



ASD CLASSROOM CASE STUDIES

Derived from 'Learning Disabilities in Classroom' Case Study program

Therapeutic Learning Environment for 'Special Needs' students

Color Light Therapy

**Supporting Dedicated ASD and mixed population classrooms
Learning and Behavior Disabilities**

Statement from certified teacher: (Special Education k-12. Understands the specific needs of ASD students and all the visual, linguistic, and sensory accommodations they need to learn)

I feel, no matter what population a teacher works with, we must be openminded. Education and methodologies are always evolving. We must make sure we are teaching our students to the best of our abilities.

Participating teacher statement from dedicated Autism Academy in Arizona

Bachelor's degree at Grand Canyon University Elementary Education 1st-8th and
Special Education K-12

I have implemented Stress Light Therapy in my classroom for over a year. I teach students with Autism. Their language, Math, and Reading skills have increased by an average 2.2 grade levels. Thank you, Mr. Demyk for your support!

Methodology used

General background for dedicated ASD classrooms and mixed population group students:

The focus is on 2-4 selected diagnosed students with targeted specific behavior improvement goals that also includes classroom performance overall (calmness) and teacher personal interface. For students include Self-regulation issues (# of behavior breakdowns frequency and length of time), Social behavior (making friends, interfacing with classmates, teacher, sport and active classroom participation). It also includes Academic achievement (progressive grade level improvement in specific areas), and anxiety/hyperactivity control behavior. Teacher interface with parents is highly recommended to measure the at-home performance behavior improvement of students participating.

Our history of 'Learning Disabilities in Classroom' Case Study program:

Our Classroom Case Studies started in early 2016 in public and private schools and continues to expand. The methodology and collection of information evolved with a more focused way of collecting progression measurement data points that includes behavior issues. Social interface, academic improvement, and calmness. The data point accumulation, now in the thousands, suggests a valuable resource for all teaching institutions. We currently have many school/academy classrooms across North America adopting our *therapeutic learning environment* with more participating in our Case Study program.

The technology we use and what it does:

Patented 'Light Modulation' technology and its complex control algorithms are programmed in an ARM processor, allows the embedding of soft color light pulsations for specific interaction with various physiological rhythms, such as brainwaves, breath, and heartbeat. Designed with advanced technology accumulated from over 20 years of

research by renowned Quebec physicist and inventor, Anadi A. Martel. This technology is being used in the Sensora™ Multi-sensorial therapy system in multiple health therapy centers worldwide. We do have a clinical study based on the technology completed in 2013 and summary can be viewed on [Pubmed: http://www.ncbi.nlm.nih.gov/pubmed/24067320](http://www.ncbi.nlm.nih.gov/pubmed/24067320)

Teacher Observations while utilizing this therapeutic light – (some teachers prefer to use this simplified method). Each student (as ASD or similar disorders) in Case Study should include statements (details described) and one Case Study for classroom overall, and teachers' interface effects. Each observation consists of Numeric Measurement Progression Rating # and date.

Numerical Measurement Rating States: How you rate each relative behavior state over time



The frequency of taking measurements over the Case Study period of 8-14 weeks: Your Start should define the behavior characteristics for each of the selected students in the study. Statements should be updated minimum of every two weeks and conclusion which should state **date** and **Numerical Rating State measurement #**. **Additional Add dates** when you see changes in students or classroom overall include a photo or two that shows students and Therapy Light view for Case Study reference. We respect all confidentiality.

Note: Each Case Study should include details of diagnosis and level in your own words along with the number of students in the classroom, gender, age range, and grade level. You can add as many new observations you experience in any of the prime categories we show, or any other type you feel is relevant to the study.

Tip: It is recommended you keep a note pad for reference on daily activity on interval statements. Your notes should include comments from other individuals such as other teachers, parents, visiting administrators and school or academy doctors. Each rating period should show your observation assessment including the same rating from the last period.

Key areas to measure progress with Numerical Rating States #: (describe with details from observations)

Hyperactivity: participating student, if applicable

Anxiety: student, if applicable

Social interface: selected students, classroom participation improvement including new friends, interface with other students, teachers, therapists, and other adults if possible. Also, include any parent comments or letters

Calmness: selected student changes, includes other students, classroom overall

Teacher Interface: detailed personal effects including energy teaching levels and how it influences your teaching

Self-Regulation: breakdowns and other habits or disorders of selected students and described with detail

Classroom overall: the relative change you have seen in the classroom over the study period

Academic performance: performance of selected students and grade level improvement for specific areas, including any increase in learning energy displayed

Classroom Case Study in dedicated ASD Academy

The following Case Study TEACHER STATEMENTS are derived from certified 'Special Education' teachers regarding their ASD students participating in our 'Learning Disabilities in a Classroom' Case Study program.



American Academy with multiple campuses dedicated to ASD children – Classroom with 16 children (After 16 weeks of daily classroom therapy in 1st school year and now 2nd school year for same students with new addition to continue the Case Study progress)

This Therapeutic Learning Environment is now being adopted into multiple campuses and classrooms based on the amazing behavior results they have seen. In addition, each of the classrooms will be participating in further individual Case Studies for 2-4 diagnosed ASD students which we will make available.

Teacher Qualification:

Dual Bachelor's degree and special education k-12th. Before earning degree, was a highly Qualified Para-Educator for 9 years working with special education students in the general education setting. Professional development hours in the TEAACH Model, Pivotal Response Training, Behavior training with a BCBA, Response to Intervention, and Writing training. Understands the specific needs of ASD students and all the visual, linguistic, and sensory accommodations they need to learn.

Background information from teacher Feb 25th, 2018:

I have been using the light therapy every day. It is on from 7:30-3:30. I have 4 windows that allow a lot of natural light into the room so I do not use artificial light. I have recently placed shades over two of the window in hopes of allowing the light therapy ball to increase its effect. The very first day the light was installed one of my students said, "I like this light. It's very calming in here." I had not said anything to the students about the light and had let them draw their own conclusions.

I have found the blue light is more beneficial to my students. However, we have used the light selection with the microphone and played instrumental music (Classical Goes Pop on Pandora) during cooperative STEM projects. My students worked quietly together and many of them were singing and humming to the music. It was a very beautiful sight to see. I believe in increasing students' meta-cognitive abilities in regards to behavior management and modification. Every day my students set a goal and it becomes the focus of their positive feedback in every activity. I truly believe the light therapy has intensified the meta-cognitive process.

I am attaching a picture of my classroom. The Stress Light Therapy is placed in the front of my room where I stand for direct instruction. There are four tables in my room and Math and ELA are taught through small group instruction. Social Studies and Science are taught as whole group instruction.

I have 16 students, and all have Autism. I have 3 students whom I have seen the greatest benefit. One student has difficulty attending. My classroom serves students from the age of 10-14 and grades 4th-7th, currently. I have students who are reading at a first-grade level and are in the 7th grade and I have a fourth grader who is reading at a 6th-grade level. I cover math concepts from adding and subtracting with regrouping to multi-digit multiplication and division. I have a few students who can write multiple paragraphs. Some of my students are learning to write one sentence. I have one student with hypotonia who is working on proper letter size and spacing.

Many of my students have a social skill goal. We work on initiating conversations and engaging in social play. I have multiple students with behavior goals. We teach students how to regulate their emotions and have appropriate responses.

Teacher comment on classroom Academic performance Oct 22, 2018:

Currently, in Math, the overall grade level progress for my class is 1.1-grade levels since August 2018. The overall grade level increase in Language skills is 2-grade levels since August 2018. I am very proud of my classrooms'

accomplishments. I have a very good team. I have all new paraeducators in my room this year and have trained them in specific skills, so our students can be successful.

Teacher comment on classroom Academic performance Feb 1, 2019:

Over-all classroom academic progress from July 2018-January 2019:

Math grade level has increased overall by 1.3 grades. Language grade level has increased by 2.6-grade levels.

Teacher personal Interface with Therapy - Feb 25th, 2018:

For me, I had to think about what changes I have seen. I have not noticed any energy increase, but I am already a high energy person. But, what I have noticed is an increased desire to learn. In the past 2 weeks, I have listened to two audio self-help books and 3 self-help seminars. My desire to increase my own positive ways of thinking has increased greatly.

April 26th, 2018: I also noticed a lack of drive during my spring break and 3 weeks after. Since being back in the classroom and exposed to the light for 6 weeks, my drive-energy and passion for excelling and learning have increased. I have restarted my quest for self-improvement and development.

I have multiple staff members stand in my doorway to look at the light. They have commented on how calming it is. Several colleagues have stated they would like to have a light placed in their room.

Other staff members would like to know if they can purchase a Stress Light Therapy system for their home.

Oct 22nd, 2018: My personal interface has been interesting. I have a lot more confidence. I also feel as if I have the ability to remain calmer. I also feel like my memory has improved. I do have as many issues remembering to finish tasks. I can keep them all in the forefront of my mind.

Background information from teacher May 31st, 2018:

I have had an increase in personal development since coming back from spring break. I have more self-confidence. I have also noticed an increase in attention. I believe I am taking a very active role within the school, not just within my classroom. I also notice I have fairly even energy throughout the entire day.

I have spoken to several colleagues on the school leadership team and they all say my students are completely different children than they were at the beginning of the year. Our Behavior specialist observed me talking to student 3. She had been his teacher 2 years ago. She was amazed at how mature he handled disappointment. Previously before January (the time light therapy was implemented) the student would have meltdowns and would exhibit aggressive behavior. The student has had zero aggressive behavior since January. Overall, according to my data collected by an online curriculum, my students have increased their language skills by 2.1-grade levels on average. The range is from 0.7-3.4 grade-level increase.

Overall my room is very active. We still have behaviors such as aggression including hitting and kicking, crying, yelling, and work avoidance. However, the behaviors are very mild and minimal disrupt (if at all) the function of the classroom. All students are recovering within 5-15 minutes opposed to 30-90 minutes. My students have become very social. We took a field trip to a local park which we walked to. 14 out of 15 of my students played on the playground appropriately. Many of them played tag together and integrated the game without adult help.

I will have most of the same children I had this year. This is very exciting because I can continue all therapies with consistency. I will have a few new students and would enjoy including them in the study.

Individual Academy Students in this Case Study

Student #1 Feb 25th, 2018: He has an IEP goal of remaining on task for 10 minutes with no more than three prompts. The second day the light was in our room, he read his reading textbook independently for 10 minutes with zero prompts to reattend. I use positive feedback in my room. Every 3 minutes I drew a star on his table with a dry erase marker to let him know he was doing what he should be doing.

Student #1 April 26th, 2018: Continues to make progress in the areas of attention. He can remain on task for 15 minutes with 3 non-verbal prompts. He has made great gains in socialization. He is now playing tag with his classmates appropriately and unprompted. The student is starting to identify his emotions and verbally expressing when he is frustrated. When other students are frustrated he verbally states, "Sensory room" or "lavender spray." These are 2 sensory inputs which help him feel calm. He is trying to suggest the other students uses these tools. I spoke with his mother during our IEP meeting and she stated that over the last 3 months she has seen an increase in his awareness of his surroundings. He is much more engaged in the community and at home. I have not seen an increase in academics yet. March 3-17 or 2018, we had spring break. I did not notice an adverse effect of not receiving light therapy for 2 weeks.

Student #1 May 31st, 2018: Student 1 has maintained his ability to stay on task for 15 minutes with 3 non-verbal prompts. He continues to play tag with his peers. He is expressing his emotions and verbally stating when he is frustrated with 0-1 verbal prompts on 100% of opportunities. When other students are frustrated or sad he is empathizing and telling them, "It's ok. Why are you so sad?" He has found a common interest with another student. This is very exciting. It means he has become socially aware of verbal expression from other students and making emotional connections. Student 1 speaks in third and second person, confusing pronouns. Now, when he uses the incorrect pronoun I can say, "Choose a different pronoun," and he corrects his sentence.

Year two Student #1 Sept 12th, 2018: Student 1 has maintained his ability to stay on task for 15 minutes with 3 non-verbal prompts. Before summer break, he was expressing his emotions and verbally stating when he is frustrated with 0-1 verbal prompts on 100% of opportunities. He is now having difficulty using the verbal expression and will grab someone within proximity. He is using the correct pronoun 60% of the time and correcting pronouns with on verbal prompt. He is showing affection for peers. He hugged a peer On 9-11-18 and verbally said, " (Student name) I love you." He has increased .4 grade levels in math since August 2, 2018.

Year two Student #1 Oct 17th, 2018: Has increased the ability to stay on task for 15 minutes with 2 non-verbal prompts. He is remaining calm and is no-longer expressing frustration by grabbing peers or adults in proximity. He is again recognizing the emotions of his peers by verbally expressing, "Student Name, you are so sad." He is using the correct pronoun 80% of the time and correcting pronouns with on verbal prompt. He has maintained his 0.4-grade level advancement in math since August 2018.

Year two Student #1 Feb 1st, 2019: Now staying on task for 15 minutes with 2 non-verbal prompts. He continues to play tag with his peers. He is volunteering to read aloud during whole group instruction. His mother reports that he is engaged in public. He is now verbalizing his observations out loud using a full sentence. His mother is very pleased with his engagement in community outings. He continues to empathize with other students. He is speaking in third and second person less. His reading level has increased from a 1.1 to a 2.2. His math level has increased from a 3.1 to a 3.6. His language level has increased from a 4.9 to a 5.6.

Student #2 Feb 25th, 2018: The second student has high anxiety. He paces, cries, screams out when startled, and blurts out in class. These behaviors occurred 4-5 times daily. Since the light therapy has been implemented has not screamed at all. He has only paced once daily. His crying has decreased and is easily redirected. He is raising his hand now with minimal prompting. The most amazing part of his story is one week after light therapy began he was in a horrific car accident and the driver of his car almost died. His car rolled several times. He is lucky to be alive. He sustained only scratches and bruises. His mom and I were concerned that with his high anxiety he would have a very

difficult time coming back to school and we may need to start modifying his behaviors as if it were the first day of school. However, he has only continued to improve his behaviors and has had no anxiety about coming to school.

Student #2 April 26th, 2018: We had spring break the first 2 weeks of March. Student 2 did not receive light therapy during that time. When we returned from spring break the student had increases levels of anxiety. The verbal outbursts and crying which had decreased from 0-1 times daily have increased to 2-3 times daily. During my parent-teacher conference with his mother, she noted his maladaptive behaviors had increased at home as well. Since being exposed to the light therapy upon return from spring break the student's maladaptive behaviors are decreasing again beginning April 16th, 2018. I have seen an increase in this students reading fluency from 120 correct words per minute at a 4th-grade level to 160 correct words per minute at a 5th-grade level within the last 3 weeks (beginning of April 2018) The student continues to pace but will take redirection to stand in line or behind his chair during rotation transitions.

Student #2 May 31st, 2018: The verbal outbursts and crying have now reduced to 1-0 times daily with a total of outburst of 3 per school week. The student is beginning to follow functional procedures when asked. Before, I would need to explicitly call on him to complete the procedure (line up, push in the chair, get lunch). At the beginning of the school year, when a behavior occurred, it would last 1-2 hours. Now, his mal-adaptive behaviors are only lasting 5-15 minutes.

Year two Student #2 Sept 12th, 2018: The verbal outbursts and crying continue to remain consistent with the last report at 1-0 times daily with a total of outbursts of 3 per school week. The student is following functional procedures without prompting. Before, I would need to explicitly call on him to complete the procedure (line up, push in the chair, get lunch). The student is now following directions the first time 70% of the time.

Year two Student #2 Oct 17, 2018: The verbal outbursts and crying have decreased to 1 a week. He is much calmer and more content. The student continues to follow functional procedures without prompting. He is becoming more social and engaging in play with peers. His mom reports he is becoming more engaged with his siblings and even engaging in teasing them.

Year two Student #2 Feb 1st, 2019: The verbal outbursts and crying have increased to 3-10 times daily. The student is still following functional procedures when prompted. His mal-adaptive behaviors are lasting 10-30 minutes. He is perseverating on phrases and repeating them and is not accepting redirection. He has made 5 months progress in math 4.0-grade level to 4.0-grade level since July. In Language, he has increased from a 6.2 to 7.0-grade level. In Reading, he has increased from a 3.7 to a 4.2-grade level. The mal-adaptive behaviors do not seem to be limiting his ability to make adequate progress.

Student #3 Feb 25th, 2018: The third student used to have an outburst of crying and screaming 2-3 time per week. Each incident would last 30-90 minutes. Now, this behavior has decreased to once a week and the duration has decreased to 5-30 minutes. His mom cannot figure out what has changed. She even said, "I just don't understand. We haven't changed anything."

Student #3 April 26th, 2018: Student 3 has made tremendous progress in increasing desired behaviors. Student 3 was affected by the absence of light therapy while we were on spring break. Upon return to school, the student's maladaptive behaviors increased from 1 crying/yelling outburst per week to 2 times per week from March 19th-April 13th. They have now decreased to one per week. However, he now makes positive statements toward his classmates, cheers for their successes, and engages in conversations during unstructured time. Prior to implementing light therapy, the student would engage in crying, yelling, hitting, spitting, and attempt biting when he lost a game or felt he did not get equal opportunities during gameplay. We have given him replacement behaviors such as saying, "Awe man. Good game, and congratulations." Prior to the light therapy being placed in my classroom, the student required modeling of positive behavior and a verbal prompt. The student is now implementing the replacement behavior 99% of all opportunities.

I spoke with his mother during his IEP meeting and she stated that she and both her boys (both diagnosed with ASD) enjoy going to the movies, it is their special activity. Student 3 wore noise-canceling headphones but always wore them in the theater. She said he no longer wears them to the movies. He told her that his ears no longer hurt.

Student #3 May 31st, 2018: Student 3 continues to make tremendous progress in increasing desired behaviors. They have now decreased to one per 3 weeks. He continues to make positive statements toward his classmates, cheers for their successes and engages in conversations during unstructured time. He has made friends in class and is now referring to another student as his best friend. The student continues to increase desired behavior in the area of sportsmanship. Now, if he does not win he only has an outburst 1 out of 10 opportunities. His reading level and language level have increased 2-grade levels this year. He continues to only use noise canceling headphones when loud external noises are present for an extended period of time.

Year two Student #3 Sept 12th, 2018: Student 3 continues to make tremendous progress in increasing desired behaviors. He has become very social and engages in conversations during the structured and unstructured time. He has made friends in class and is now referring to multiple students as his best friends. The student has maintained desired behaviors in the area of sportsmanship. His reading level and language levels continue to increase. He is now reading at an 8.3 grade-level and has been placed in an online program at that grade level for reading. He language levels have increased from a 7.3 to a 7.4 grade-level. Math has increased from a 4.4 to a 4.5-grade level.

Year two Student #3 Oct 17, 2018: Student 3 continues to make tremendous progress in increasing desired behaviors. He remains social and engages in conversations during the structured and unstructured time. He is now learning to take on leadership roles and encourages his peers to follow the rules. His reading level and language levels continue to increase. He is still reading at an 8.3 grade-level and has been placed in an online program at that grade level for reading. He language levels have increased from a 7.4 to a 7.7 grade-level since the last data report. Math has increased from a 4.4 to a 4.6-grade level.

Year two Student #3 Feb 1st, 2019: Student 3 continues to make progress in increasing desired behaviors. He has increased his ability to control impulses. He has become very social and is struggling with learning how to be a friend and keep friends while still making good choices at school and maintain focus. He has conversations during unstructured times with multiple students. The student continues to maintain desired behavior in the area of sportsmanship. His reading level and language level continue to increase. His Language levels have increased from a 7.3 to a 7.9. His math levels have increased from 4.2 to a 4.9. His reading level has maintained at an 8.3. His academic achievements are impressive because he is in the 5th grade.

New Student #4 Sept 12th, 2018: Student 4 has multiple outbursts per day. He attempts to elope a classroom, table rotation, or activity 2-3 times daily. He yells at other pers and calls them idiots and jerks 3-5 times per day. He is very social and has good conversational skills. His first assessment in language placed him at a 4.0-grade level. He was reassessed September 11th and placed at a 5.4-grade level. His reading level at the beginning of August was a 4.8 and is now a 4.7. I suspect he did not put his best effort forth. His math grade level has increased from a 2.7 to a 3.1 from the beginning of August 2018.

New Student #4 Oct 17, 2018: Student 4 had multiple outbursts per day. He attempted to elope a classroom, table rotation, or activity 2-3 times daily. He yelled at other peers and calls them idiots and jerks 3-5 times per day. He is very social and has good conversational skills. He is making wonderful progress and has decreased mal-adaptive behaviors. Elopement occurs 1-2 times weekly instead of daily. He no-longer calls his peers names. His verbal outbursts have decreased to 3-4 per day. He is now asking to take breaks and requesting sensory. His first assessment in language placed him at a 4.0-grade level. He was reassessed September 24th and placed at a 5.5-grade level. His reading level at the beginning of August was a 4.8 and is now a 6.0 I suspect he did not put his best effort forth. His math grade level has increased from a 2.7 to a 3.1 from the beginning of August 2018. His mother has also reported seeing behavior progress at home. He is asking for help when having difficulty coping.

New Student #4 Feb 1st, 2019: Student 4 has multiple outbursts per day. He attempts to elope a classroom, table rotation, or activity 2-3 times daily. He yells at other peers and calls them idiots and jerks 3-5 times per day. He has been taken off all of his medication. He was on ADD/HD and anxiety medication. He has been off of his medication since December 21st, 2018. He is making progress and has decreased mal-adaptive behaviors. Elopement occurs 3 times weekly instead of daily. He no-longer calls his peers names. However, he will argue with them from across the room. His ability to control impulses relating to verbalizations (stating his opinion.) His verbal outbursts have increased to 6-7 per day. He is not asking for sensory breaks anymore and they have to be offered. His first assessment in language placed him at a 4.0-grade level. He is now at a 5.8. His math level has increased from a 2.7 to a 3.9. His reading level has increased from a 4.8 to a 6.8. His mother has continued to report behavior progress at home.

Teacher interface with parents: (Student #3)

The parent of student 3 would like to have the Stress Light Therapy in her home. If you implement case additional studies in the home, I would highly recommend this family. The mother is a teacher as well and I believe she would provide you with beneficial data. Both of her boys have ASD and are affected in different ways.

Mother statement - April 30th, 2018: Thank you for your willingness to include us; Mason has made significant improvements since being a part of the case study at his school!

Mother remarks from In-home summer Case Study – Aug 21st, 2018:

Thank you for including us for the at-home case study. It has been wonderful! I have been tracking info on both Gunnar and Mason, and both have seen improvements, but Mason has most of all.

Mason is again this year in same class and teacher. He is seeing such huge progress, and I believe it is because he is using the light at home and at school. His teacher emailed me last weekend, letting me know that of all of her students, Mason is the only one who actually advanced in his skill levels over the summer, while all of her other students either maintained their levels, or regressed a bit. Mason, who is now in 5th grade, in a recent Moby Max reading comprehension assessment, tested at level 8.3 (8th grade, 3rd month)! We are so pleased! Additionally, Mason has been doing so well behaviorally at school this year, and it has been a lot of fun watching him change!

The main and big differences for Mason at home with the light include increased patience, increased frustration tolerance, and increased kindness towards his brother. My favorite example has to do with Mason's trumpet lesson times. On the few times that I haven't used the light, Mason plays much worse, is slumped over, complains constantly, doesn't take my direction well, and always yells at least once, "I AM trying" when I try to correct him. With it, he plays better, yes, but more importantly is calm and able to learn. He is showing some promise as a musician (very much a beginner, but he has an aptitude for it). The first time I forgot to bring the light into the music room, I thought it was a fluke, but there is a 100% correlation.

Teacher comment May 31st, 2018:

I am very excited for Student's #3 family. I will be working with mother over the summer to help her with choosing targeted behaviors and data tracking. They are a wonderful family! Thank you for including them.

Teacher comment Oct 17, 2018:

I was not able to report progress before the break. We are back now, and the students are all doing very well. Often, our students need a week or two to resume the school routines and procedures. However, my students have zoomed right into academics and social engagement.

Mother remarks for Student #3 now in 2nd school year Oct 22nd, 2018:

Mason continues to make huge strides in his emotional regulation. When he does have a struggle, it is short-lived, and he isn't "out of control" at any point. He continues to be much more understanding of his brother and is making excellent progress in his trumpet. His attention has improved drastically, and now that homework has begun at school, he completes his tasks with zero complaints! He even takes direction well when he needs to re-do a homework task due to an error.

The gains that he has made are not limited to environments where the sphere is present. Here is Mason's most recent story of success: Mason has participated in hula dancing since he was 6 (he is now 11). It is a long story of how he got involved. When he started, he had to have private lessons, as he couldn't emotionally regulate himself in a large class. The first year he participated in the annual recital (called a Ho'ike), he only danced in one song, and had a lot of anxiety during the Ho'ike, so he was allowed to sit with us in the audience the rest of the time. Through the years, Mason has improved and had been able to participate more, but there is a huge difference between the October 2017 and October 2018 Ho'ike (held October 6). Last year, Mason was irritable and I had to let him use my phone to distract him in between songs. I spent most of the recital backstage with him. He had a hard time being on stage when people would cheer and shout (very sensory sensitive) and often covered his ears. This year, he had ZERO issues. He had a wonderful time, I didn't have to help him at all, he didn't seem to be bothered by the noise, and he participated in all the songs the boys danced in! At the end of the night, he was crying, and I asked him why. He said they were 'happy' tears and that, "I am having emotions about my progress." In short, it was an amazing moment in our family's year. I will try to send a clip of a dance in another email, but the quality isn't very good. Mason will be the shortest performer of the three on stage.

American Academy with multiple campuses dedicated to ASD children



Special Education Teacher | Middle/High School Classroom

I am a certified special education teacher, in my 15th year of teaching. I taught 11 years in general education. During that time I went back to school and got my Masters Degree in SPED, then took the certification test. I'm in my 4th year here with Academy. (Case Study continues)

I teach two classes of ELA and Social Studies. In my morning session I have 7-10th graders. My class has three ladies and 12 gentlemen in this class. Academically they are all on, or close, to grade level. My afternoon class is composed of 6-7th graders, with one 5th grader who joins us from another class. These students are all working just below their grade level. This class has 5 ladies in it and 10 gentlemen.

Each class is structured the same; we begin with four 20-minute rotations where the students focus on one skill at each rotation; writing, vocabulary, Edgenuity (computer practice of reading skills) and comprehension. The students visit each rotation with a group of peers who are working at, or around, the same skill level as them. Groups can be changed at any time, and as needed, based on student needs. Since the incorporation of the Stress Light Therapy, we have collected the following data on the morning class:

Student 1

11/7/18	11/14/18	11/20/18	1/18/19	2/14/19
H(yperactivity)-0	H-2	H-3	3	3
A(nxiety)-0	A-4	A-4	4	4
S(ocial Interface)-0	S-2	S-2	2	3
C(almness)-0	C-3	C-3	3	3
B(ehaviors)-0	B-1	B-1	1	1

Notes: Student seemed to notice light more and use it as a tool to self-regulate more often (11/14/18)

Seemed less stressed when unable to finish assignment in time given (11/14/18)

Seems to be about the same as 11/14 data; Student doesn't point out or notice the light as much, but still maintains same level of regulation (1/18)

Student has learned to self-regulate independently. Noticing fewer signs of frustration-student is not crying from frustration (was a pretty frequent occurrence). (2/14/19)

Student 2-

11/7/18	11/14/18	11/20/18	1/18/19	2/14/19
H(yperactivity)-0	H-1	H-1	1	1
A(nxiety)-0	A-2	A-2	2	3
S(ocial Interface)-0	S-1	S-1	1	2
C(almness)-0	C-2	C-2	2	2
B(ehaviors)-0	B-1	B-1	1	2

Notes: Student did not pay much attention to light, did not use tool to self-regulate. Anxious behaviors seemed to improve very slightly, if at all (11/14/18)

Student is still at same level with anxiety and self-regulation (1/18)

When the light is more energized (orange/yellow) Student shows signs of agitation and frustration with independent work. (2/14/19)

For the afternoon class:

Student 3

11/7/18	11/14/18	11/20/18	1/18/19	2/14/19
H(yperactivity)-0	H-0	H-0	0	2
A(nxiety)-0	A-0	A-0	0	1
S(ocial Interface)-0	S-0	S-0	0	3
C(almness)-0	C-1	C-1	1	2
B(ehaviors)-0	B-0	B-0	0	1

Notes: Student did not pay much attention to light; did not show many signs of improvement in an area; very slight in calmness (11/20/18)

Student has not shown much improvement in area aside from slight change in calmness (1/18)

Student seems calmer and more focused; is more open to completing work and seems to be less upset about it (2/14/19)

Student 4-

11/7/18	11/14/18	11/20/18	1/18/19	2/14/19
H(yperactivity)-0	H-0	H-0	0	1
A(nxiety)-0	A-0	A-0	0	0
S(ocial Interface)-0	S-1	S-1	0	1
C(almness)-0	C-0	C-0	1	1
B(ehaviors)-0	B-0	B-0	0	4

Notes: No improvement with behaviors (11/14/18)

Slight improvement with social interference (11/20/18)

Student has not shown much difference in the area, with the exception in the area of calmness, a slight change was evident. (1/18)

Behavior has shown significant improvement with this student! Student has not had behavioral outbursts in class (compared to previous years, too!). (2/14/19)

Additional information:

The light is left on throughout the entire school day. The morning class (my older students) were intrigued by the light on the first day, for a short period of time, and then were able to move on and don't notice the light. The afternoon class (the younger of the two groups) had a harder time not fixating on the light. Both groups received the same instructions: do NOT touch the light or go anywhere near it. We have not given parents any information about the light since it does not affect them at home, and parents have not asked about it-I'm not sure if the students have even told their parents about it.

US Academy supporting special needs of students with HF ASD, ADHD among others and learning disabilities for Gr 4-12 (daily therapy after 12 weeks) – “Learning Disabilities Case Study in Classrooms” –



Teacher: Highly qualified in ‘Special Needs’ education and decades of experience.

Individual Students in Case Study program

Student #1 Dec 11th, 2017: Male student, age 15, diagnosed with ASD, attends private school that serves students with ASD, ADHD and other Learning Disabilities. Student has difficulty managing anxiety and regulating emotions. He can be overwhelmed when the environment is overly stimulating or he misunderstands directions, and reacts with crying, screaming, and tantrums.

- **Dec. 11, 2017** - SensoSphere light is installed. Positive comments from students, teacher, and counselor about the calming effect. Students break for the holidays **Dec. 14 - Jan. 2, 2018**
Numerical Measurement Rating State (NMRS) = Start = 0
- **Jan. 16, 2018** - Student is struggling with managing emotions related to negative social dynamics in the classroom. Student requests to take frequent breaks and experiences tearful outbursts 4-6 times per week. NMRS = 0
- **Jan. 30, 2018** - Student presents with fewer breaks, fewer outbursts and increased calmness. NMRS = 2 Blue mode noted to be best for calming.

- **Feb. 15, 2018** - Student presents with positive attitude and affect, is less sensitive when clarifying directions with teacher, and participates orally in class. Reduced frequency of breaks and counselor visits (1-2 per week). NMRS = 4 - Again, Blue Mode noted to be best.
- **March 15, 2018** - Student is taking zero counselor breaks, is showing increased confidence and emotional regulation. Student seems to enjoy the lamp and comments that it is calming. NMRS = 5

Student #2 Dec 11th, 2017: Male student, age 14, diagnosed with ASD, ADHD, attends private school that serves students with ASD, ADHD, and other Learning Disabilities. Student has difficulty sustaining attention and focus. He presents as both internally and externally distracted during class, looking around and constantly talking to himself. Student struggles to complete work in class.

- **Dec. 11, 2017** - SensoSphere light is installed. Students break for the holidays **Dec. 14-Jan. 2, 2018**. NMRS = 0
- **Jan. 18, 2018** - Student struggles with high distractibility and requires constant redirection to focus on classwork. NMRS = 0
- **Feb. 15, 2018** - Student still struggles with focus and needs personal attention to stay on track, but slight improvement in cooperation and attitude. Observations are at the end of the school day and student presents as tired. NMRS = 1
- **March 15, 2018** - Student completed classwork with increased attention and focus. NMRS = 3

American Academy supporting ‘special needs’ of students with ASD and ADHD

Teacher certified Special Education

Background for the Classroom Study

Since the beginning of the semester, the Color Light Therapy system has been used daily. Immediately, I believed this system to be a great addition to the classroom, due to the soothing hues that gently cast itself around and throughout the class. The classroom is a perfect rectangle measuring 25X15, and there is one small window facing a wooded outside area. The classroom walls are bare except for a large water-painting tapestry of the continents. The “Color Light” has been placed 12 inches away from the Promethean board, which in turn makes the class look like a theatre. The students love the light, and throughout the class period you can see the students gaze and sometimes release a sigh of relief while looking at the hues being produced by the “Color Light” globe.

Student 1 – Jason

Week 1 Aug 13-15

Jason is a remarkable student. He has shown excellence in many areas, considerably participation and knowledge of the subject. He was not chosen to represent the students strictly on his disabilities but primarily because of how he gravitated to the light the very moment it became in use. He spent every day that he was being monitored and observed gazing at the device and lightly smiling, especially while the light is on its blue setting.

Student 1 – Jason**Week 2 Aug 20-22**

The students, as a whole, are very cooperative. He is no exception. Similarly, the entire class has been enjoying the Color Light Therapy system. I find that he can get caught gazing too much and not completing his work. A goal is to keep the CLT system from being a distraction to Jason or others, but in contrast, a means to assist in attention, focus and completion of assignments.

Student 1 – Jason**Week 4 Sept 10-12**

It appears that the CLT has created a habitual and structured learning environment. If the light is not on, he will request for it to be on. During a class discussion, he became agitated during a debate with another student on the topic we were discussing. The color blue has been the most predominant throughout the day and for each class, and it was the color that remained during our class discussion. I am unsure of whether the blue color had a effect on the discussion or specifically with him, but he did appear to calm quicker than he had before. The conversation did not get heated or too aggressive, so it was less stress on him. He tends to be easily excited about topics in which he has passion. He seems to be in more control of his reactions.

Student 1 – Jason**Week 6 Sept 24-26**

During classwork, he is often very persistent in his desire to share his answers with the class, especially when he feels he has done a great job in not only answering, but also in creating a response in his own words. Even when I attempt to get him to wait so that other students may have the opportunity, he is determined to say the answers out loud to the rest of the class. This has been an ongoing occurrence throughout the school year, but I have noticed that once again there is a calming effect on him when doing classwork with the light on. He will usually take my first directive to let others work and respond the first time.

Student 1 – Jason**Week 8 Oct 8-10**

He is the best representative in this case study for this class, but most of the other six students have very similar disabilities and reactions to stimuli. Overall, as I am teaching, the students are attentive. I personally favor the blue light throughout the classroom too, much like the students. There seems to be a calming effect, which is appropriate for independent work and for teacher lecture.

Student 1 – Jason**Week 10 Oct 23-25**

It is common for students to be a bit on the anxious and active side during this time in the school year, regardless of disabilities. He has been “antsy” in class, and since this is my first year with him, I asked other teachers about his performance in their classes. From the information I received, it appears that he is calmer than normal, and most of the teachers made a reference to the light system in my classroom, stating that it must be having a positive effect on him.

The quality of his work for this day, his writing was better. In addition, his responses showed signs of critical thinking and analysis.

Student 2 – Richard**Week 1 Aug 13-15**

Richard is also an amazing student who thrives best in calm/peaceful environments. I informed Richard that I would check with him periodically to see if he likes the light, and one response he gave me during a check in was specifically, “Heck yes!” As soon as the light was turned on he began to look at it and smile. Richard appears to like all the colors from my observations, but as with Jason, blue seems to be the most appealing to him.

Student 2 – Richard**Week 2 Aug 20-22**

I have seen a significant change in Richard’s rocking back and forth in class when the Color Light is on, specifically before the light is turned on. Richard is very busy rocking back and forth and also moving his hands in a way that mimics a person who has something sticky on their fingers. Within three minutes of turning the light back on, he stops.

Student 2 – Richard**Week 4 Sept 10-12**

He had a great day in class, so much that I sent a positive report home to his family. He was extremely engaged and helpful to me and other students. He has great things to contribute to our class discussion, and he remained on task. I asked him about how his day was and explained to him that I was impressed with his interactions in class today. He told me that he rested well the night before and was looking forward to class today “because of the blue light.” When I asked him again why he like the blue color in the classroom so much, he replied, “Blue is my favorite color.” I then asked about the other colors and what he thought about them. He said that any color was better than a plain color in most classrooms, and it gives him something to look forward to. The structure and stability of having the CLT in the classroom is just as effective as colors themselves.

Student 2 – Richard**Week 6 Sept 24-26**

He has been in an awesome mood and has performed amazingly in class this week. I have complimented him on what I have noticed because it is more than normal. He replied, “Thank you”. I feel as if he has had conversations with his family at home about getting more rest so that he can be better prepared in class. Even after he finished his work, he immediately picked up his reading material and began reading without having to be directed to do so. The light has remained on Blue most of the class period.

Student 2 – Richard**Week 8 Oct 8-10**

I actually received an email from his mother stating that she is so happy with his performance in my classroom. It seems that he has struggled with Social Studies before and with getting new teachers. She also informed me that he has talked about the light system being used in my classroom and about how much he likes it. She said that something must be right in my classroom for him to have such a promising outlook on the school year. When it told Richard about the email, he smiled.

Student 2 – Richard**Week 10 Oct 23-25**

His day in class was a bit different. This was not unexpected because of his extreme aversions to any change or difference. Although I did “prep” him before by letting him know I would be out, he still had

difficulty adjusting to another teacher in the room. I also left instruction for the substitute teacher to initiate the light within five minutes of class beginning. From the information I was given, he was apprehensive and confrontational at first, but after he was reassured of the situation, he calmed down. Furthermore, within minutes of the CLT, he relaxed even more and began asking questions and talking to the teacher.

Progressive Ratings achieved over time:

Calmness: 9

Anxiety: 9

Social Interface: 6

Hyperactivity: 7

Self-regulation: 7

Overall classroom: 7

Teacher interface: 9

Academic performance: 7

Male student age 8 diagnosed with ASD in Public School

- **Dec. 13, 2016** -This eight year old boy with autism has been in the habit of reacting quite emotionally to situations which he considers unjust or inappropriate. Soon after the **SensoSphere** was installed in the classroom, there was a definite decline in these behaviors. Especially during the month of December, it seems that this boy began participating in a mature and calm manner. It was a delightful change.
- **Jan. 18, 2017** - This same boy with autism has remained in control of his emotional reactions to situations that in the past would have been a great inconvenience to him. His participation in class has a calm maturity which I haven't seen before.
- **Feb. 6, 2017** – I have noticed a distinct improvement in the courage of this boy to participate orally. He is already a highly intelligent boy, however, previously, he rarely wanted to contribute to class discussions. Today, for instance, he put up his hand several times and easily shared his understanding and knowledge of the material I was teaching the class. It was most impressive.
- **Feb. 23, 2017** - I am still impressed with the development of this boy. He seems to have gained so much confidence, not only in his oral class participation, but also in his academic work.

Girl, age 11 diagnosed with Epilepsy, ASD, and a Language Disorder in Private School

- Difficulty with comprehension. Limited work production and completion.
- **March 27, 2017**- Student has demonstrated increased attention and focus in the past month. She is better able to concentrate on the task at hand, and her overall work production has improved. With prompting, student is sometimes able to participate in class discussions, however, continues to require teacher prompting to do so.
- **April 11, 2017** - Student continues to demonstrate some progress with regards to attention and focus. She continues to require teacher support to participate in class, but has demonstrated a more positive attitude with peers in the past week or so. Student often has difficulty with work production. It takes her a great deal of time to complete assignments, regardless of teacher prompting and support.

Female student age 8 diagnosed with ASD in Public School

- **Dec 13, 2016** – This little girl with autism is normally very timid and shy with others. She almost never volunteers orally to class discussions, even when called upon. However, recently, she has begun to raise her hand to share her thoughts and answers to questions.

- **Jan 18, 2017** - This same girl with autism has recently volunteered to come to the Smartboard to show her answers in math. This has happened several times to my surprise and she continues to raise her hand to participate orally. I am most inspired by her seeming bravery.
- **Feb. 6, 2017** – Incredible improvement with this girl’s oral participation in class. Last week she even got up from her seat to come to the front of the class to share her oral contribution. I would never have expected this from her.
- **Feb. 23, 2017** - This girl continues to improve in confidence and oral participation. I am so pleased to see her gain in the way she is able to speak up for herself now.

Dedicated ASD school with 9 classroom children

- **Apr 21, 2017** - It has been very rainy lately and as such the students have not been able to get outside as much as they usually do. In the past (pre- light therapy device), I have found that my students were very irritable and restless on rainy days. However, recently, I find that my students are calm and seem happy. They laugh and smile.
- During moments of calmness, for example when we are doing Brain Gym, story time or when we are having lunch and snack, I have noticed that 1 or 2 students in particular who would wander or pace a lot in the classroom are spending more time at their seats.
- I am also enjoying the light. I think it looks great aesthetically and everyone who walks into my classroom comments on it and how much they like looking at it.

Private ASD school with classroom of 9 children (second year)

- **Oct 27, 2017** - We've continued using the light therapy device in the classroom this year and it still appears to have a calming effect on the students when on relaxing mode. I generally avoid using the overhead lights in the classroom (fluorescent lighting) because I find them harsh and they also make a buzzing sound. With the overhead lights off, this allows the sensosphere to stand out even more and creates a nice atmosphere in the classroom.
- During quiet times such as snack time or lunch I catch my students captivated by the light. The light is directly above my desk and when I'm sitting at my desk in the morning preparing for the day before the students come in, I find it soothing and it makes me feel focused.

Two Classrooms with 21 and 24 children mixed with some diagnosed ASD children

- **Feb. 6, 2017** - As a teacher, I seem to have more energy and am able to stay after school for longer periods to complete my planning/correcting. I remain patient and calm with my students as I teach as a result of being more organized.
- **Feb. 23, 2017** - I continue to have a strong energy level to teach, plan and meet with other teachers to discuss students/teaching.
- **Mar. 21, 2017** - Spring Break from Friday, Mar. 4th to Monday, Mar. 13th. Nice to be back in my peaceful classroom. There is a sense of calm here.

Boy age 5 diagnosed ASD in classroom of 11 students in private school

- **Apr 12th, 2017** - Over the past few months I have seen a lot of changes in the Kindergarten boy with ASD whom I was observing. He is very happy and seems a lot more present and aware. He is improving academically and providing relevant contributions to our class discussions. Socially (only within the classroom setting) he is better able to interact and converse socially with his peers and teachers, most of the time. There have been a handful of incidents where frustration could have got the better of him (ie. not getting a turn...), but with some support he was able to calm down quickly and the situation did not escalate.

- **Apr 7th, 2017 – Teacher requested parent provide a letter based on her child’s performance.**

Dear Sir or Madam,

This is a letter concerning the Sensosphere that was used in my son’s classroom for the most part of the school year. I was asked to write a few words on whether I have seen any improvements in my son’s development and learning as a result of the Sensosphere.

This year my son has progressed tremendously. His speech improved significantly, he is reading, his attention span has greatly improved, etc. The problem I have is that I don’t really attribute these changes with the Sensosphere. I think that all these improvements are a direct result of Shia’s teacher and the smaller classroom size.

If the Sensosphere did help my son in any way, I’d like to say thank you for providing it for him.

Thank you

Classroom of 14 students including ASD students in private school

- **Jan 13th, 2017** - This was the first week back after a two-week break. I continue to enjoy the atmosphere that the light provides and find that it does make me calmer. The class continues to enjoy the light and there is a general calmness in the class.
- **Jan 23rd, 2017** - The whole class seemed a bit restless this week. They had more difficulty out of the classroom setting. In the class, I was able to settle them quickly, but needed a lot of redirection.
- **Jan 30th, 2017** - The class seemed more settled and focused this week.
- **Feb 13th, 2017** - The class still enjoys the lamp and enjoys looking at it. Some students like to look at it when they are tired. I personally, looking back, realize that I prefer to be in my classroom during prep time now (I used to do it in the staff room). There definitely is a calming aspect that the lamp brings, and when I am in the class I feel generally calm and more focused.
- **Mar 27th, 2017** - The whole class was a lot more on task this week and there was a general sense of focus and happiness.

Grade 6 class with 16 students in private school.

There are 5 girls and 11 boys. Students have a variety of needs and exceptionalities, including learning disabilities, ADHD, ADD, and ASD. Class is generally calm and on task. They enjoy working in a calm environment (lights off, soft music, etc.).

- **February 27, 2017**- It has been approximately one week since the light was installed in our classroom. Students responded very positively and were quite intrigued by it in the beginning. They spent a great deal of time commenting on the changes in colour and various patterns they were seeing. As time progressed, students commented less on the light, and seemed to just view it as part of our classroom. So far, I have not noticed any major changes in behaviour or work production.
- **March 27, 2017** -Students appear to be better able to focus on their assigned tasks. They spent less time talking, and more time working in a quiet and relaxed manner. Students particularly enjoy when we turn off the overhead light and have only the Sensosphere lamp and small lamps on in the classroom.
- **April 11, 2017**- I continue to notice positive change in this class. Students appear to be more focused and seem able to focus for longer amounts of time. I feel that I have to intervene less frequently regarding behaviour and work completion. Students appear to be very calm and happy when in class. Personally, I feel very relaxed and positive. I find that I am more productive in class. In the last week, French has moved into my classroom. I observed these students with another teacher (in this classroom) and noticed that they were quite a bit louder, more distracted, etc. As a result, I cannot comment on whether or not the changes I am seeing are directly related to the lamp.
- **May 30, 2017** - Students are very calm and productive. I rarely need to intervene regarding behaviour or work production. Students seem to enjoy the lamp. Personally, I find I am able to remain focused for longer periods of time with the lamp in my room. I especially notice this when I need to read long or complex texts.

Public School with two groups of Grade 3 – (second year of using Color Light Therapy in classroom)

Feb 7th, 2018 -

This year, once again, I am teaching two groups of grade 3. From time to time, I have been experimenting with the Sensosphere: changing between the 2 modes. I do believe that the students behaviour is affected. They seem calmer and quieter with the blue mode, and more excitable with the balanced mode (red). Quite interesting. Depending on my chosen activity and the type of energy I want to encourage, I select a mode. I never really did this before. The Sensosphere is an added support in the classroom!

The Sensosphere never ceases to interest curious visitors to the classroom. Especially other teachers or professionals.

These ASD Classroom Case Studies may also be used as a basis for teachers in pursuit of their Masters or PH.D. thesis-level research for Special Education. For those teachers, we are willing to share the many ASD classroom Case Studies we have collected, for their statistical behavior Data collection. Research is based on our 'Therapeutic Learning Environment' technology as used in our Learning Disabilities Case Study program.

We are also interested in working with Special Education teachers and researchers for a protocol ASD Classroom Case Study.

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