standard scores cover a wider range of ability than the WPPSI-III making it more likely that the test will be able to accurately describe the abilities of children with significant developmental delay. As this test was very recently released, no information about the performance of children with WS on it is available.

Some schools or private psychologists may still be administering the WPPSI-III. This test is not recommended for children with WS.

**Wechsler Intelligence Scale for Children - IV (WISC-IV)**

The WISC-IV is the most commonly used assessment by school districts and many private psychologists for students ages 6 - 17yrs 11months. It is recommended that if a Wechsler test is to be used for a child with WS, the WPPSI-IV (rather than the WISC-IV) be administered to children with WS aged 6 years – 7 years 7 months. The WISC-IV includes indexes for verbal comprehension (measured entirely by verbal expression), perceptual reasoning, working memory and processing speed. Disadvantages of WISC-IV for assessing children with WS

The perceptual processing index includes both an area of relative strength (matrix reasoning) and an area of severe weakness (block design). Therefore the WISC Index scores do not give an adequate picture of the relative strengths and weaknesses of children with WS and there often is not a significant difference between performance on the 4 indexes, which leads to the impression that the overall IQ score provides an accurate measure of the child’s intellectual ability. Additionally, the “floor” for the subtests is only 3 standard deviations from the mean, and therefore not low enough to allow the test to accurately characterize the performance of a large portion of children with WS.
Kaufman Brief Intelligence Test - 2 (KBIT-2)

The KBIT-2 is the most commonly used assessment in American research on Williams syndrome. The test is normed for people ages 4 - 90 years. It includes both Verbal and Nonverbal (Matrices) scales. It is not normally used by school psychologists and is not recommended for formal assessments.

Advantages: The KBIT-2 provides an IQ estimate that does not include visuospatial construction (the area of greatest weakness for most people with WS). Additionally it takes much less time to complete than either the DAS-II or either of the Wechsler tests.

Disadvantages: The KBIT-2 is a “brief” assessment and therefore does not provide the same depth of assessment of verbal and nonverbal reasoning that is derived from the DAS-II or Wechsler tests. Additionally, the test does not provide estimates of spatial ability, working memory, or processing speed.

“Typical” Cognitive Characteristics of Children with WS

While there is substantial variation, children with WS generally have intellectual abilities which fall in the “Borderline” to “Mild” Intellectual Disability range. On the DAS-II, children with WS usually present with an uneven profile. Typically children have relative strengths in language and nonverbal reasoning, and significant weakness in visuospatial construction. This area of difficulty impacts writing, drawing, and pattern construction.

Relational language concepts are generally very difficult for children with WS. These include spatial terms (e.g., behind, between), temporal terms (e.g., before, after), quantitative terms (e.g., most, least), and comparative adjectives (e.g. shortest, tallest), as well as more complex relational terms (e.g., neither, nor, unless). This difficulty can be confusing to a conversational partner, if the child with WS otherwise understands and uses complex grammatical constructions and has a large concrete vocabulary (labels for objects, actions, and descriptors).

Relational language can be addressed in the IEP and included as an SLP goal and should be practiced during the day by the teacher/assistant. While work on these goals is important and children do make progress in this area, awareness of the difficulty and provisions for extra clarification (e.g. visual supports; additional verbal cues) is also helpful in working with students with WS.
Language pragmatics is another area of need for students with WS and it’s important that goals in the child’s IEP address this area. This difficulty is often most apparent in the social skills area (see above). Another pragmatic difficulty for many children with WS is that they often do not realize that they did not understand what their conversational partner or teacher has said or they may misunderstand what was said. Even if they do realize that they did not understand what was said, they may not ask for clarification. Pragmatics is often addressed in Speech therapy but it is also key to address this component of language with peers in social skills groups and throughout the child’s day including during unstructured social times (e.g., recess, lunch).

**Fine Motor Skills**

**The Beery Test of Visual Motor Integration (VMI)**

The Beery Test measures drawing ability in people ages 2 1/2 to 21 years. It is not recommended for children with Williams syndrome who are younger than 6. The test measures the child’s ability to copy single lines and simple shapes, and to copy more complex forms that require the integration of lines and shapes.

**Drawings by Students with Williams syndrome**

![Drawings](image)

**Advantages:** The Beery is a good test to document abilities and needs in writing related activities (drawing), especially for youngsters with WS, age 6 and older. For success in this area, OT as well as classroom activities and work accommodations are key.

**Disadvantages:** For very young children, the earliest items on this test (e.g. lines and circles) are often worked on in early OT with children and hence their performance on this test may mask real needs in this area.

Fine motor and visual-motor construction tend to be areas of significant struggle. These areas should be addressed in the student’s IEP, as well as with accommodations in classwork, such that their work is not held back to the level of the writing / paper work output difficulties. It is important to keep in mind that paperwork tasks across most subjects involve a great deal of fine motor and visual-motor construction (e.g., writing, drawing). *Children with WS should not spend more time than their peers doing paperwork.* Time can be dedicated for work on fine motor and writing tasks but this skill area difficulty should not interfere with other aspects of the child’s learning.
It is important that children with WS be taught to use technology such as Smart Boards, iPads, and laptops as early as possible in their education and that they be allowed to complete assignments using these tools. Assistive Technology assessment and supports are extremely beneficial for accessing curriculum, especially working around visual motor challenges and difficulties with executive functioning (see below).

**Academic Achievement**

The Wechsler Individual Achievement Test-III (WIAT-III) is generally a good test to use for those with WS. Most children with WS perform much better on the Reading than the Math scales. Math is generally well below what would be expected based on “IQ”.

**Advantages of the WIAT-III for testing students with WS**

Predicted scores are available based on performance on the DAS-II, the WISC-IV, and the WPPSI-IV. For most children with WS, the differences in performance on the composites clearly separate the typical relative strength in Reading and relative weakness in Math. Within Reading, the composites typically separate the pattern of relative strength in single word reading but relative weakness in reading comprehension and fluency shown by many children with WS who have good decoding skills. Finally, the floor for the Basic Reading and Oral Language scales is low enough to accurately characterize performance of most children with WS.

**Disadvantages**

The oral reading fluency standard score is difficult to interpret for many children with WS because they tend to skip over words that they do not recognize immediately. Additionally, the floor for the Reading Comprehension subtests and the Math and Written Language scales is not low enough.

Support in math is important to have on most children’s IEPs. It is important to note that there are a few children with WS have relatively good math skills. However for almost all children with WS, math has multiple challenges and becomes both frustrating and not meaningful over the grades. Working on basic math concepts that are useful in everyday life (e.g. more and less, basic addition and subtraction, concepts of time and money) can be very worthwhile. However extensive time spent on advanced math concepts for a child who is not making gains is often not a productive use of the child’s time. Other skills are generally much more important across multiple domains (e.g. reading comprehension, social skills) than are higher level math skills (e.g. geometry, multiplication and division or algebra). Teaching children to use functional math, including schedules, planners, digital clocks and calendars, often with the support of technology tends to be the most useful.

Teaching reading through phonics rather than through sight words or whole language approaches generally leads to more advanced reading ability. Even if a school program is sight
word based, the student with WS should have a phonics based program in their IEP as this is most likely to lead to better and earlier reading ability.

Reading comprehension is often an area of weakness and is important to work on. Difficulties with reading comprehension have multiple causes, including problems with working memory, problems with relational or nonliteral language, problems with the verbal and nonverbal reasoning abilities needed to make inferences, and problems with executive functioning (see below). Difficulties with picking out the main idea versus tangential content, making inferences, figuring out complicated motivations of characters, and abstract reasoning all impact reading comprehension as well as social skills and comprehension of complex social situations.

**Executive Functioning Difficulties**
The term “Executive Functioning” refers to a set of skills that include both behavioral regulation (e.g., inhibiting one’s first response when it is inappropriate, controlling one’s emotions) and metacognition (e.g., determining the steps needed to complete a task, organizing the materials needed, keeping the relevant steps in mind while carrying out the task, monitoring how well one is completing the task and making needed changes to successfully complete the task). Children in the general population who have ADHD generally have difficulties in these areas, and almost all children with WS have considerable difficulties with metacognition. Many children with WS also have significant difficulties with behavioral regulation. Difficulties with visual-motor integration, relational concepts of space and time, and abstraction also impact these areas. Executive functioning difficulties can make the following sorts of school tasks very difficult:

- Organizing and keeping track of the “things” of school (e.g., paper, books, pens, food, etc.)
- Planning for what is needed and making sure the needed materials are available
- Time management around homework or classroom work
- Remembering to turn in homework
- Determining the “Main Idea” within literature as well as in assignments, oral lectures and projects
- Sticking to a task or project from beginning, middle, to end

Children with Williams syndrome generally make progress in these areas as they get older, but direct teaching and supervision is critical. Including work in these areas on the child’s IEP and providing support and accommodations throughout their day are key.
ASSISTIVE TECHNOLOGY AND THE STUDENT WITH WILLIAMS SYNDROME

In order for a student with Williams syndrome to participate and make progress in the curriculum, it is essential that the appropriate accommodations, assistive technology, modifications and supplemental aides and services be provided. Adjustments to presentation of academic content (input) as well as, adjustments to response materials (output) should be an integral part of educational plans. Careful consideration should be taken to ensure that students are provided opportunities to demonstrate what they have learned without being hindered by the mechanics of any given assignment or assessment. While working to remediate some aspects of the disability is recommended, there are also aspects that should be merely accommodated. In other words, “stop fighting biology”. It is best to use data driven decisions when determining whether to remediate or accommodate.

Assistive Technology

The use of assistive technology should be a part of any educational plan for individuals with Williams syndrome beginning at an early age (as early as preschool). While the term “assistive technology” may lead a person to believe it requires use of expensive equipment with a battery or plug, the category actually encompasses a broad range of assistive devices from “low tech” (pencil grips etc.) to “high tech” (Computers).

It is important to remember that, “it is not about the gadget”. It is about using the assistive technology for the purposes of learning the curriculum; completing the academic task; or being able to do the things an individual wants or needs to do in order to live life.

Assistive Technology Device

As identified in the IDEA 2004 is: “Any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities. The term does not include a medical device that is surgically implanted, or the replacement of such device.

(Authority 20 U.S.C. 1401(1))
Assistive Technology Service

As defined in IDEA, an assistive technology service is: “Any service that directly assists a child with a disability in the selection, acquisition, and use of an assistive technology device. The term includes -

- The evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child’s customary environment
- Purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by children with disabilities
- Selecting, designing, fitting, customizing, adapting, applying, retaining, repairing, or replacing assistive technology devices
- Coordinating and use other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs
- Training or technical assistance for a child with a disability or, if appropriate, that child’s family
- Training or technical assistance for professionals (including individuals or rehabilitation services), employers, or other individuals who provide services to employ, or are otherwise substantially involved in the major life functions of children with disabilities

Following are examples of weaknesses and accommodations for students with Williams syndrome.

<table>
<thead>
<tr>
<th>Weakness</th>
<th>Definition</th>
<th>How it Presents</th>
<th>Strategies</th>
<th>Accommodations, AT, Modifications</th>
</tr>
</thead>
</table>
| Visual-Motor Integration  | The ability to make sense of visual information and then use it appropriately for a motor task such as writing, playing sports, using tools and utensils. | Difficulties with...  
- Paper and pencil tasks, especially writing and drawing  
- Learning to tie shoes  
- Counting objects one by one either pictured on a page or counting tangible objects  
- copying information from one place to another (sometimes referred to as transference)  
- ability to catch a ball/object or throw a ball/object at a target  
- ability to drive a car or ride a bike, etc.  | • Use real objects to teach math, rather than objects pictured on a page  
• Teach student to use verbal self-directions  
• Teach keyboarding and word processing skills at a young age.  
• Focus on only one aspect of writing at a time  
• Determine expectations for rate and volume of written products based on the student’s demonstrated abilities.  
• Teach transitional words  
• Provide a purpose and structure for writing  | • Minimize paper and pencil demands  
• Minimize tracing  
• utilize computer for extended written output  
• slip on versus tied shoes  
• snaps or other alternative over buttons  
• name stamp  
• label maker  
• Utilize word prediction when writing on the computer. This helps to increase the child’s work production speed, and access to spelling and vocabulary.  |
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| Perceptual Reasoning or Perceptual Skills | Visual Perception is the ability to identify, organize, and interpret sensory data received by an individual through the eyes. This includes the ability to understand the passage of time. | • poor handwriting and copying skills,  
• poor memory of what was written  
• difficulty finding specific items, (words or pictures) on a page.  
• difficulty discriminating whether similar words are the same or whether letters within a word are the same  
• difficulties with fill-in-the-blank answers | • Teach time concepts by personalizing  
• Use wall calendars for daily, weekly and monthly schedules with events sketched or written in  
• Be flexible in curriculum, avoiding a rigid ‘prerequisite’ curriculum design  
• Some children may never learn coin values but should move on to the next curriculum phase which they may be able to more readily understand  
• Teach children the “next dollar up” method for money  
• Utilize rhyme, rhythm, and cadence  
• combine verbal and pictorial directions, rather than relying on one vs. the other | • Use computer for written output  
• use calculator to complete math problems  
• use graph paper to help with lining up math problems  
• For preschool aged children: use of picture schedules for daily routines, and wall calendars with big squares on which special events can be sketched are helpful.  
• For older children: use digital watches and date books  
• Utilize text-to-speech to compensate for any deficits in absorbing written word on the page.  
• Utilize digital “Drop and Drag” assignments & test in lieu of paper/pencil matching and fill in the blank documents |
| Includes: Visual Perception skills and Auditory Perception Skills | Auditory Perception is the ability to identify, organize, and interpret sensory data received by an individual through hearing. | Children generally have excellent auditory skills, especially auditory memory. Once children with WS have learned information they are relatively good at retaining it.  
Auditory difficulties include:  
• problems with auditory instruction - child may not be able to separate the instruction from background conversations.  
• decreased ability to get information from what is heard, leading to poor comprehension  
• difficulty holding two or more concepts in relationship to each other, learning to classify or categorize concepts. |
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<tr>
<td>Motor Planning / Praxis / Dyspraxia</td>
<td>Fine motor control is the coordination of muscular, bone (skeletal), and neurological functions to produce small, precise movements. The opposite of fine motor control is gross (large, general) motor control. An example of fine motor control is picking up a small item with index finger and thumb. An example of gross motor control would be waving an arm in greeting.</td>
<td>• struggles with fasteners; pencils, crayons, paint brushes, etc.; using small toys, (legos, beads, etc.) • struggles with completing coordinated movements (running, jumping, hopping, skipping) • struggles with completing gym activities • low muscle tone • spinal &amp; skeletal anomalies/contractures • muscle rigidity or tightness in heel cords &amp; hamstrings • possible hand tremors • poor dexterity and in-hand manipulation skills</td>
<td>Occupational Therapy services to support fine motor skill development and increase hand strength</td>
<td>Teachers should assign tasks with the understanding that the child may lack dexterity and/or strength to accomplish cut/color/pasting tasks. The following aides can also help: • pencil grips • zipper pulls • button hooks • pull on vs. tie shoes • tap-n-glue tops</td>
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<tr>
<td>Fine Motor Difficulties</td>
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<td>Physical Therapy to support gross motor skill development and general balance and mobility</td>
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<tr>
<td>Gross Motor</td>
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<tr>
<td>Visual Spatial Skills</td>
<td>These are the skills we use to understand directional concepts to organize our visual space. This is how we visually project our body coordinates out into the world</td>
<td>• Lack of coordination and balance (clumsy) • Difficulty learning left and right • Reverses letters or numbers when writing or copying • Difficulty with activities involving rhythm • Not good at sports • Does not cross the midline when doing tasks (switches objects from hand to hand) • Does not use non-dominant hand for support when writing or copying • Rotates body when writing or copying (again to not cross the midline)</td>
<td>Use auditory memory skills and ability to learn from pictures in teaching reading and other skill sets</td>
<td>Simplify the amount of material presented on a worksheet (one or two problems or words per page). • be aware of directional language in problems as this vocabulary may be difficult for the child to understand • Utilize digital “Drop and Drag” assignments &amp; tests in lieu of paper/pencil matching and fill in the blank documents</td>
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<td>Abstract Reasoning</td>
<td>Definition: The ability to analyze information and solve problems on a complex, thought-based level is sometimes referred to as abstract reasoning. Abstract reasoning tasks involve skills such as: • Forming theories about the nature of objects, ideas, processes, and problem solving; • Understanding subjects on a complex level through analysis and evaluation; • Ability to apply knowledge in problemsolving using theory, metaphor, or complex analogy; and • Understanding relationships between verbal and non-verbal ideas.</td>
<td>Struggles with: • forming a conclusion from several pieces of information. • determining cause and effect • make a prediction • understanding analogy and figurative language • form a whole from the sum of its parts (completing puzzles, drawings, construction tasks, etc.)</td>
<td>• provide graphic organizers to guide thought processes • utilize video resources to support comprehension of entire idea. • Utilize sequential language to ensure student understanding of the step-by-step process of solution generation. • Provide simultaneous visual and auditory support</td>
<td>Allow child to respond to questions using a step-by-step process. This will help them understand the relationship of one step of the solution to another.</td>
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<tr>
<td>Hyperacusis/Sensitive Hearing</td>
<td>Heightened sensitivity to sounds, such as noise related activities such as fire drills, vacuum cleaners, ceiling fans, heating or plumbing systems, and school bells. Some children may become distracted, overly excited or fearful at these events.</td>
<td>Students may: • become distracted, overly excited or fearful at these events • Exhibit anxious behaviors around sound-related events • Refuse to attend the event or enter a certain space “in case” the noise is present</td>
<td>• provide warning just before predictable noises when possible (fire drills, hourly bells etc.) • allow the child to view and possibly initiate the source of bothersome noises (e.g. turn the fan on and off, see where the fire alarm is turned on) • make tape recordings of the sounds and encourage the child to experiment with the recording (playing it louder/softer etc.) • have the child enter spaces in “steps” and with trusted individuals to gradually get used to the space</td>
<td>• In extreme cases, or as part of the “step” process, sound blocking earphones can be worn</td>
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</tbody>
</table>

*Strength
Sensitive hearing is also a strength in WS. It can be capitalized on to develop reading skills. Phonetic approaches to reading are often very successful since the child is able to readily hear letter sounds (especially beginning and ending) and use them to develop word finding skills.
Receptive language is the understanding of language “input.” This includes the understanding of both words and gestures. Receptive language goes beyond just vocabulary skills, but also the ability to interpret a question as a question, the understanding of concepts like “on,” or accurately interpreting complex grammatical forms (i.e. understanding that the phrase “The boy was kicked by the girl” means that a girl did the kicking).

Expressive language is most simply the “output” of language, how one expresses his or her wants and needs. This includes not only words, but also the grammar rules that dictate how words are combined into phrases, sentences and paragraphs as well as the use of gestures and facial expressions.

Speech production relates to the formulation of individual speech sounds using one’s lips, teeth, and tongue. This is separate from one’s ability to formulate thoughts that are expressed using the appropriate word or combination of words.

- may struggle to understand figurative language, metaphors, and analogies
- **excellent vocabulary**
- use of somewhat unusual words and/or phrases
- **excellent auditory memory skills**
- may struggle with word finding, especially when stressed. They may begin telling about one thing, have trouble thinking of a needed word, come up with a somewhat related phrase, and move on to talking about something more related to the substitute phrase than the initial topic.
- may have **higher more colorful vocabulary than IQ or academic functioning may suggest**

**Language and Vocabulary**

- Work closely with the speech therapist for helpful strategies to use/teach regarding language development
- Phonemic cueing (providing the child with the first sound of a sought after word).
- Encourage the child to use gestural cues himself (e.g. “What did you do with it - how did you use it?”)
- Encourage the child to use visualization to cue himself (e.g. “What did it look like?”)

**Reading Comprehension:**

- Ensure that decoding skills have been mastered first (the student must be able to read words accurately to understand meaning).
- A phonics based reading curriculum is essential.
- Teach reading comprehension skills directly, e.g. make inferences, deductions, understanding cause and effect, etc.
- Develop self-questioning techniques to monitor comprehension.
- Teach students to interact with the text.
- Encourage verbalization of strategies to enable students to internalize comprehension strategies (who, what, why, where, when, etc.).
- Teach the organization and structure of paragraphs.

**Vocabulary Development**

- Make concrete associations for unknown words whenever possible.
- Use words students encounter in their own reading, define words they want to know
- Encourage students to verbalize and paraphrase their understandings.
Utilizing iPads for Teaching and Enforcing Skills

Apple iPads, tablets and small laptops are increasing in popularity for students with Williams syndrome. Will an iPad make a difference in a child with Williams syndrome’s ability to develop new skills? Probably. Will the difference be so significant that schools should do whatever they can to personally secure a device for their student with WS? It is impossible to know exactly how much difference the device might make, or if the child would have developed the same skill level without the device, perhaps just at a later time, or with more practice. However, there are things we can predict with relative certainty about the benefits of an iPad or tablet for students with Williams syndrome?

• Most individuals with WS, even at a very young age can navigate an iPad or tablet with ease
• Most individuals with WS love the combination of visual and auditory stimuli they receive from an iPad or tablet
• The combination of visual and auditory stimuli along with the “game like” nature of most educational APPs can help hold the attention of a child with Williams syndrome for a longer period of time
• An iPad is generally more desirable than a tablet due to the sheer volume of APPs available for the iPad, many of which are not yet available for tablets
• Many students with WS do better with a full size iPad than with a smaller mini or a tablet
• Once a student reaches 2nd or 3rd grade, a laptop is the preferred device for a student with WS (this will almost certainly change in the future as more APPs are developed with word prediction capability and document access)
• Not all APPs are equal. Some are far more helpful to the student with Williams syndrome than others. Assistive Technology specialist and WSA Professional Advisor, Robin Pegg suggests the following APPs to get you started.

For Younger Children:
1. Letter School - letter writing practice
2. Ready to Print - Great pre-writing, writing, and fine motor practice
3. Bugs & Buttons - fine motor practice
4. Word Wizard – talking movable alphabet & spelling tests
5. ABC – Magnetic Alphabet lite – learn to write
6. ABC Keyboard – learn the keyboard
7. Timers & Tokens
8. Pictello
9. Handwriting without Tears
For mid-elementary grades and higher:
1. iWordQ - word processor with word prediction
2. Tools4Students - graphic organizer to help with report writing
3. Panther Math Paper - “write out math problems” and help with lining them up
4. Dropbox - online file storage
5. iAnnotate - makes PDF files editable
6. Camera to PDF - take a picture of a document and it turns into a PDF
7. Educreations - Interactive Whiteboard with Recording feature
8. Evernote - Great notebook app - allows kids to record lectures or give themselves verbal reminders
9. Money - counting and adding coins & bills
10. Virtual manipulatives - fractions, decimals & percent
APPENDIX

References related to Social Skills teaching:

Teaching Social Behaviors and skills and social cognition through cognitive approaches:


This website contains some very helpful material on approaches to assessing social cognition through observation and activities, and developing IEP goals. Many schools are adopting use of these materials.

Teaching Social Pragmatics (coordination of verbal and nonverbal components of communication with others for conversations – includes teaching skills such as for young children reading and using eye gaze in coordination with another person; reading and using gestural cues such as pointing; in older children skills such as co-regulating body orientation, voice volume, topic, eye gaze etc with another person for extended interactions / conversations)

RDI (Relationship Development Intervention) [http://www.rdiconnect.com/](http://www.rdiconnect.com/) This is an approach designed for children with autism but it has very useful activities that are fun and motivating for teaching any child struggling with developing nonverbal communication skills and co-regulating these with another person. These are a series of playful game-like interactive activities that can be done with toddlers through early elementary years depending on the child’s developmental needs, and can be played at home or by Speech Therapists or Psychologists. RDI therapists have to be certified but you can incorporate the activities described in the RDI DVD, in the book on the website, and in the many clips on you tube and create your own playful activities once you have the general idea.

Drama Based Social Pragmatics teaching: These are drama games that were initially developed in acting training and have since been used with typically developing children and children with Asperger’s or other special needs to work on social pragmatics. They are similar to RDI activities in that they are fun, highly motivating very social games that require use of specific components of interaction but not of all components at once. Below are references for quite comprehensive resources for this approach. This approach can be used in Social Skills groups, for recess games, for morning meeting activities, in gym class, in music or drama classes. They can also be done at home as family games and with playdates. They both teach social pragmatics and at the same time create an atmosphere in which the child can access social participation with success with groups of peers. The games can be adapted for preschoolers through adults.
Resources:

The Spolin Center:  http://www.spolin.com/  You can order the DVD from which I showed clips, with a guide to how to play the games. This is in an easy to use format designed for teachers to learn to use this approach.


This article, available on line describes our use of this approach in the summer camp we developed primarily for kids/teens with Asperger’s, and the principals behind it in terms of using drama games to teach social pragmatics for children with special needs.


This article describes our first (the first) research study supporting some aspects of efficacy of this approach.

*Acting Antics* by Cynthia Schneider has many game examples (paperback available on Amazon)  This was written for kids with Asperger’s but can be used across many typical, integrated and special needs populations

*On Stage: Theatre Games* and activities for kids by Lisa Bany-Winters.  This was written for use with typical kids and again has broad use.

Many of the same or similar games appear in all of the above references but it’s worth getting both books for a good range of activities.

**Autism teaching approach resources especially for younger children:**

There are many teaching approaches and tools that have been developed for children with autism that are also very helpful for many of the overlapping challenges of children with WS who don’t have an autism diagnosis.  One cautionary note however is that many professionals who specialize in working with children with autism may not be experienced in working with children as socially engaging as children with WS.  Making the teaching fun and capitalizing on the love of social engagement is important in teaching children with WS.  “Dry” teaching without interaction built in can quickly loose the attention of children with WS.  Another caution is that some models of teaching children with autism, especially the ‘old school’ form of ABA that is ‘discrete trial training’ may be taught in a very ‘decontextualized’ fashion, teaching one small skill
such as matching pictures, outside of a useful context. Teaching within a meaningful fun situation is going to hold the interest of children with WS and their learning will be much more likely to generalize. It is also of course important if an autism specialist is working with your child for them to be aware of the visual spatial difficulties as these are often strengths in children with autism so adaptations of materials and goals to be developmentally appropriate for the child with WS is of course important.

“ABA”, Applied Behavioral Analysis is a broad term used differently by different professionals in different parts of the country. Its ‘old fashioned’ use referred to teaching through discrete trials often with little social interaction or playfulness. Newer forms especially PRT (Pivotal Response Training) done by engaging playful therapists are much more interactive and more appropriate for children with WS who don’t have autism.

DIR/Floortime is a playbased approach that lends itself well to children with Williams syndrome as it uses high motivation social interaction to build language, nonverbal and symbolic play skills.

Early Start Denver Model (Rogers and Dawson) is a wonderful approach for infants through preschoolers that has both high structure and is very playful and centers around expanding high motivation interactions as a way to build social pragmatics, interactive pretend, use and understanding of nonverbal communication, and is hence quite appropriate for young children with WS. It could be described as integrated PRT and Floortime. The authors have recently published their research showing impressive gains with this approach for young children with autism in the January 2010 issue of the journal Pediatrics which is online: http://www.pediatrics.org.

ANXIETY

References related to treatment of anxiety, phobias, and intense responding (e.g. ‘meltdowns’) in children teens and adults. While these approaches are not WS specific they are very applicable when adapted to the individual’s level of language and understanding. More research regarding use of specific approaches for individuals with WS is key, however we can also use approaches that are helpful for people with anxiety in general that specifically capitalize on strengths we know people with WS generally have (e.g. music; drama; social engagement) to approach use selection of strategies and techniques likely to be beneficial.

Many approaches can be used by parents, staff and/or teachers although it is generally very helpful to work together with an experienced therapist/clinician.
Books:

Several books by Aureen Pinto Wagner about treating children and teens with phobias, using adapted CBT (Cognitive Behavioral Therapy) are very readable and useful. She has written books for parents, teachers and children. These can all be found on her website at http://www.lighthouse-press.com/LighthouseProducts.htm. In order for these approaches to be useful, individuals have to have sufficient language and ‘metacognition’ to be able to talk about what upsets them and practice new ways of responding. This approach can be adapted to be more play based for less verbal or developmentally advanced individuals.

Levine, K. and Chedd, N. (2007) *Replays: Using Play to Enhance Emotional and Behavioral Development* for Children with Autism Spectrum Disorders, Jessica Kingsley Publishers, London UK. While the title specifies autism, in fact we have found many children with WS respond very well to this approach especially for specific phobias. This approach involves pairing systematic desensitization (gradual exposure in play) with empathic humor as the means to decrease anxiety, and is best suited to children within an age range in which they enjoy pretend play or role play. This approach is based on approaches with strong research foundations although we have not yet conducted our own large outcome research. We have collected pilot data for children with WS for specific phobias, that is very promising.

Greene, R. & Ablon, S. (2005) *Treating Explosive Kids: The Collaborative Problem Solving Approach.* See also the related especially useful and accessible websites, http://www.thinkkids.org/ and http://www.livesinthebalance.org/. These websites explain a wonderful useful orientation and step by step video examples regarding working with verbal children around all kinds of behavioral challenges including those related to mood dysregulation/intense responding, anxiety and fears. This approach in many ways ‘picks up where Replays leaves off’ in terms of a similar sort of model for children at a more advanced language and developmental level. Dr. Ablon and Dr. Levine cross refer patients, integrating these approaches.

The *Anxiety and Phobia Workbook* (2005), by E.J. Bourne is especially helpful for teens and adults with use with a parent, staff, or counselor. There are many useful ‘tricks’ consistent with CBT, and also many ‘exercises’ like guided visualizations.

The Five Point Scale http://www.5pointscale.com/ can be very useful for helping children identify their own as well as other’s internal states. While it is printed in terms of degree of distress, it can be used as an Anxiety scale, as a Pain Scale, and for any other emotion (e.g. excitement). It is very useful in

a) helping kids step back a bit from moments of emotional intensity as they label them
b) helping kids become more aware of the ‘shades of gray’ of their own and others’ emotions
c) helping to anticipate times that may cause various sorts of upset/excitement
d) serving as a starting point for helping kids learn when their internal states are maladaptive and strategies to use to shift into a more adaptive ‘zone’/state
e) while it comes with printed picture faces one can paste/tape any sorts of picture scales that are meaningful to the child and useful for the specific state one is working on

**Articles:**

Levine, K., Chedd, N. and Bauch, D. (2009). Social-Affective Diet; Launching a Concept, Autism Spectrum Quarterly. While this article does not directly relate to WS or anxiety, school aged children with WS can often experience a degree of social isolation that can lead to increase in anxiety and other emotional and/or behavioral challenges. This article provides ways to build into the IEP that a child as a regular ‘diet’ throughout the day of positive social-emotional engagement with adults and/or peers, that can help to ‘reset’ or ‘re-regulate’ a child emotionally.

**Music:**

What music an individual child, teen or adult finds relaxing will be key to know as listening to music is a very powerful relaxation tool especially for many people with WS who often experience significant emotional responses to music. With tools such as iTunes, one can download specific relaxing tracks. I find as do many others, that having a few tracks or CDs one uses especially for relaxation can often increase this effect as one associates them over time with a relaxing state. I like a CD that is actually called [Relaxing Piano Music](#).

**Humor**

Humor has been found to be as effective or more for some individuals, for decreasing phobic responses and increasing a sense of well being. Having ‘private jokes’ that make an individual laugh, while not generally helpful in the ‘heat of the moment’ can help prevent escalating upset or anxiety, and can help an individual cope through predictably challenging experiences.

Humorous audio tracks, even very familiar ones, can often also counteract anxiety. There are many popular comedian tracks and children’s stories also available through iTunes / audiobooks / for the iPod. Laughter can often be the best medicine and a familiar comedy routine or funny story can often work over and over again! If you notice your child finding a story or TV show or part of a movie funny try tracking it down online and using it in the car, on the way to the dentist or doctor, during stressful times. Funny DVDs can be used as well these days with portable DVD players, phones etc.
**Guided Visualization Audio**

There are now many relaxation CDs available. Some are just relaxing music and sounds which are often helpful. Guided visualizations are often especially helpful with children who are at this level of language processing. The CD *Indigo Teen Dreams by Lori Lite* has some especially relaxing guided visualizations. I especially like the 5th track “visualization” involving imagining one is sitting by a pond and colors from the pond flow up through one’s body. I used this track at the 2009 Adult WS conference in Dallas and many of the adults looked very relaxed (a few fell asleep) and described feeling very relaxed “Like I was floating” … “Like I wasn’t even here!” etc. Once one has listened to this enough times one can internalize and ‘use it’ from memory whenever, without the CD although the CD helps.

**Relaxation DVDs: Music, Video Relaxation, Yoga**

There are now many commercial relaxation DVDs. Some are simply visual sights and sounds. I especially like the Soothing Environments and Virtual Relaxation series (ocean beaches/waves; rainforest).

There are Yoga DVDs which are often relaxing even just to watch (I speak from experience here!) as well as to follow along with. Eric Paskel at [http://www.yogashelter.com/?section=home](http://www.yogashelter.com/?section=home) has a DVD. He gave very powerful yoga workshops with the adults with WS also at the 2009 Dallas conference and we all became more relaxed!

There are Yoga DVDs (and classes) specifically for children. Even preschool children with WS are able to engage in this and experience a relaxed state. Some public schools are beginning to incorporate Yoga.

These relaxation aids can be first learned and used in and of themselves, and individuals can also learn to think of them/use the strategies when they in, or about to be in a feared or upsetting situation.

**Physical Exercise…**

Within doctor recommendations of course, exercise is often an especially helpful anxiety reducer / state regulator. This may include dance, yoga, walks, video dance games (e.g. DDR; Wii). Accompanying exercise with music is often especially effective both to work around gross motor/motor planning difficulties, helping the individual use their sense of rhythm instead of having to rely as much on isolated motor planning, and increasing enjoyable-ness and hence motivation. Swimming can be fun and relaxing at the same time. Exercise of course helps with many other potential medical problems as well and can be a happy social activity.
Behavior support resources
Positive Behavioral Supports
Functional Behavioral Assessments

For children with significant behavioral challenges at school it can be very helpful to request a Functional Behavioral Assessment (FBA). These should be done very thoroughly including observation and interview of teachers as well as parents.

http://cecp.air.org/fba/default.asp

It is very important that the questions below also be addressed:

Is the child having social successes much of the time at school?
Is the child having academic successes much of the time at school?

Clearly children who are not able to have sufficient social or academic successes need more or different sorts of supports in these areas. Children who are experiencing social isolation or rejection, and/or academic struggles, are much more likely to have behavioral challenges. Fixing these areas (e.g. providing more social support; considering a different sort of placement; providing appropriate teaching such that the child can be successful) may resolve behavioral challenges or more behavioral assessment and support may be needed.

Assistive Technology

iPads for Communication, Access, Literacy & Learning (iCALL) a guide to using the iPad with children and adults who may require additional support. A CALL Scotland Publication

iPhone, iPad and iPod touch Apps for (Special) Education; Eric Sailers 4/10/2010

www.otswithapps.com - resource to educational and medical occupational therapists, parents and clients on iPod, iPhone and iPad apps believed to be suited for occupational therapy intervention and services whether working with adults or children.

www.tcea.org – Texas Computer Education Dept. – dedicated to the improvement of teaching and learning through the use of computers and technology.

www.qiat.org – Quality Indicators for Assistive Technology Services; the QIAT Consortium