

YOGA FOR AUTISM SPECTRUM STUDENTS  
ADVANCED 500 HOUR THESIS  
PRAIRIE YOGA, LISLE, IL  
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**Introduction**

*“If a child can’t learn the way we teach, maybe we should teach the way they learn.”*

*Ignacio Estrada*

Everyone can learn but not everyone learns in the same way. There are three main types of learning styles: auditory, visual, and kinesthetic. Most people learn best through a combination of the three styles but everyone is different. Students on the Autism Spectrum present unique challenges for teachers because each autistic child is an individual who responds differently to instruction.

I am employed as a school social worker at a public elementary school. The school is part of the second largest school district in the state of Illinois. My school has over 480 students. We have two early childhood classrooms, 16 general education and four self-contained ILP classrooms. ILP is an acronym for Individualized Learning Program. The ILP curriculum is geared toward the instruction of children on the Autism Spectrum.

I feel it is a privilege to provide social work services to students with Autism Spectrum Disorder (ASD). On a daily basis, I am struck by their diversity, sense of humor, unique perspective on life and yes their ability to empathize!

I started implementing yoga principles and poses with ILP students the first year I worked at this elementary school. It was not an official effort to establish a program. Rather, the initial pursuit was rooted in the belief that everyone has the potential for growth and change. Throughout the first year, I observed the calming benefits of deep breathing and poses such as Garbhasana (Child’s pose) and Paschimottanasana (Forward Fold). I noticed how establishing a ritual and engaging in consistent movements at the beginning and end of a social work group helped with transitions.

Over the years, my yoga training much like my social work career has taken many twists and turns. I have obtained certifications in teaching yoga to children with a history of sexual and physical abuse, ADHD and other mental health issues. In 2012 I started training at Prairie Yoga under the instruction of Lori Gasper, Tricia Fiske, Linda Troutman and Marinda Stopworth. I immediately appreciated the program's emphasis on alignment, anatomy and the true essence of yoga.

During the summer of 2014 while completing my 500 hours with Prairie Yoga, I decided to become trained in yoga therapy for children with autism and special needs. I applied for a professional development grant through my school district in order to pay for expenses associated with the training. Several months later and at the eleventh hour the application was accepted on the stipulation that I would present my findings to colleagues. Upon receiving the grant, I immediately bought my ticket to Dover, New Hampshire and enrolled in Louise Goldberg's course on Yoga Therapy for Children with Autism and Special Needs. While there I learned the techniques she employed in her "S.T.O.P and Relax" program. S.T.O.P. is an acronym which refers to "Soft face/Soft shoulders, Take 5 slow deep breaths, Open chest and check Posture." It is a checklist of phrases used during a yoga asana sequence. The program is a visual curriculum used to teach self-calming techniques to Autism Spectrum Disorder children.

My goal to become certified and "official" in order to implement a school based yoga program became a reality that summer. Moreover, by obtaining the certification I established credibility and authority on the subject so that the school system would support its implementation.

When the 2014/2015 school year started in August, I began extrapolating what I had learned in order to tailor a program specifically designed to meet the needs of the ILP students. I set a start date for no later than October.

The following sections of this thesis address how the yoga program evolved, a definition of and current research on ASD. Also included is information on how the symptoms of ASD manifest in a school setting, how to meet IEP (Individualized Educational Program) minutes and SEL (state educational learning) goals; ways to measure progress, an overview of the 9 week session, a sequence of poses, key teaching points and the results of the pulse rate data. The appendixes include an example permission slip and letter to parents; an example of a Social Story and yoga room rules. The pre and post stress checklists were not included due to confidentiality and copy right regulations.

## **What is Autism Spectrum Disorder?**

Autism Spectrum Disorder is a neurobiological disorder of development that can cause significant social, communication and behavioral challenges. It is called a spectrum disorder because there is a wide degree of variation in the way it affects people. The learning, thinking and problem-solving abilities of people with ASD can range from gifted to severely challenged. According to the Centers for Disease Control and Prevention children with ASD might present with the following behaviors: avoidance of eye contact, desire to be alone, preference to be cuddled when they want, lack of awareness when people speak to them, echolalia, lack of interest in pretend play, rigid thinking, trouble adapting to change, unusual reactions to smells, tastes, sounds and the way things feel.

The National Institute of Mental Health defines the characteristics of ASD as a persistent deficit in social communication and social interaction across multiple contexts, restricted and repetitive patterns of behaviors, interests, or activities. According to the NIMH the symptoms of ASD must be present in the early developmental period of life (usually the first two years) and cause clinically significant impairment in social, occupational or other important areas of daily functioning. Additionally, most individuals will exhibit problems to some degree with empathy and flexible behavior.

In 2013 the DSM-5 Diagnostic Manual merged all autistic disorders into one umbrella diagnosis of ASD. Previously they were recognized as distinct subtypes including autistic disorder, childhood disintegrative disorder, pervasive developmental disorder not otherwise specified (PDD-NOS) and Asperger syndrome.

Diagnosing ASD is difficult because there is no medical test. Doctors look at the child's behavior and development to make a diagnosis.

According to the Centers for Disease Control and Prevention, most scientists agree that genes are one of the risk factors that can make a person more likely to have ASD. Additionally, children with a sibling who has ASD are at higher risk as well as those born to older parents. There is currently no cure for ASD but early intervention treatments such as speech, occupational, ABA (Applied Behavioral Analysis) and social skills instruction can improve a child's development.

Autism statistics from the U.S. Centers for Disease Control and Prevention identify that 1 in 68 American children are on the autism spectrum. This is a tenfold increase in prevalence over the last forty years. Studies show that autism is four to five times more common in boys than girls. ASD is estimated to affect more than 2 million individuals in the U.S. Government statistics suggest that prevalence rates have increased 10 to 17 percent annually in recent years.

### **ASD Symptoms in the School Setting**

According to research, fears, anxieties, meltdowns and sensory issues are common experiences with children on the autism spectrum.

Fear is an emotional response to a known or perceived threat. The student with ASD may have fears related to loud noises, bright lights, windy stormy weather, bugs or catching a disease. The intensity can result in children refusing to go outside or to attend a school activity like assembly, chorus, a field trip or gym.

Anxiety is a diffuse, unpleasant, vague sense of dread. It may manifest as constant worry. An ASD student may exhibit worry about not answering questions perfectly on a test. They may perseverate over what could happen if the answers are wrong and be unable to focus on anything else. Certain foods and textures may cause anxiety due to fears of choking. Thus, lining up to go to the lunch room can trigger meltdowns or refusals to eat.

Some children have nightmares or night terrors which can result in poor sleeping habits and fatigue during school hours.

Meltdowns can occur due to changes in routine and losing games. Recess is the time when meltdowns often happen due to perceived sudden changes in the “rules” of a game. Meltdowns often occur due to an overwhelming stimulation of some sort such as transitioning too quickly from one activity to another. It should be noted that meltdowns are different from tantrums in that meltdowns might result in withdrawal or aggression. Tantrums are attention seeking behaviors which often subside once the student gets what they want.

Sensory issues, include sensitivity to sights, smells, sounds, taste and touch. Sounds from music class, a movie or an alarm bell can trigger anxiety. Certain textures or clothing may bother a student resulting in an irritated mood. Some students may avoid wearing their socks or hat.

Fear and anxiety produce similar physiological reactions such as increased muscle tension, heart rate and shortness of breath. All of these result in an increase in stress hormones. The body reacts with an innate fight or flight response to stress. The student with ASD is often in the flight or fight state. Research shows that stress interferes with executive thinking and can lead to inflexible, rigid thought patterns and automatic responses. Therefore, it behooves educators to teach the ASD student skills to manage their stress.

*“What sculpture is to a block of marble, education is to a human soul.”*

*Joseph Addison*

### **Permission, SEL and IEP goals**

Obtaining specialized training and certification was just the beginning. Several details had to be addressed in order to comply with Illinois state law such as getting permission from parents to physically adjust poses and videotape their children. I also had to get permission to do the program from teachers, the principal and the Special Education Supervisor. Additionally, I needed to select students, find adequate room space, develop schedules so as not to conflict with the “specials” like art, music, gym or occupational and speech therapy. I needed to align the yoga program with SEL (state education learning) goals and social work minutes to be in compliance with the students’ IEP (Individual Education Plan). Moreover, I had to find time to develop the program while simultaneously servicing the needs of 60 special education students on my weekly caseload.

I started with my principal. Once the principal approved the next step was to clarify the programs’ intent with my Special Education Supervisor. Thanks to her attention to detail, I was able to anticipate parental concerns. Appendix 2 is an example of a letter to parents describing the program and Appendix 4 is an example of a permission slip to touch and videotape students.

While working on coordinating schedules and obtaining permission, I needed to make sure that each student would get their social work minutes and specific SEL goals outlined in their Individualized Education Plan. Fortunately, the students had the same SEL goals which were to improve self-awareness and self-management skills (SEL 1A). I offered to conduct the yoga sessions during the students’ regularly scheduled social work time and I agreed to add 15 more minutes of my time to address specific individual benchmark goals. The total amount of group time increased from 30 to 45 minutes for each student.

Selecting students was more complicated. At first I wanted to run several groups from different ILP classrooms. I soon realized that the logistics of this would interfere with a timely start date. Therefore, I selected students based on their willingness to attend, age, grade, physical ability to move without assistance and ability to communicate verbally.

It is quite possible to adapt yoga to students who are non-verbal and who have physical disabilities however, I was attempting to implement a pilot program under time constraints and limited resources.

Ultimately, the students who participated were 4 fourth and fifth grade students including one boy and three girls. Each student had their unique way of exhibiting anxiety and other behavioral symptoms of ASD. For example, tragically student #1's parent died earlier in the year. Prior to this the student was focused, compliant, and usually in an upbeat mood. When school started the student demonstrated increased distraction, a sad mood and unpredictably verbalized questions about the deceased parent. Student #2 exhibited anxiety about being touched, the weather and bugs. This student often got up to look out the window whenever the sky darkened. Student #3 was learning to transition to several classes in the general education setting. Staff noticed an increase in out of context verbalizations, inattentiveness and stares when asked familiar questions. The student also had proprioceptive sensory integration issues which led to confusion about right and left. Student # 4 exhibited increased moodiness possibly related to hormonal changes.

After selecting the students, obtaining permission and clarifying schedules, I needed to prepare the students themselves. I made individual folders with Social Stories. I asked both the teacher and parent to review the Stories with the students at least a few times before the actual start date. I included a copy of the Yoga Room Rules in the students' folders. See Appendix 3 and 1 for examples of the Yoga Room Rules and a Social Story.

Social Stories are often used in a school setting with ASD students. According to Ali and Frederickson the authors of the article "Investigating the Evidence Base of Social Stories (2006)," Social Stories were developed to help individuals with autism cope with social situations. A Social Story can be written or visual. The stories describe common responses in a defined style and format. Students learn to prepare and manage their reactions to situations through practice.

As the program logistics fell into place the start date began to feel real. Never the less, more details needed fine tuning such as getting permission for an Aide to come with me. The

importance of having assistance became evident later. In retrospect, the Aide often helped when one of the students needed calming down. Her presence allowed me to instruct and model rather than manage behavior. The last hurdle involved learning to measure progress.

## **Measuring Progress**

Progress was measured using pre and post rating scales. The scales identified signs of stress and came from the S.T.O.P. and Relax materials. Pulse rates were taken before and after sessions. Both the Aide and I had to learn how to take accurate pulse rates. Observations of breathing patterns, teacher observations of skills learned in the sessions as well as anecdotal reports all contributed to measuring progress.

*“If you can breathe, you can do yoga”*  
*Krishnamacharya*

## **What Really Happened - An Overview of the Sessions**

Prior to officially starting, the students were taken to the new yoga room to familiarize them with the setting. At that time one student refused to sit and asked many questions about what could be touched. It became clear that the room had a significant amount of distractions including art supplies, chairs, books and easels. I decided that it was better to opt for a smaller and overcrowded room versus a big and distracting one. Thus, the first yoga session was held in my office.

October 14<sup>th</sup>, 2014 was the official start date. All the i's were dotted and t's crossed. Students expressed excitement about participating. Teachers breathed sighs of relief that their students were going to learn to relax. The Aide was glad to get a break from the classroom. The time to get initial pulse rates arrived! The Aide and I put our fingers on selected students' wrists and promptly experienced firsthand what tactically defensive meant. One student loudly complained that the finger pressure hurt. Two other students had such low blood pressure that we could not get a reading. Further into the session, one student refused to follow directions, sat down and emphatically announced that she knew a better way. Another student continually stared and giggled at the vocal student while two other students quietly followed instructions. That afternoon I decided to borrow the school nurse's stethoscope.

During the second session, I could tell that students transitioned better and had a clearer understanding of the yoga room rules. They were quieter and more willing to follow directions. I made sure that I reviewed the rules each session to reinforce expectations. The repetition helped the students settle in and calm down.

Over the next several sessions, I consistently reviewed how to take care of yoga mats and personal space. I combined concepts from the school district's social emotional curriculum Second Step to reinforce behavioral expectations. These concepts were on large cards and served as visual cues. I frequently pointed to them as needed versus giving verbal re-directions. The Second Step cues on the cards were calm body, quiet mouth, eyes watching, and ears listening. Moreover, each session I had a visual chart which displayed the S.T.O.P. and Relax guidelines.

I was frequently surprised by the reactions of the students. At the end of one class, the outspoken student hugged me and thanked me for teaching. The student that was giggly and easily distracted became more receptive to breathing exercises and calming poses. During one session she suggested that she do certain poses to self-regulate. Another student often reminded me of the sequences especially if I forgot one pose. Two students in particular said that they went home and showed their parents what they had learned.

The spontaneous opportunity to practice deep breathing and calming poses to address an immediate concern happened one session. On that day one student could not refrain from expressing anxiety about trees coming alive at night. When the student was asked what to do to calm down she responded, "Deep breath and Child's pose." Without prompting the entire group did both to offer her support.

Logistical issues transpired as well which impacted consistent attendance and shortened the amount of time for one session. For example, at the scheduled time of one yoga session two students had to take mandatory MAP tests (measures of academic progress). On another occasion I had to leave early to address a crisis. Three separate times the Aide had to stay in her class to manage student behaviors.

Overall, the participants expressed that they enjoyed learning yoga. They all had a favorite pose called Cloud (Savasana). Each time they engaged in Cloud I was reminded of how important it was to allow children down time.



When we concluded our 9 week session, two students asked to teach kindergartners and other grades what they had learned. I could not think of a better measure of success.

*“Education breeds confidence. Confidence breeds hope. Hope breeds peace.”*  
*Confucius*

## **The Sequence**

There are key points to remember when conducting yoga with ASD students. In my experience what works best is a less is more approach. The instructor should use less words and more visual cues. Louise Goldberg emphasizes that children need to feel safe. Safety is created through rituals and boundaries. Rituals get established through consistent cues to end and begin a class. Boundaries are taught when students learn to stay on their mats and keep their hands to themselves. Louise Goldberg stresses that the instructor should not over correct. Learning comes from the process of participation versus engaging in proper alignment. The instructor should use a gentle, soft voice. Music can be added to cue the beginning and end of a class. Of course, one should teach what they know and fun.

After students learn basic poses more challenging ones can be added such as Virabhadrasana II (Warrior II), Matsyasana (Fish) and Bhujangasana (Cobra). It is important to add new poses one at a time to avoid overwhelming the students. The length of a class can vary but 30 to 20 minutes is an adequate amount of time for young students. Older students can tolerate 45 minutes.

### **Start Seated:**

1. *Breath work:* HUH breath

Use at the beginning and end of the sequence.

Arms at sides, raise shoulders towards ears, breathe in

Let shoulders drop down, say a quiet “Huh” as you breathe out.

3x

Purpose: Calming

2. *Shoulder Circles* – “Pretend you are oiling your shoulder joints.”

Place your right hand on your right shoulder and left hand on your left shoulder. Move your elbows toward each other in front of you and then in back of you. Reverse direction. 3x

Purpose: Calming, flexibility

3. *Fast Butterfly/Slow Butterfly (Baddha Konasana)- “ You are a butterfly. When you put your feet together, your legs become your butterfly wings.”*

Sit up tall. Place the bottoms of your feet together. Flap your knees up and down like butterfly wings. Flap them quickly, now flap them slowly.

Purpose: flexibility, movement regulation, imaginative play

4. *Butterfly Hands- “Now your hands are butterflies. They float up and they float down.”*

Shake hands. Stretch your hands in front of you. Float your butterfly hands over your head. Float your hands behind your back then let them rest on your legs.

Purpose: calming, teaching prepositions of place, imagination

5. *Bellows Breath- “Your arms are pumps, pushing air in and out of your body.”*

Sit straight, interlace fingers. Put your fingers behind your head, elbows out to the side. Inhale and stretch your elbows back. Look up. Exhale, bring your elbows close together in front of you, head down. 2x

Purpose: Breath work, flexibility

6. *Pretzel – (Bharadvajasana) “You are a pretzel starting to twist.”*

Sit on your left hip with your feet to the right (option use a chair). Turn your head and look over your right shoulder. Slowly turn your head to the left shoulder, then to the right shoulder. Repeat opposite side. 2x

Purpose: Flexibility in the neck and teaches students to identify left and right.

7. *Rock the Baby (prep for Padmasana- Lotus) – Pretend you are holding a baby in your arms. Be quiet and gentle so you don't wake up the baby.*”

Sit with your legs out straight and bend your right knee. Bring your right foot into your left arm. Wrap your arm around the outside of your knee. Slowly rock your leg side to side. Gently place your right foot onto the floor. Massage your baby (toes) as you tuck it into its crib. Repeat left side.

Purpose: coordination, flexibility

8. *Tense and Relax- “Pretend you just bit into a lemon.”*

Sit straight, make a face and then take a breath out. Relax your face. Make a tight fist (use a ball as an option). Tense it...tense it...tense it...Now relax! Go through parts of body and create tension then relax. At the end relax your face and make it smooth and soft. Feel your arms and make them smooth and soft.

Purpose: body awareness, calming

*S.T.O.P. - “What can you do when you are upset and need to slow your body down?” You can STOP!”*

This can be repeated often. I liked to draw special attention to it by combining the Second Step cues and say, “This is important, eyes watching, ears listening, body quiet, and mouth quiet. S is for soft face, soft shoulders. Run your fingers over your face and shoulders. T is for take 5 deep breaths. (Do it with students and hold up fingers to count). O is for open chest. Put your hands behind your back a pick up your chest. P is for posture check. Sit up or stand up straight and pretend there is a string pulling you up. See how tall you can get.”

### **On Hands and Knees**

9. *Table - “You are a table that your lunch tray can go on. Make your arms and legs like a table, straight and strong. Keep you back flat so food does not fall off!”*

Place your hands on the mat under your shoulders. Spread your fingers. Place your knees on the mat under your hips. Pull in your belly to make your back flat.

Purpose: Strengthening

*10. Cat – (Marjariasana) “Have you seen a cat stretch? Let’s pretend we are angry cats.”*

From table, inhale look up without dropping the low back. Pull your chest between your arms. Exhale look to your belly and round your middle back to the ceiling. Inhale, look up and say “meow.” Exhale and look down, round your back up like an angry cat. Repeat 3x

Purpose: flexibility

*11. Balance Beam- (Add on after students can do table top and lift only an arm or leg at a time.) “Make your body into a straight line.”*

Come to Table. Wiggle your right fingers. Raise your right arm straight out in front of you. Return your hand to the mat. Wiggle your left fingers. Raise your left arm out in front of you. Return your left hand to the mat. I found that students were really challenged by this especially those with low muscle tone or motor coordination issues.

*12. Baby (Garbhasana) - Pretend you are a tiny baby curled into a little ball. Babies like to have their backs rubbed. If you want me to touch your back say, “o.k.” If you do not then say, “no.” It’s ok to not be touched. A safe touch is when you want it. This explanation I gave each time to reinforce verbal skills, self-advocacy and an understanding of safe touch.*

Come into Table on hands and knees. Bring your hips to your feet. Keep your knees folded beneath you. (Some students needed an extra mat/towel/cushion under their thighs). Lower your head to the mat. Rest your arms at your sides. Relax into Baby. I will rub your back if you want that. To come out of the pose, raise your head up slowly and bring your arms overhead and say, “Hello, world!”

Purpose: Calming, teaching safe touch

13. *Airplane (Navasana on belly)* – “Let’s take a trip! Imagine you are on an airplane. Where do you want to go?”

Lie on your belly. Bring your arms to your sides, palms down. Now, make your arms like airplane wings. Inhale lift your arms and head off the mat. I called out select students to ask where we were going. Everyone had input and enjoyed this pose. To exit, on an exhale, we have to land. Where are we landing? Exhale, lower arms and head.

Purpose: Strengthening

14. *Downward Facing Dog ( Adho Mukha Svanasana)* – (This is a challenging pose. You can have students go to Table and then come up slowly, growing like a tree). “Let’s pretend we’re dogs.”

From Table lift your hips to the ceiling, flex your feet which means curl your toes under and press the bottoms of your toes into the mat. Keep your hands on the mat. Straighten your knees; lift your hips to the ceiling. Lower your head towards the floor. You are a fun, strong dog.

Purpose: strengthening

### **Standing**

15. *Tall Tree (Urdhva Hastasana)* – “What is your favorite tree? Make your feet the roots, and your arms reach up like branches to the sun.”

Stand at the top of your mat. Put your feet firmly on the floor, hip distance apart. Place your palms of your hands at the center of your chest and inhale and raise your hands to the sky like branches. Keep your palms together and raise your arms high. (Challenge go onto tiptoes). Breathe and focus. Exhale bring your arms down.

16. *Balanced Tree- ( Vrksasana, challenging pose)* “You are the same favorite tree strong and tall but with only one big root planted in the ground.”

Stand at the top of your mat with both feet firm on the floor, hip distance apart. Place your palms together at your chest. Feel the strength in your left leg, like a tree trunk. Bring your right foot off the mat and place your heel against the inside of your left leg. Keep your eyes steady and breathe steady too. Switch sides.

Purpose: balance, coordination.

*17. Fruit Picker: “We are going to make juice. First we need to pick some fruit that grows on trees. Ask a student to choose a fruit and how many they want to pick. Count together. Then ask another student to pick fruit that grows on bushes. Count together.*

Stand tall like your tree. Reach up high with your right arm and pick 5 apples. Now bend down and put them in your basket. Continue like this so that everyone has a chance to choose their fruit. Once everyone has a chance say, “Now let’s make a smoothie.” Lift your feet and then make bigger movements back and forth, up and down, shake it out, turn around then STOP. Time to drink the smoothie.

Students love this game. Reaching for fruit increases flexibility, bending down does as well. Some students have difficulty sequencing numbers so counting in a game format helps reinforce skills. Drinking a pretend smoothie sometimes generates conversations about healthy eating.

*18. Cloud (Savasana)- “Pretend you are floating on a cloud. You are safe, calm, resting on a cloud just made for you.”*

End with this pose. This was everyone’s favorite pose.

It’s time to end. Lie on your backs. Let your legs rest on the ground. Take in a Huh breath and then sigh out breath. Soften your face and belly. Close your eyes. Let students stay here for 2-3 minutes. It is hard for children to stay still so they do not need to be here long.

Purpose: calming, imaginative thinking

To transition from Cloud, play music a little louder and tell the students to come to Seated. One more time have them take in a Huh breath in and out.

## **Results of the data**

We were able to collect 6 pulse rate data points. All students were present for 5 of the 6 days data was collected. The results of the pulse rate data show differences between the start and finish rates by as much as 28 points (see chart G 11/18/2015). The average difference in pulse rate from start and finish for student J was 14.4; student T, 15.2; student C, 5.2 and student G,

13.6. This suggests that on average students experienced lower pulse rates upon completing a yoga session.

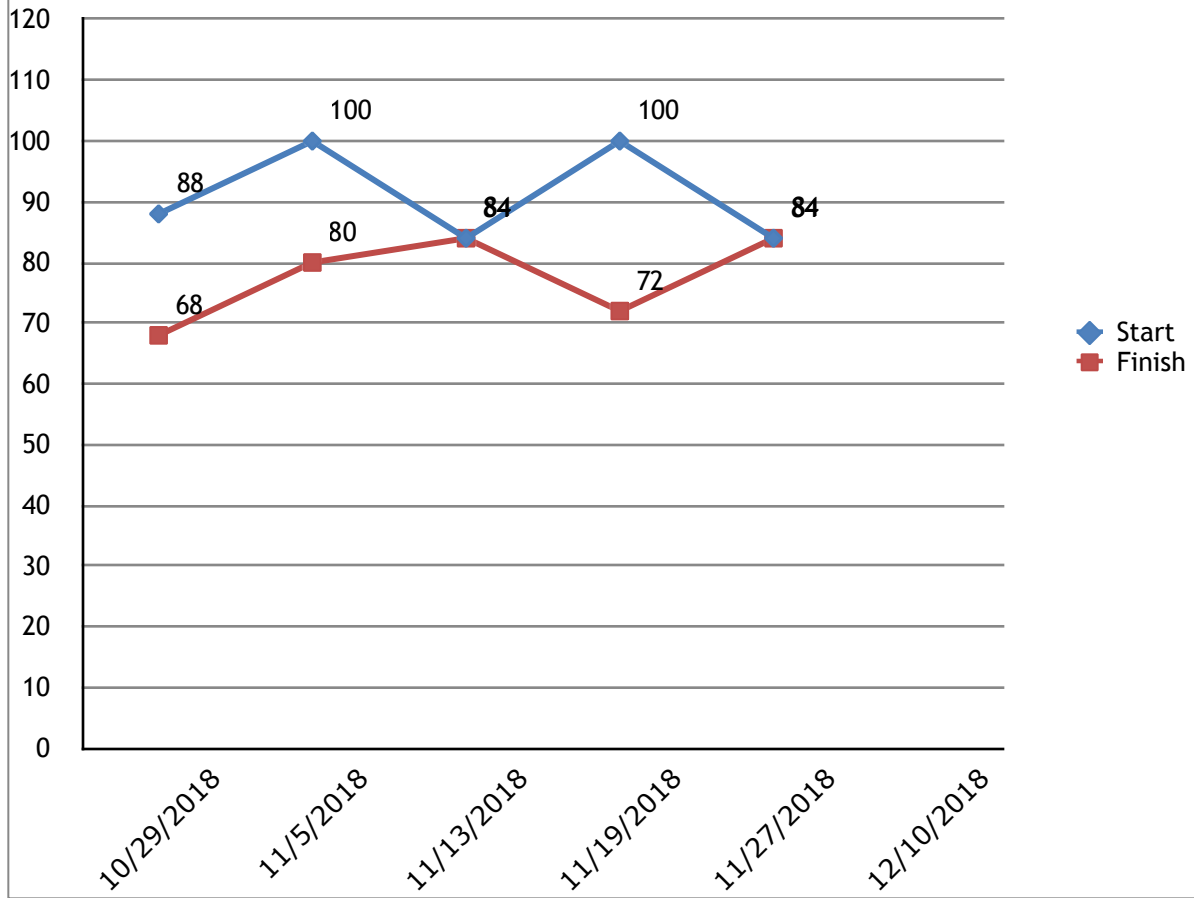
The teachers reported that students practiced calming breathing techniques without prompting and had volunteered to show their classmates what they had learned. Additionally, two students self-reported that they went home to show their parents what they had learned. This suggests across setting learning.

It was observed that students responded to verbal cues such as “take a deep breath” with less coaching which suggested an increase in body awareness. The students demonstrated improved ability to focus and refrain from talking. Over time, they engaged in more challenging poses. One student consistently recalled the entire sequence without prompting.

## **Graphs**

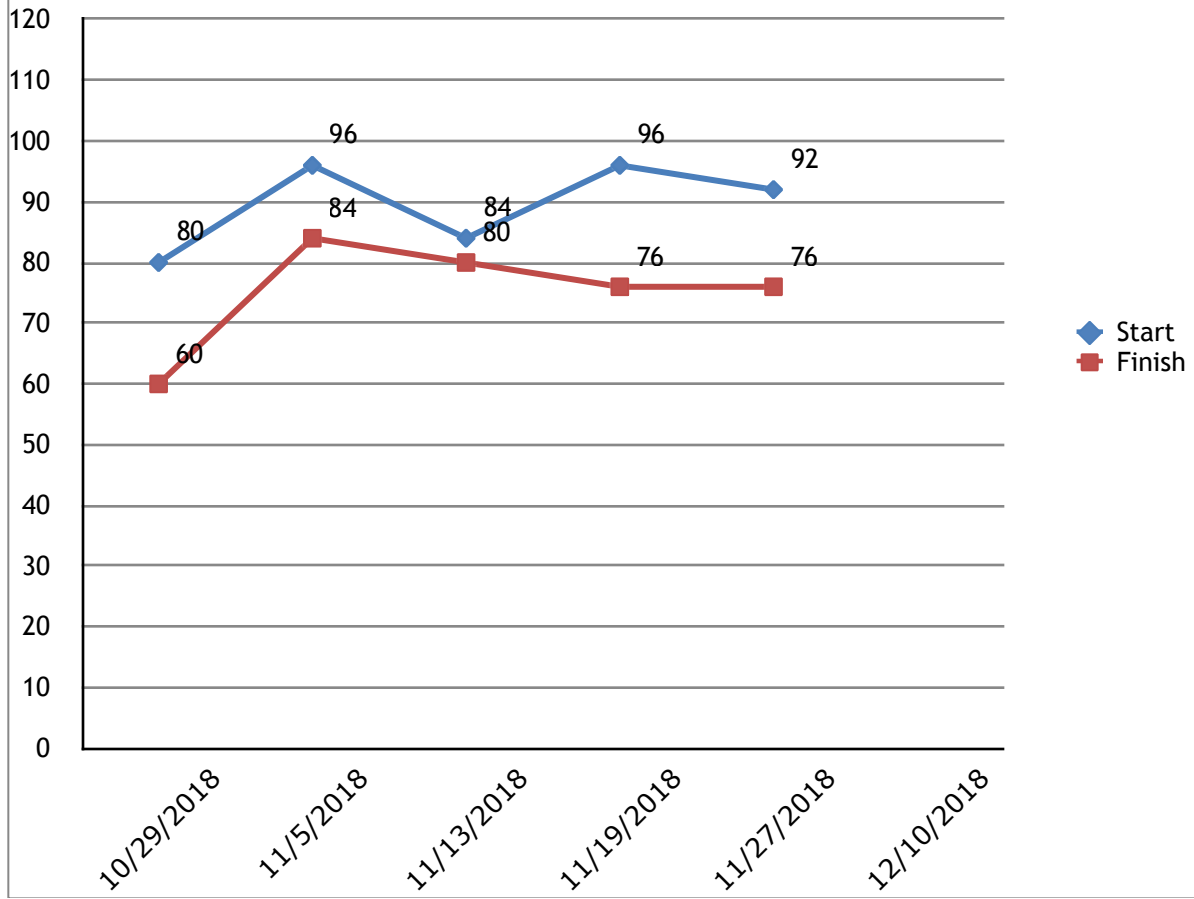
Below are the pulse rate graphs for the 4 students. The start line data point is marked by a blue triangle. The end data point is a red square.

# Student G

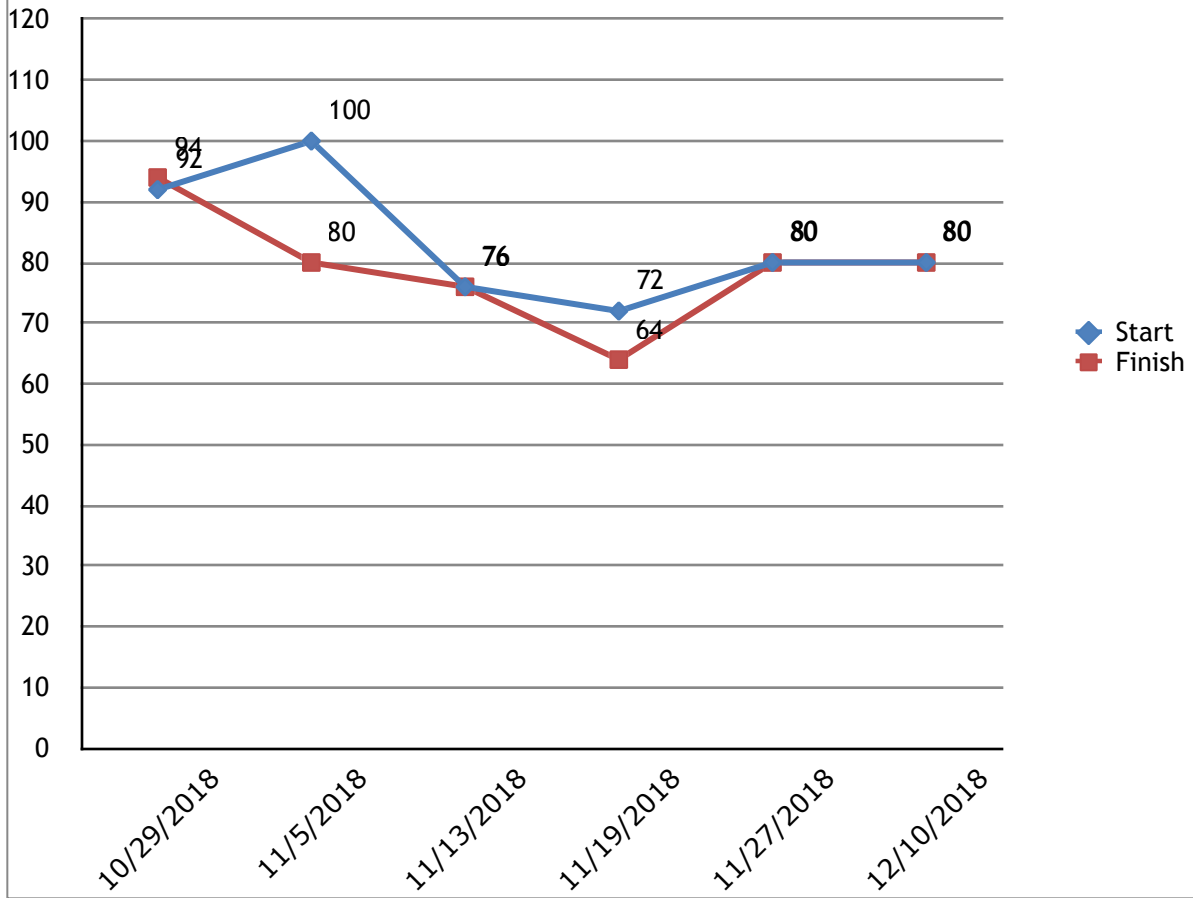


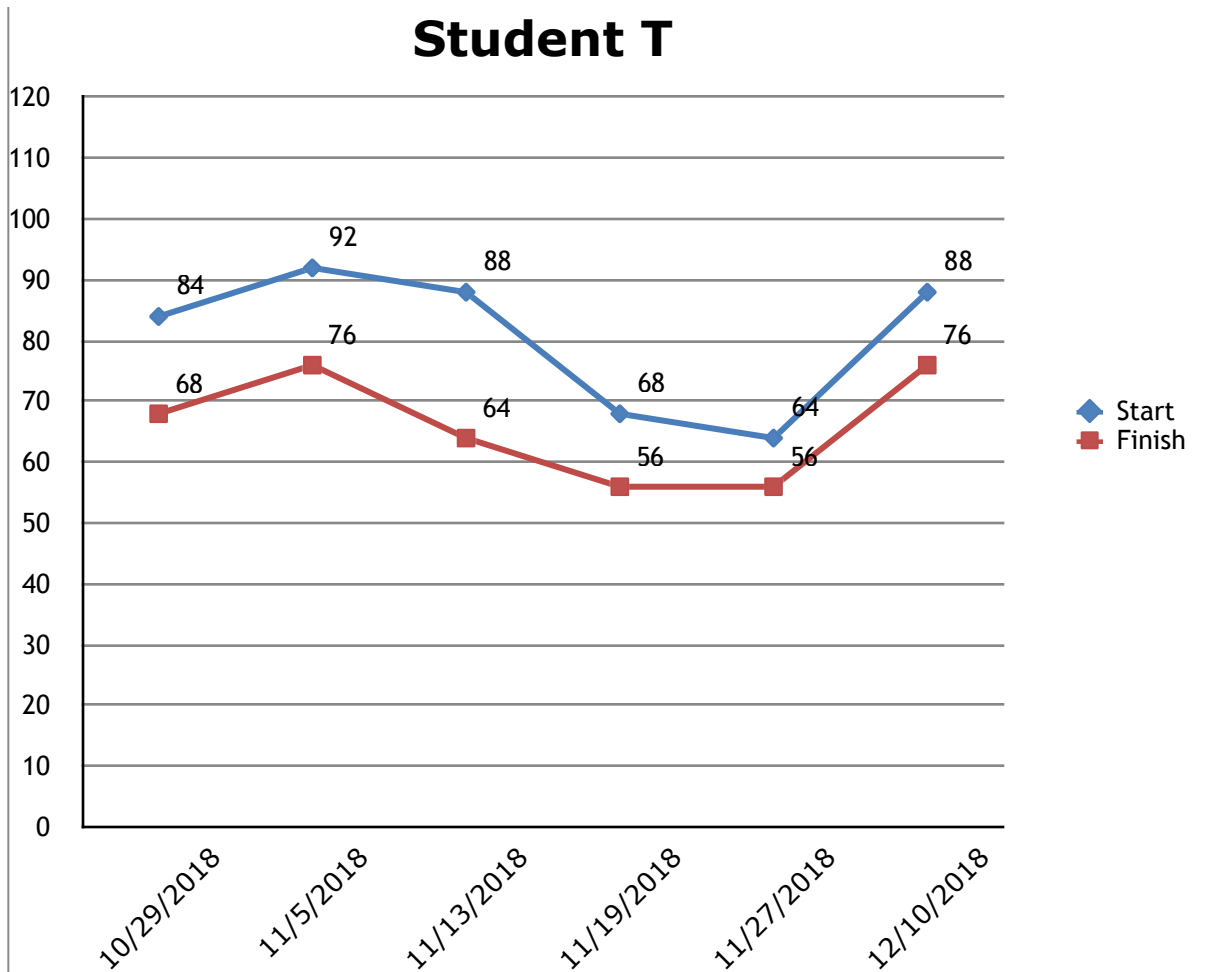


# Student J



# Student C





### Conclusion

Children with ASD are believed to lack “theory of mind” (Baron-Cohen, Leslie, & Firth, 1985). Theory of mind refers to the concept that autistic individuals do not understand another person’s perspective. In the classroom setting a lack of social awareness could manifest as self-centered and uncaring behaviors towards peers. It has been my experience that when a student’s perceived lack of empathy towards another student is pointed out an anxious response may follow. Lessons taught about managing emotional reactions through yoga curriculums like Louise Goldberg’s S.T.O.P.-Relax help reduce the intensity and duration of an anxious response. Once a student is taught to observe, reflect and respond differently to stressful situations they can utilize these skills in varied circumstances. Increased self-awareness empowers the student to self-regulate which leads to choice. The more choices we have the more empowered we feel.

In her book, Yoga Therapy for Children with Autism and Special Needs, Louise Goldberg cites neuroscience research which suggests that the vagal nerve system in ASD child may function poorly. The vagus nerve is an intricate neural pathway extending from the brainstem through the abdomen. It affects functions such as speaking, swallowing, respiration, heart rate, and digestion. Louise Goldberg quotes research that describes how the autonomic nervous system has a “polyvagal brake” which works like the brakes on a car. When the polyvagal system functions well it helps the body from going into full flight-or-fight mode. According to researcher Bruce McEwen, “A person without a vagal brake lives in an unending state of emergency.” Yoga poses that involve rocking, rolling, rotating and inverting stimulate the vagus nerve and help calm the body (Goldberg, p. 47).

Teaching yoga in a school presents unique but manageable challenges. For example, school staff have to respond to crisis as needed which can result in abruptly leaving a scheduled session. Circumstances such as absences from class due to state testing requirements or illnesses can impact the continuity of learning. Never the less, the benefits of yoga out way the challenges of implementing a school based program.

B.K.S. Iyengar writes:

*Yoga...is like music. The rhythm of the body, the melody of the mind, and the harmony of the soul create the symphony of life. Yogasana practice helps us to understand and learn how to play this magnificent instrument that each of us has been given (pgs. xxi,19)*

An ASD child has their own song to sing and music to play. Practicing yoga is one way in which they can play their individual instrument.

#### Appendix 1: **Example Social Story**

On \_\_\_\_\_ (day, time) I will go to Relaxation class.

My teacher will be\_\_\_\_\_.

Relax means to slow down my body (insert a picture).

When I get to my relaxation class I will see mats (insert a picture).

I will take off my shoes and sit on my mat.

I will stay on my mat and be quiet.

## Appendix 2: **Letter to Parent**

Dear Parent,

Your child has been selected to participate in a 9 week unique pilot program at \_\_\_\_\_ School. The program is called S.T.O.P. and Relax. It is a visual curriculum for teaching yoga-based exercises and relaxation techniques to individuals on the Autism Spectrum Disorder. It was developed by autism educators, a school psychologist and a yoga teacher.

As the parent of a child with ASD you know how highly vulnerable your child can be to stress and anxiety. You know how difficult it can be to soothe your child. The skills learned through the S.T.O.P. and Relax program support your child's mastery of relaxation, self-calming skills and support IEP goals pertaining to self-control. The curriculum has been used successfully by teachers, therapists and parents internationally.

The program will start in mid-October during the school day. It will be conducted by the school social worker with the assistance of a classroom aide. Please note that your school social worker is a Licensed Clinician and certified special needs yoga instructor. Additionally, you as the parent will have the opportunity to practice skills at home should you choose to. Progress will be monitored through pre and posts tests, questionnaires and heart rate measurements. We would appreciate videotaping the sessions for educational purposes and to monitor progress.

We sincerely hope that you will allow your child to participate in this opportunity. There is no fee and materials will be supplied.

Sincerely,

(Your name)

## Appendix 3: **Yoga Room Rules**

1. Remove your shoes
2. Stay on your mat

3. Keep your hands and feet to yourself
4. Listen and follow directions
5. Have Fun!

#### Appendix 4: Permission Slip

I \_\_\_\_\_ (parent name) give my child \_\_\_\_\_ permission to be touched for the purposes of adjusting poses during the relaxation class. The adjustments are for the purpose of maintaining safety. I also give my permission to video tape my child for educational purposes. This permission will end at the conclusion of the class on \_\_\_\_\_.

Parent signature \_\_\_\_\_ date \_\_\_\_\_

#### Resources

Ali and Frederickson. (2006). *Investigating the Evidence Base of Social Stories*.

Baron-Cohen, S., Leslie, A.M., & Firth, U. (1985). Does the autistic child have a “theory of mind?”

Center for Disease Control and Prevention. Autism statistics. Retrieved from [www.cdcgov/ncbddd/autism/index.html](http://www.cdcgov/ncbddd/autism/index.html)

Gasper, Lori. (2013). *Prairie Yoga 500 Hour Advanced Yoga Teacher Training Manual*.

Goldberg, Louise. (2013). *Yoga Therapy for Children with Autism and Special Needs*.  
New York: W.W. Norton and Company, Inc.

Iyengar, B.K.S. (2005). *Light on Life. The Yoga Journey to Wholeness, Inner Peace and Ultimate Freedom*. Rodale Inc.

