Final Report:
A 3-Year Pilot & Study on The Efficacy of Robot-assisted, Social-Emotional Programming & Curriculum for Students with Autism

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Introduction and Justification

The population of students with Autism Spectrum Disorder (ASD) eligible for specialized services in South Carolina schools increased from 8117 students or 7.9% of students receiving specialized services in 2016 to 8855 students or 8.5% in 2017.

IDEA indicates that the Individual Education Program (IEP) team is to consider the use of Positive Behavioral Interventions and Supports for any student whose behavior impedes his or her learning or the learning of others (20 U.S.C. §1414(d)(3)(B)(i)). Students with autism have behaviors related to the characteristics of autism such as behavior regulation challenges, social skills, and social communication challenges that impede their access to the general education environment and curriculum.

The South Carolina Office of Special Education Services (OSES) has four outcomes of focus in order to support students with disabilities: early childhood outcomes, academic outcomes, post-secondary outcomes, and social emotional outcomes. While this program supports social emotional outcomes, specifically, embedded in the curriculum are the typical skills a student with autism needs to be able to access the general education curriculum, and to have the skills indicated in the Profile of the South Carolina Graduate in order to support quality of life, higher education, and work after school.

Students with ASD receiving specialized instruction benefit from early intervention in the areas of social/emotional behavior regulation, and speech pragmatics, implemented by a trained educator with the support of the tools provided through the evidence-based curriculum of the robots4autism® curriculum. Research indicates that individuals with ASD relate well to technology over other forms of learning.

Furthermore, Technology-Aided Instruction and Intervention is one of the 27 evidence-based strategies used in order to improve deficits in individuals with ASD. The robots4autism® program supports this type of learning and practice. The National Professional Development Center (NPDC) classified evidence-based practices for ASD in 2014 through rigorous study and criteria. The robots4autism® curriculum uses the following evidence-based strategies to support individuals with ASD: Social Narratives, Video Modeling, Visual Supports, Natural Modeling, Prompting (Verbal and Visual), Reinforcement of target behaviors, and Social Skills training.

Robots4autism® is a 103 lesson, 3-year curriculum in which students participate in the lessons appropriate to remediating their individually defined deficits according to data gathered through the Individual Education Program process.

OSES implemented the pilot in the 2017-2018 school year. The pilot was implemented following rigorous research completed to determine the viability of the curriculum and its focus as related to needs indicated though a 2017 survey provided to each district special education administrator, and in relation to other curriculums and their offerings. The pilot served students in grades K – 8 identified as having ASD as a primary disability. During the 2017-2018 school year over 800 educators and administrators have received training in evidence-based practices for ASD through requests to OSES to further support the educating of students with ASD. Many of these practices are also embedded in the Robots4autism® curriculum. Educators and Administrators who implemented the ASD Curriculum Pilot programming in their

districts were excited with the curriculum, with many indicating that it was the only ASD focused curriculum they had. Other programs that had been used were not specifically designed to meet the needs of the individual with autism though they may have supported social-emotional learning or communication. Training specific to the implementation of the program was provided prior to its start by Robokind™ trainers and the Education Associate for Autism in order to manage and implement the program with fidelity and consistency.

Data and Findings

Data for year one of the pilot (See Attachment A: Formative Data Charts, Attachment D: Year One Data Summary) indicate that for 305 students 13, 457 lessons were completed. Of those lessons 11% were introduction, 4% were situational module, 16% were the calm down module, 42% were the emotional module, and 26% were the conversational module.

Year two, 2018 – 2019, of the pilot shows 315 students started the program, with 277 finishing (student moving in and out of districts). 10, 701 lessons were completed. Of these lessons 15% were from the situational module, 3% were from the introduction module (most of the students were 2nd year students in the program and did not need the introduction module), 13% were from the calm down module, 25% were from the conversation module, and 44% were from the emotional module. 90% of students received a score of mastery of skill and, and 69.7% used repetition to achieve mastery. (See Attachment A: Formative data charts, Attachment E: Year Two Data Summary)

Entering into Year 3 of the pilot, 2019 – 2020, another summer brainstorming and data dive session was conducted with program implementers. During this summer session, in collaboration with Robokind™ administrators, a Train-the-Trainer session was created, and implemented for teachers, who voiced the need for such a program based on their two-year experience with the curriculum. For this training 21 implementers participated and became certified to train new implementers and build capacity within their districts. This was created as the focus of the last pilot year was to create independence from State guidance.

Each pilot district continued in their programming for year three. Data continued to be collected through the software program provided in the programming that includes mastery of the skills taught in the program. Separately, teacher anecdotal perspectives on the overall pilot process and the Robots4autism®

curriculum program were collected at the end of the school year. Year three of the pilot brought about changes in programming due to the Covid-19 pandemic. The challenges of the Covid-19 pandemic led to students in South Carolina moving to a home setting in all districts to receive their education, and thus, limited the ability to use the program for the full school year. However, for the first 4 months of the school year (August – December), high usage continued. Students and teachers' attendance in school December through January was inconsistent because of the pandemic, and schools moved to virtual learning in the home environment by February of 2020. The following demographics are from year 3:

> 184 students with autism as an identified primary disability participated. The lowered number indicated students that mastered their goals in the previous two years and no longer needed the curriculum based upon their generalization of the skills mastered as indicated by the implementing educators.

From September 2019 to March 2020, 8880 different lessons were accessed.

(See Attachment A: Formative Data Charts, Attachment F: Year Three Data Summary)

For the first two years of the pilot, the Education Associate for Autism and two other team members of OSES, including a member of the Information Technology team, and a member of the assistive technology team, created a Lesson Observation Form (See Attachment I: Observation Form) to use on visits to implementing school sites. This form served as a means of observing students learning responses, and teachers' implementation techniques. The OSES team would follow up the observations by engaging implementing teachers in a conversation to discuss observations, teacher perspectives, lend support and correction in order to assure fidelity in implementation.

3 Year Data Summation

Success of student outcome was based upon two areas: mastery of the skill in the curriculum as evidenced by qualitative data showing a score of 100 on a lesson at least 3 consecutive times attempted, and teacher generalization, behavior, self-assessment checklists that indicate that a student has transferred from the school environment to the natural environment in observed situations.

Skill Mastery data from within the curriculum data portal as well as teacher behavior observational checklists are provided in this report to provide a true consideration of mastery and generalization.

Focus on modules remained, for the most part stable throughout the pilot, However, the emotional module was clearly used more often indicating that students enrolled in the pilot had more IEP goals related to Emotional Understanding. These modules were repeated more often to gain mastery of the skills compared to the other modules.

The Conversational Module was second. Interestingly, the Situational Module was barely used in Year One of the pilot. However, by year two and three its use had increased substantially. Data shows that younger students primarily accessed the Situational Module lessons as they moved through the other modules and gained supporting skills. Use of the Calm Down Module decreased slightly from Year one to year three. The lessons in year three showed the progress students had made over the three years from starting with the calm down module to the more advanced communications and situational modules which require more abstract thinking processes. Differences in the amount of time spend in each module was based upon the students individual needs using the curriculum and their IEP skill goal area.

In comparison for each year, the module usage was as follows:

	Calm Down Module	Emotional Understanding Module	Conversational Module	Situational Module
Year 1	16%	42%	26%	4%
Year 2	13%	44%	25%	15%
Year 3	14%	48%	27%	11%

Noted in the data was that the Situational Module was the least overall accessed by all but the youngest of the student participants. This was due to the fact that this module focused on playdates for younger students. However, use of that particular module jumped significantly from year one to years two and three.

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Formative data in the form of behavior checklist data, IEP goal mastery, and generalization data is attached (See Attachment A: Formative Data Charts). Each teacher used behavior, self-assessment, observation, or generalization checklists specific to each students' goals. Specific formative data is included in this report. As indicated on the attached data charts, the data represents a sampling of students who have participated in the ASD Milo Curriculum pilot and includes qualitative and quantitative data, anecdotal and formative in order to define the outcomes achieved. Because these are behavior outcomes, the assessments used for each child are each different. Overall, 65% of participating pilot students have mastered at least 1 IEP goal.

Data from teachers, and parents' anecdotal information, and ongoing media press releases (See Attachment B: Teacher Perspectives Year Two, Attachment C: Teacher Perspectives Year Three, Attachment G: Media Newspaper, Attachment H: Media Video) indicated generalization of skills learned by students include, in particular, the ability to calm themselves down by using a chosen calm down tool and using self-talk. Parents have indicated that their children who participate in the pilot are able to make eye contact and interact more with the world around them. Students who have previously used no or little functional language, are now making simple requests, and using more advanced pragmatic language. One parent has indicated that because of her two sons' instruction through the pilot, the boys have begun to "come out of their shell" and participate in the world around them. Another student who had shown little interest in social engagement, immediately responded to the humanoid robot, and was able to present on the robots4autism® curriculum and robot to the district's school board.

Teachers have reported that the data on student progress and responses via the software has proven to be useful in progress monitoring and sharing progress with parents and IEP teams. Media outlets (radio, television news, newspapers) have continued to follow the ongoing pilot, as successes have been documented around the state (See Attachment G: Media Newspaper, Attachment H: Media Video).

Much like year two, implementing educators were surveyed at the end of year three as to their perceptions of the efficacy of the Robots4autism® curriculum, it's ease of use, and total programmatic approach. *Attachment C* provides the responses at the conclusion of the pilot. Responses included positive outlook on the outcomes for the students who participated, the effectiveness of the emotional and conversational modules in particular, and the generalization of the calm down module. One educator indicated the importance of the use of evidenced based strategies embedded in the robots4autism® program that are aligned with the strategies used to

support learning in students with autism in the classroom. Implementers indicated a need to train more implementers within their schools as the program requires a strong teaching base in order to keep up with the pace of the students and the repetition of lesson required for learning.

Several implementers indicated the need for a pre-assessment that aligns with the skills taught through the curriculum. As implementers use goals in the IEP to determine if the program was appropriate for each student, having a pre-assessment would allow for a baseline and better progress monitoring. Teachers pointed out that the data via the portal gives excellent insight into usage of the program, each module and lesson, and even the mastery of the lessons but would like to see how the program via an assessment could be used to support the generalization of skills learned in the curriculum to the natural environment.

Pilot Summation:

The robots4autism® Pilot in selected schools in South Carolina was an overall success. Data indicates that students moved through lessons as guided by their Individual Education Programs and mastered the lessons within.

Further data, from teacher observational data indicated that once students mastered the lessons in the curriculum, they moved on to generalizing the skill in the natural environment. Implementing teachers indicated, repeatedly, that students learned the lessons in the Calm Down Module, in which the use of a calming strategy or tool was taught, quickly and that knowledge was retained. These lessons did not require as much repetition as lessons in other modules. While the lessons in the Emotional Understanding Module were accessed and repeated the most, the lessons in the Conversational Module were frequently accessed as well.

Implementing Educators shared their experiences with the robots4autism® curriculum. Some of those shared beliefs was that the curriculum was effective as a tool in remediating deficit skills particular to the curriculum. Students were chosen to participate based upon previously identified goals in their IEPs, however, teachers desired to have a pre-assessment to make determinations based upon deficit skills which might allow for more students to participate in the program.

Teachers also desired more lessons in the curriculum that focused on everyday situations in the school relative to different age levels. Teachers wanted to see an expanded curriculum with lessons in the areas of hygiene, cafeteria situations, classroom rule situations and others.

Differences in utilization from differing school sites are due to teacher turnover, school testing periods, and school holidays such as Thanksgiving, Winter and Spring breaks. Start up in August to early September utilization is less as well. During the months of April and May in South Carolina student's Individualized Education Programs are being developed. Data from students' performance and assessments are used to consider progress and develop appropriate goals. As the robots4autism® program does not have a pre-assessment or post-assessment students may be pulled off the program in order that another means of assessment for goal creation may be used. Utilization during this period is lower as well.

Repetition of lessons varies from student to student which shows the variance in student learning needs. Some students are able to process a lesson with few repetitions, while others may require 15 or more repetitions. The robots4autism® program allows for this repetition without weariness, thus supporting the learning need of the student requiring the intensive repetition.

Districts have been creative beyond using the curriculum according to the pilot parameters in order to use the program to its maximum and provide support to other students struggling with social emotional challenges. Districts have been using the program for students with autism in afterschool programs, and in the general education class in order to expose other students to a common language and create an environment in which more opportunities for socialization and communication in the natural setting.

In response to the pilot implemented in South Carolina, Special Education Administrators from other states (California, Georgia, Florida) have contacted the Education Associate for Autism for help in defining and creating their own pilot based off of the success and model of the South Carolina Pilot. The Education Associate for Autism shared ongoing outcomes of the South Carolina ASD Pilot Program at the 2019 National Texas Computer Education Association (TSCA) Conference and Exposition in San Antonio, Texas.

Overall, the implementing educators in South Carolina were pleased with the robots4autism® Curriculum Program and the outcomes it helped to create for participating students with autism. Using the unique robot as a supportive tool, and

the curriculum that focused on areas that are often skill deficits for these students allowed teachers to provide better support and a better overall educational experience for their students with positive outcomes per the data.

Attachment A: Formative Data

Note: This chart represents a sampling of students who have participated in the ASD Milo Curriculum pilot and their data, which includes qualitative and quantitative data, anecdotal and formative in order to define the outcomes achieved. Because these are behavior outcomes, the assessments used for each child are each different.

Goal skill and Curriculum Lessons(s)	Assessment	Outcome
38 students in program		27 students have mastered at least 1 IEP goal. All others are progressing appropriately toward mastery.
Communicate with teacher Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)	Generalization Checklist	Student is able to greet teachers Mastered IEP goal
Join conversation with peers Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:	Generalization Checklist	Student joined conversation with appropriate voice tone, and topic. Mastered IEP goal

Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance		
Play with peers Curriculum Lessons: Lesson 4: Playing Together, Sharing Toys Curriculum Lessons: Lesson 1: Being a Good Friend on a Playdate Lesson 2: Problem Solving During a Playdate Lesson 3: Bored Is a Playdate Problem. What Is Bored? Lesson 4: When I Am Bored During a Playdate Lesson 5: When My Friend is Bored During a Playdate Lesson 6: When I Am Not Ready for a Playdate to Be Finished Lesson 2B: Starting a Playdate – Greeting Lesson 3: Starting a Playdate: Choosing an Activity (Host Has First Choice)	Generalization Checklist	Student is able to play in centers 4 of 4 times observed with appropriate social skills mastered IEP goal

Lesson 4: Playing Together, Sharing Toys Lesson 5: When the Guest Makes the First Choice		
Share toys with peers Curriculum Lessons: Lesson 4: Playing Together, Sharing Toys Curriculum Lessons: Lesson 1: Being a Good Friend on a Playdate Lesson 2: Problem Solving During a Playdate Lesson 3: Bored Is a Playdate Problem. What Is Bored? Lesson 4: When I Am Bored During a Playdate Lesson 5: When My Friend is Bored During a Playdate Lesson 6: When I Am Not Ready for a Playdate to Be Finished Lesson 2B: Starting a Playdate – Greeting Lesson 3: Starting a Playdate: Choosing an Activity (Host Has First Choice) Lesson 4: Playing Together, Sharing Toys Lesson 5: When the Guest Makes the First Choice	Generalization checklist	Student was observed 5 of 6 times sharing in center time without prompts. Mastered IEP goal
Using calm down strategies when frustrated Curriculum Lessons:	Generalization checklist	Student was observed using calm down tool from curriculum to soothe himself when upset 3 out of 3 times for 4 weeks. Mastered IEP gol

Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball		
On-task during lessons Curriculum Lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball	Generalization checklist	Student is able to remain calm and focus on assigned task as observed 3 out of 4 times average over a 6 week period. Mastered IEP goal
Appropriate social interactions Lesson 1: Being a Good Friend on a Playdate Lesson 2: Problem Solving During a Playdate	Generalization checklist Anecdotal records	Student engages with peers 4 out of 4 times measured over a 6 week period. Milo seems to have "woken up" this student. He has taken his developed skills into the classroom and community. He performs in plays, and went to the prom. He is a swimmer

Lesson 3: Bored Is a Playdate Problem. What Is Bored? Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance		and will be participating in the ParaOlympics in Australia. Milo opened up that initial door with social interactions for him. Mastered IEP goals.

48 students on program. 82% have mastered at least one IEP goal. Others are progressing toward mastery
Skills, Goals, and Outcome
S is one of our students who joined us in the fall of 2017. When S began with us he struggled with holding a basic conversation with others and understanding facial expressions and body language. These barriers and confusion made coming to school an obstacle for Sebastian therefore leading to negative behaviors in the classroom.   S did not enjoy coming to school partially due to the lack of socially understanding other people around him and having to understand and have a conversation. Sebastian was missing some key social skills that are vital to know to be able to converse.   Since working with Milo and engaging in the lessons and using a behavior checklist focused on his goals, S is able to have a back and forth conversation with appropriate wait time. S now relies on facial cues and nonverbal cues of which he has learned from

Milo's curriculum. S enjoys communicating and conversing with anyone around him. S has shared some calm down strategies that he uses, with our classmates when they get upset. S has made many documented gains behaviorally, socially and academically due to many of the skills, which he has learned and has generalized.

Skill: back and forth conversation

Calm down techniques when frustrated

Curriclum Lessons and skills:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Lessons from 10/26/18 - 3/26/19

Through use of behavior checklist, student has participated in lessons to support IEP goals in understanding emotions including anger, happy, sad, hurt, tired and excited. On 10/16/18 student demonstrated understanding of happy in the natural environment with peers. 3 Follow up opportunities supported the generalization of understanding and recognizing the emotion happy. Student is currently working on understanding sad and is making positive progress on the IEP goal as well as generalizing the learned skill.

Curriculum Lessons:

Emotional Understanding Modules

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Lessons 11/5/18 – 3/26/19

Student is participating in lessons on playdate problems which focuses on sharing, taking turns, and getting along with peers, and emotional recognition lessons. Student can successfully recognize hurt, tired and excited and can recognize these emotions in peers given natural opportunities. Student is able to successfully participate in center groups with same age peers and using with minimal prompting skills such as taking turns in the block center and sharing toys in the transportation center.

Curriculum lessons:

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Lesson 1: Intro to Playdates

Lesson 2A: What is a Playdate?

Lesson 2B: Starting a Playdate – Greeting

Lesson 3: Starting a Playdate: Choosing an Activity (Host Has

First Choice)

Lesson 4: Playing Together, Sharing Toys

Lesson 5: When the Guest Makes the First Choice

Lesson 1: Being a Good Friend on a Playdate

Lesson 2: Problem Solving During a Playdate

Lesson 3: Bored Is a Playdate Problem. What Is Bored?

Lesson 4: When I Am Bored During a Playdate

Lesson 5: When My Friend is Bored During a Playdate

Lesson 6: When I Am Not Ready for a Playdate to Be Finished

Student transitioned from more restrictive environment to less restrictive classroom. Student struggled with identifying facial gestures and its relation to emotion during year one of the pilot. Student can now identify happy, sad, angry, frustrated in pictures and in peers. Student has transferred verbal interactions learned through Milo and the teacher to the classroom settings and express his observations to peers. He is progressing toward goal mastery and contributes to conversations without atypical comments.

Curriculum lessons:

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Milo Start Date: 10/26/17

IEP Goals Mastered:

•Aggressive behaviors decreased from an average of 40 episodes per month to 2 per month

2017

August -22

September - 45

October - 52

November - 6

December - 8

2018

January - 3

February – 2

March – 1

April – 2

May – 0

August – 0

September – 0

October – 3

2019

Jan– 0

Feb – 2

March- 3

Generalization:

• Use of calm down tools when frustrated – states, "I need a break" and utilizes deep breaths to self-regulate

• Greeting and leave taking skills increased from requiring verbal prompts for each opportunity to independently using correct communication skills

• Identifies emotions and will express her emotions with the use of pictures and words

• Participates during class birthday celebrations

Curriculum lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

Lesson 1: Introduction – Leave-Taking

Lesson 2: When to use Leave-Taking Skills

Lesson 3: Student Practice Lesson – Initiating Leave-Taking with

the Robot

Lesson 4: Different Leave-Taking Words (Includes Bye, Goodbye,

See You Later)

Lesson 5: Responding to Other People's Leave-Taking

Lesson 6: Student Practice Lesson – Responding to Leave-Taking with

the Robot

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It

Going, How Are You?)

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Facial Expressions (Scared/Surprised/Worried)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Scared"

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)

in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/

Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.

Worried)

Milo Start Date: 10/20/17

IEP Goals Mastered:

• Speech: complete 10 different fill in the blank phrases of any type; select the correct item from an array of 8 for 25 different LRFFC statements.

• Social/Emotional: ask for a break when presented with a task or demand with a verbal prompt for 3 consecutive sessions

• Social/Emotional: engage in appropriate cooperative social play interactions initiated by others from a baseline of 1/5 to 4/5 opportunities as measured by teacher observation/data logs and the Brigance Inventory

• Social/Emotional: appropriately acknowledge an interaction initiated by others by giving an appropriate response from 1/5 to 4/5 opportunities to do so

• Social/Emotional: improve his ability to attend to a task from a period of 1 minute to a period of 10 minutes on 4/5 opportunities as measured by teacher observation/data logs and the Brigance inventory

• Behavior: follow one step directions given visual cues in 4/5 opportunities as measured by teacher observation and Brigance

• Behavior: demonstrate simple self-calming techniques, such as deep breathing or asking for a break, in 4/5 opportunities

• Speech: I increase his receptive and expressive language skills by following one and two step directions consistently, answering simple wh questions verbally and with

pictures to request/comment, and also decrease echolalic responses from 30% accuracy to 80% success over 3 consecutive sessions

Generalization:

• Greeting and leave taking skills increased from requiring an average of 4 verbal prompts for each opportunity to independently using correct communication skills in 3 out of 5 opportunities and with verbal prompts in 4 out of 5 opportunities. The independent use of leave taking and greeting words were directly following lessons with Milo. He very rarely showed independent verbal speech prior to Milo implementation.

• Use of calm down tools when frustrated – states, "I need a break" and when prompted will take a break

• Identifies emotions that were explicitly taught and will replicate the emotions when asked

• Participates during class birthday celebrations

Curriculum Lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

Conversational Module 2: Leave-Taking

Lesson 1: Introduction – Leave-Taking

Lesson 2: When to use Leave-Taking Skills

Lesson 3: Student Practice Lesson – Initiating Leave-Taking with

the Robot

Lesson 4: Different Leave-Taking Words (Includes Bye, Goodbye,

See You Later)

Lesson 5: Responding to Other People's Leave-Taking

Lesson 6: Student Practice Lesson – Responding to Leave-Taking with

the Robot

Situational Module 3: Being a Guest at a Birthday Party

Lesson 1: Intro to Birthday Party

Lesson 2: Invitations

Lesson 3: Birthday Party Schedule – Being a Guest

Lesson 4: The Party Place and Playing at a Birthday Party

Lesson 5: Giving the Host a Present

Lesson 6A: Eating at a Birthday Party (Social Story)

Lesson 6B: Birthday Song

Lesson 7: Leaving a Birthday Party

Milo Start Date: 10/25/17

IEP Goals Mastered:

• Social/Emotional: during independent work and small group lessons, he will improve his ability to attend to a task and complete the work from an average of 15 verbal prompts to no more than 2 verbal prompts per task on 4/5 opportunities

• Speech: given direct instruction in speech/language, he will use a communication app on an iPad focusing on core vocabulary words using the Language Acquisition Motor Planning approach by appropriately commenting, requesting, answering questions, and responding to greetings by combining two symbols spontaneously from 30 to 80% accuracy

Curriculum Lessons:

Conversational Module 1: Initiation Greetings

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It

Going, How Are You?)

Milo Start Date: 9/18/18

IEP Goals Mastered: None yet

Generalization:

Has made significant progress towards conversation dynamics skills and greetings/leave taking. Using new communication skills throughout the day. Her behaviors have also decreased significantly.

Curriculum Lessons:

Conversational Module 1: Initiation Greetings

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It

Going, How Are You?)

Conversational Module 2: Leave-Taking

Lesson 1: Introduction – Leave-Taking

Lesson 2: When to use Leave-Taking Skills

Lesson 3: Student Practice Lesson – Initiating Leave-Taking with

the Robot

Lesson 4: Different Leave-Taking Words (Includes Bye, Goodbye,

See You Later)

Lesson 5: Responding to Other People's Leave-Taking

Lesson 6: Student Practice Lesson – Responding to Leave-Taking with

the Robot

Engages in conversations and uses turn taking in conversations. Mastered IEP goals.

Curriculum Lessons:

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Goal skill and Curriculum Lessons(s)	Assessment	Outcome
37 students in program – all students are mild or moderate with Autism	Behavior checklist	All of the students have mastered at least one goal after one year on the program.
Engaging appropriately in conversation in the classroom, lunchroom, field trips Curriculum Lessons: Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation")	Behavior checklist	Student has generalized skills learned in the curriculum. He is able to sit appropriately in various school environments as measured 4 out of 4 attempts over a 4 week period.

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance		

Goal skill and Curriculum Lessons(s)	Assessment	Outcome
		All students are progressing on their skill based autism goals. 5 of 8 students achieved mastery on an IEP goal.
Initiating conversation with peers Curriculum lessons: Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?) Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided	Generalization observation form	Student is able to verbalize steps to staring a conversation and perform the steps without prompts as measured 3 of 4 times over a 5 week period

Conversation")		
Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:		
Question-Answer")		
Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,		
& Check Your Space")		
Lesson 4: One-Sided Conversations with TLC		
Lesson 5: Using TLC in More Difficult Conversation – QAC		
("Question+Answer+Comment")		
Lesson 6: Topic and Topic Maintenance		
Responding to verbal prompts Curriculum Lessons: Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance	Generalization observation form	Student is able to respond to prompts appropriately as measured 4 of 4 times over a 5 week period
Make friends Curriculum Lessons: Lesson 1: Being a Good Friend on a Playdate Lesson 2: Problem Solving During a Playdate Lesson 3: Bored Is a Playdate Problem. What Is Bored? Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")	Generalization observation form	Student is able to use appropriate social skills to engage a peer in order to make a friendly relationship with a peer, of whom he was previously afraid of. Appropriate interactions 4 out of 4 times as observed over a 4 week period

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"		
		All students are progressing on their autism goals. 5 of 16 students have mastered an IEP goal.
Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball	Behavior observation form	Student is able to tell when he is getting frustrated and uses self talk to calm himself down, saying, "I need to calm down" and then doing so. Observed 3 of 4 times over a 4 week period
Eye contact Curriculum Lessons: Includes making eye contact in the process: Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them	Behavior observation form	Student is able to make eye contact with peers during conversation in the classroom and other environments in the school without prompting as measured 4 out of times over a 4 week period.
Play with peers on playground Curriculum Lessons: Lesson 1: Being a Good Friend on a Playdate Lesson 2: Problem Solving During a Playdate Lesson 3: Bored Is a Playdate Problem. What Is Bored?	Behavior observation form	Student is engaging with peers on the playground where before he was not. Engagement measured 3 out of 4 times observed over a 4 week period

Lesson 4: When I Am Bored During a Playdate		
Lesson 5: When My Friend is Bored During a Playdate		
Lesson 6: When I Am Not Ready for a Playdate to Be Finished		
Goal skill and Curriculum Lessons(s)	**Assessment**	**Outcome**
		82% have mastered at least goal.
Calm down when frustrated Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball	Teacher skill observation	Students participates in the general education setting. After 3-4 months on the program students is consistently using the calm down tools without prompting as measured 3 out of 4 times over a 4-week period. Student is now encouraging other students to use the calm down tools. Mastered goal
Greet peers Curriculum lessons: Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")	Teacher skill observation	Student is able to greet peers when transitioning from location to location within the school as measured 4 out of 4 times over a 4 week period. Mastered goal

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)		
Use eye contact Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?) Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC	Teacher skill observation	Student is able to maintain eye contact in conversation with peers as observed 4 of 5 times over a 4 week period. Mastered goal

Goal skill and Curriculum Lessons(s)	Assessment	Outcome
Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance		
Making conversation Curriculum lessons: Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance	Teacher skill observation	Steady progress in mastering IEP goals. Engaging in conversation skills 2 out of 4 times observed over a 4 week period when previously did not engage.
Goal skill and Curriculum Lessons(s)	**Assessment**	**Outcome**
Conversational skills And pragmatics	Speech language pathologist checklist	80% of students have achieved mastery of IEP goal or achieved satisfactory progress.
Conversation questions and pragmatics Curriculum lessons: Conversational Module 3: Conversation Dynamics	Speech language pathologist checklist	At the beginning of school year, use of answering "wh" and conversational questions was 60% accuracy. At the end of the year accuracy was 80% or higher during 3

Goal skill and Curriculum Lessons(s)	Assessment	Outcome
Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance		consecutive sessions in 3 different environments.
		4 of 6 students have generalized skills learned in the progarm
Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC	Teacher observation checklist	Student is able to make eye contact with classroom assistant as observed 3 out of 4 times over 6 week period when previously did not at all. Student interacts non-verbally to make lunch choices in the lunchroom as measured 3 out of 4 times over 6 week period.

("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance Lesson 3: Starting a Playdate: Choosing an Activity (Host Has First Choice) Lesson 4: Playing Together, Sharing Toys Lesson 5: When the Guest Makes the First Choice		
Making choices Curriculum lessons: Lesson 3: Starting a Playdate: Choosing an Activity (Host Has First Choice) Lesson 4: Playing Together, Sharing Toys Lesson 5: When the Guest Makes the First Choice	Teacher observation checklist	Student is able to make food choices in the lunchroom consistently 4 out of 4 times as measured over a 4 week period
Greetings Curriculum lessons: Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)	Teacher observation checklist	Student is able to walk into the classroom and speak to everyone and say, "good morning" as measured 4 out of 4 times over a 4 week period

Interacting with peers in general education environment Curriculum lessons: Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?) Conversational Module 2: Leave-Taking Lesson 1: Introduction – Leave-Taking Lesson 2: When to use Leave-Taking Skills Lesson 3: Student Practice Lesson – Initiating Leave-Taking with the Robot Lesson 4: Different Leave-Taking Words (Includes Bye, Goodbye, See You Later) Lesson 5: Responding to Other People's Leave-Taking Lesson 6: Student Practice Lesson – Responding to Leave-Taking with the Robot Conversational Module 3: Conversation Dynamics	Teacher observation checklist	Student is interacting with peers in general education exploratory classes using appropriate social skills as measured 3 out of 5 observed times over a 6 week period.

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance Lesson 2: Problem Solving During a Playdate		
Goal skill and Curriculum Lessons(s)	**Assessment**	**Outcome**
		13 of 15 students have achieved mastery of at least 1 IEP goal
Goal skill and Curriculum Lessons(s)	**Assessment**	**Outcome**
Calm down. Recognizing anger emotion Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10	Self regulation checklists	6 of 12 students mastered goals in their IEPs as indicated by generalizing skills in various school environments.

Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry" Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)		
Recognizing emotions in self Curriculum lessons: Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos	Self-regulation checklist	Student mastered goal in IEP

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"		
Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)		
Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry		
Emotional Understanding Module 2: Identifying & Imitating		
Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		
Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised" Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Worried" Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/ Worried) Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs. Worried)		
Recognizing emotions Recognizing emotions in self Curriculum lessons: Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry"	Self-regulation checklist	Student mastered goal in IEP

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)		
Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry		
Emotional Understanding Module 2: Identifying & Imitating		
Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		
Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/ Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs. Worried) | | |
| Recognizing emotions

Recognizing emotions in self

Curriculum lessons:

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) | Self-regulation checklist | Making progress toward goal |

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry		
Emotional Understanding Module 2: Identifying & Imitating		
Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		
Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		

Lesson 5: Identifying & Imitating the Facial Expression for "Worried" Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/ Worried) Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs. Worried)		
Recognizing emotions Recognizing emotions in self Curriculum lessons: Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry" Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry	Self-regulation checklist	Making progress toward goal

Emotional Understanding Module 2: Identifying & Imitating		
Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		
Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		

Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs. Worried)		
Recognizing fear in self	Self-regulation checklist	Student mastered goal in IEP
Recognizing emotions in self		
Curriculum lessons:		
Emotional Understanding Module 1: Identifying & Imitating		
Facial Expressions (Happy/Sad/Angry)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Happy"		
Lesson 3: Identifying & Imitating the Facial Expression for "Sad"		
Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in		
Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Angry"		
Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)		
Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry		
Emotional Understanding Module 2: Identifying & Imitating		
Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		
Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs. Worried)		
Recognizing worry in self Recognizing emotions in self Curriculum lessons: Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry" Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry Emotional Understanding Module 2: Identifying & Imitating Facial Expressions (Hurt/Tired/Excited) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"	Self-regulation checklist	Student mastered goal in IEP

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.		
Worried)		

Recognizing emotions in others Recognizing emotions in self Curriculum lessons: Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry" Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry Emotional Understanding Module 2: Identifying & Imitating Facial Expressions (Hurt/Tired/Excited) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Hurt" Lesson 3: Identifying & Imitating the Facial Expression for "Tired" Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos	Self-regulation checklist	Student mastered 1 of 2 goals

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.		
Worried)		
Recognizing emotions in others Recognizing emotions in self Curriculum lessons:	Self-regulation checklist	Making progress toward IEP goal

Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry" Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry Emotional Understanding Module 2: Identifying & Imitating Facial Expressions (Hurt/Tired/Excited) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Hurt" Lesson 3: Identifying & Imitating the Facial Expression for "Tired" Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Excited" Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.		
Worried)		
Recognizing emotions in self Recognizing emotions in self Curriculum lessons: Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry)	Self-regulation checklist	Student mastered goal in IEP

Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Happy"		
Lesson 3: Identifying & Imitating the Facial Expression for "Sad"		
Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Angry"		
Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)		
Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry		
Emotional Understanding Module 2: Identifying & Imitating Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		
Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		

Emotional Understanding Module 3: Identifying & Imitating Facial Expressions (Scared/Surprised/Worried) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Scared" Lesson 3: Identifying & Imitating the Facial Expression for "Surprised" Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Worried" Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/ Worried) Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs. Worried)		
		80% have mastered an IEP goals. The others are progressing successfully toward mastery.
Making requests, greeting Curriculum lessons: Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot	Teacher observation checklist	Student used echolalia to speak. After starting the program student is able to make independent requests 3 out of 4 times over an observation period of 4 weeks. Student initiates greetings with peers 3 out of 4 times observed over an observation period of 4 weeks.

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It

Going, How Are You?)

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance | | IEP goals are on track to be mastered. Student was able to recite lines for a play in front of the school and family members. |
| Managing emotions and disrupting behavior

Curriculum lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down | Teacher observation checklist | Student was removed from the general education environment due to severe disruptive behaviors. Student has mastered goal for behavior management. Student has returned to the general education environment with support from a peer buddy with whom the student interacts |

Lesson 3: What Do You Use to Calm Down		appropriately based upon skills learned. Student is transitioning to middle school in a less restrictive environment and participating in general education assessment.
Calm Down Tool 1 – Take a Break		
Calm Down Tool 2 – Take a Breath		
Calm Down Tool 3 – Count to 10		
Calm Down Tool 4 - Say Words		
Calm Down Tool 5 - Squeeze a Stress Ball		
Emotional Understanding Module 1: Identifying & Imitating		
Facial Expressions (Happy/Sad/Angry)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Happy"		
Lesson 3: Identifying & Imitating the Facial Expression for "Sad"		
Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in		
Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Angry"		
Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)		
Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)		
Emotional Understanding Module 2: Identifying & Imitating		
Facial Expressions (Hurt/Tired/Excited)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"		

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"		
Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Excited"		
Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		
Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.		
Worried)		

Identifying emotions when seeing them. Identifying emotions and telling an adult.		All students progressing towards mastery.2 students have mastered their IEP goal.
Recognizing emotions Emotional Understanding Module 2: Identifying & Imitating Facial Expressions (Hurt/Tired/Excited) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Hurt" Lesson 3: Identifying & Imitating the Facial Expression for "Tired" Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Excited" Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited) Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited) Emotional Understanding Module 3: Identifying & Imitating Facial Expressions (Scared/Surprised/Worried) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Scared" Lesson 3: Identifying & Imitating the Facial Expression for "Surprised" Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)	Parent reported Teacher observation checklists	Student is able to verbalize his recognition of the feeling of sad in himself without prompting. Has mastered his goal

in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.		
Worried)		
Emotional Understanding Module 1: Identifying & Imitating		
Facial Expressions (Happy/Sad/Angry)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Happy"		
Lesson 3: Identifying & Imitating the Facial Expression for "Sad"		
Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in		
Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Angry"		
Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)		
Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry		
Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)		
Recognizing emotions. Identifying emotions and telling an adult	Teacher observation checklist	Student was able to identify when another student was upset in the classroom. He verbalized the emotion in a

Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Happy" Lesson 3: Identifying & Imitating the Facial Expression for "Sad" Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Angry" Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry) Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry) Emotional Understanding Module 2: Identifying & Imitating Facial Expressions (Hurt/Tired/Excited) Lesson 1: Introduction Lesson 2: Identifying & Imitating the Facial Expression for "Hurt" Lesson 3: Identifying & Imitating the Facial Expression for "Tired" Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos Lesson 5: Identifying & Imitating the Facial Expression for "Excited" Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)		full sentence to the teacher without prompting. Has mastered his goal.

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited		
Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)		
Emotional Understanding Module 3: Identifying & Imitating		
Facial Expressions (Scared/Surprised/Worried)		
Lesson 1: Introduction		
Lesson 2: Identifying & Imitating the Facial Expression for "Scared"		
Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"		
Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)		
in Still Photos		
Lesson 5: Identifying & Imitating the Facial Expression for "Worried"		
Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/		
Worried)		
Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried		
Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.		
Worried)		
		9/10 students are progressing toward mastery. 1 of 10 has mastered a goal.
Greeting peers Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting	Teacher observation checklist	Student greets peers 3 out of 4 times given time as observed over a 4-week period.

Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)		
Conversation with peers Curriculum lessons: Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance	Teacher observation checklist	Student was able to engage in conversation and compromise with a peer during an argument. First time able to do this.

		7 of 13 students mastered at least one of their goals 11/12 are progressing on all other goals appropriately
Calm down when frustrated Eye contact Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball Conversational Module 1: Initiation Greetings Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)	Teacher observation checklist	Using calm down tool 4 out of 4 times when frustrated over 4 week period. Teaching gen. ed. peers to use the tools. Increased eye contact with peers and adults. Shows more empathy to peers who are upset

Calm down strategies Situational communication skills Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball Situational Module 1: Playdates Lesson 1: Intro to Playdates Lesson 2A: What is a Playdate? Lesson 2B: Starting a Playdate – Greeting Lesson 3: Starting a Playdate: Choosing an Activity (Host Has First Choice) Lesson 4: Playing Together, Sharing Toys Lesson 5: When the Guest Makes the First Choice Lesson 6: Leave-Taking (When Student is the Host) Lesson 7: Leave-Taking (When Student is the Guest) Situational Module 2: Playdate Problems Lesson 1: Being a Good Friend on a Playdate	Teacher observation checklist	Student is able to use calm down strategies 3 of 4 times needed as observed over a 4 week period. Student uses appropriate situational conversation 3 out of 4 times over a 4 week period. Parent indicates he is now using appropriate situational conversation skills at home with his male sibling (who is also working with Milo)

Lesson 2: Problem Solving During a Playdate		
Lesson 3: Bored Is a Playdate Problem. What Is Bored?		
Lesson 4: When I Am Bored During a Playdate		
Lesson 5: When My Friend is Bored During a Playdate		
Lesson 6: When I Am Not Ready for a Playdate to Be Finished		
Lesson 7: When I Am Ready for a Playdate to Be Finished at		
a Friend's House		
Lesson 8: When I Am Ready for a Playdate to Be Finished at		
My House		
Situational Module 3: Being a Guest at a Birthday Party		
Lesson 1: Intro to Birthday Party		
Lesson 2: Invitations		
Lesson 3: Birthday Party Schedule – Being a Guest		
Lesson 4: The Party Place and Playing at a Birthday Party		
Lesson 5: Giving the Host a Present		
Lesson 6A: Eating at a Birthday Party (Social Story)		
Lesson 6B: Birthday Song		
Lesson 7: Leaving a Birthday Party		
Making choices

Eye contact

Decrease self-injurious behavior | Teacher observation checklist | Proprioception skills have increased. Student will make appropriate choices in 3 out of 4 situations measured over a 4 week period. Self-injurious behavior has |

Curriculum lessons:		decreased by 50%. Eye contact has increased.
Calm Down Module		
Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies		
Lesson 2: Help My Friend Calm Down		
Lesson 3: What Do You Use to Calm Down		
Calm Down Tool 1 – Take a Break		
Calm Down Tool 2 – Take a Breath		
Calm Down Tool 3 – Count to 10		
Calm Down Tool 4 - Say Words		
Calm Down Tool 5 - Squeeze a Stress Ball		
Conversational Module 1: Initiation Greetings		
Lesson 1: Introduction – Greeting		
Lesson 2: Student Practice Lesson – Greetings with the Robot		
Lesson 3: When to Greet – When We Have Been Away from Them		
Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")		
Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"		
Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It		
Going, How Are You?)		
Lesson 3: Starting a Playdate: Choosing an Activity (Host Has		
First Choice)		
Lesson 4: Playing Together, Sharing Toys		
Lesson 5: When the Guest Makes the First Choice		

Decrease tantrum behavior	Teacher observation checklist	Tantrum behavior has decreased 70% over the school year. Student working cooperatively with peers in activites including waiting for his turn,sharing his thoughts, and responding appropriately to interactions initiated by peers 3 out of 4 time observed over a 4 week period.
Engage with peers		
Curriculum lessons:		
Calm Down Module		
Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies		
Lesson 2: Help My Friend Calm Down		
Lesson 3: What Do You Use to Calm Down		
Calm Down Tool 1 – Take a Break		
Calm Down Tool 2 – Take a Breath		
Calm Down Tool 3 – Count to 10		
Calm Down Tool 4 - Say Words		
Calm Down Tool 5 - Squeeze a Stress Ball		
Lesson 3: Starting a Playdate: Choosing an Activity (Host Has		
First Choice)		
Lesson 4: Playing Together, Sharing Toys		
Lesson 5: When the Guest Makes the First Choice		
Lesson 6: Leave-Taking (When Student is the Host)		
Lesson 7: Leave-Taking (When Student is the Guest)		
Situational Module 2: Playdate Problems		
Lesson 1: Being a Good Friend on a Playdate		
Lesson 2: Problem Solving During a Playdate		
Lesson 3: Bored Is a Playdate Problem. What Is Bored?		
Lesson 4: When I Am Bored During a Playdate		

Lesson 5: When My Friend is Bored During a Playdate Lesson 6: When I Am Not Ready for a Playdate to Be Finished Conversational Module 3: Conversation Dynamics Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation") Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer") Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space") Lesson 4: One-Sided Conversations with TLC Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment") Lesson 6: Topic and Topic Maintenance		
Decrease self-injurious behaviors On-task focus Making good decisions with peers Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath	Teacher observation checklist	Hitting self has decreased by 80% over school year. Student make appropriate social interaction decisions with peers 3 out of 4 times measured over a 4 week period.

Calm Down Tool 3 – Count to 10		
Calm Down Tool 4 - Say Words		
Calm Down Tool 5 - Squeeze a Stress Ball		
Lesson 3: Starting a Playdate: Choosing an Activity (Host Has		
First Choice)		
Lesson 4: Playing Together, Sharing Toys		
Lesson 5: When the Guest Makes the First Choice		
Lesson 1: Being a Good Friend on a Playdate		
Lesson 2: Problem Solving During a Playdate		
Lesson 3: Bored Is a Playdate Problem. What Is Bored?		
Lesson 4: When I Am Bored During a Playdate		
Greet peers Take turns Decreased disrupting behaviors Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 -Conversational Module 1: Initiation Greetings	Teacher observation checklist	Respond to greetings – met goal Take turns with peers with verbal reminders- met goal Using calm down strategies to decrease disrupting behaviors 2 out of 4 times observed over baseline of 0 out of 4 times observed over a 4 week period.

Lesson 1: Introduction – Greeting Lesson 2: Student Practice Lesson – Greetings with the Robot Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?) Squeeze a Stress Ball Lesson 3: Starting a Playdate: Choosing an Activity (Host Has First Choice) Lesson 4: Playing Together, Sharing Toys Lesson 5: When the Guest Makes the First Choice		
Appropriate social interactions with peers Intitate greetings Decreased frustrating behaviors Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words	Teacher observation checklist	Engaging in appropriate interactions with peers – goal met Intimating greetings to peers – goal met Student has had 70% fewer frustrating behaviors using the calm down tools- goal almost met

Calm Down Tool 5 - Squeeze a Stress Ball		
Conversational Module 1: Initiation Greetings		
Lesson 1: Introduction – Greeting		
Lesson 2: Student Practice Lesson – Greetings with the Robot		
Lesson 3: When to Greet – When We Have Been Away from Them		
Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")		
Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"		
Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It		
Going, How Are You?)		
Situational Module 1: Playdates		
Lesson 1: Intro to Playdates		
Lesson 2A: What is a Playdate?		
Lesson 2B: Starting a Playdate – Greeting		
Lesson 3: Starting a Playdate: Choosing an Activity (Host Has		
First Choice)		
Lesson 4: Playing Together, Sharing Toys		
Lesson 5: When the Guest Makes the First Choice		
Lesson 6: Leave-Taking (When Student is the Host)		
Lesson 7: Leave-Taking (When Student is the Guest)		

| | | 100% of students have obtained a mastery score on at least one lesson.

All students have scored a 100% accuracy on at least one lesson

Students have all mastered generalizing the skill of initiating a greeting when returning to the classroom. |
|---|---|---|
| Making choices in curriculum assessments (not just guessing or picking the same)

Curriculum lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

Lesson 3: Starting a Playdate: Choosing an Activity (Host Has

First Choice) | Teacher observation data | Student went from 0% accuracy to 100% accuracy. |
| Greeting peers

Conversational Module 1: Initiation Greetings

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot | Teacher observation data | Student is able to greet peer by saying, "hi" and waving his hand when before was not responding at all. |

Lesson 3: When to Greet – When We Have Been Away from Them Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello") Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi" Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)		
Time on task, calm down Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball	Teacher observation data	Student went from average time focusing on an assignment of 3 minutes 9 seconds, to 36 minutes
Time on task,calm down Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath	Teacher observation data	Student went from average time focusing on an assignment of 45 seconds to 10 minutes

Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball		
Time on task, calm down Curriculum lessons: Calm Down Module Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies Lesson 2: Help My Friend Calm Down Lesson 3: What Do You Use to Calm Down Calm Down Tool 1 – Take a Break Calm Down Tool 2 – Take a Breath Calm Down Tool 3 – Count to 10 Calm Down Tool 4 - Say Words Calm Down Tool 5 - Squeeze a Stress Ball	Teacher observation data	Student went from average time focusing on an assignment of 3minutes to 9 minutes

This student has participated in the Milo trial for 2 years. The teacher has reported that he has made satisfactory progress toward 2 of his goals that are addressed in the Milo curriculum at this time. Student has mastered 2 IEP goals.

Curriculum lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Emotional Understanding Module 3: Identifying & Imitating

Facial Expressions (Scared/Surprised/Worried)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Scared"

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)

in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/

Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.

Worried)

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

This student only participated in the pilot for 2 months prior to moving out of the district (and our robot was broken for a great portion of the time he attended). It was reported that this student made minimal progress toward the annual social/emotional goal that Milo's curriculum addresses, but he didn't have access to the robot for a great deal of the time he was with us.

This student has been a study participant for 2 years.

He has met the following social goal ahead of schedule.

"By the IEP completion date A will identify and understand various non-verbal social communication behaviors (i.e. Tone of voice, personal space, vocal volume, body orientation, facial expressions) by stating their implied meaning in 4 out of 5 opportunities to do so."

Most recent data indicates that A has met this goal prior to the expiration of his IEP.

Curriculum lessons:

 Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Emotional Understanding Module 3: Identifying & Imitating

Facial Expressions (Scared/Surprised/Worried)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Scared"

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)

in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/

Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.

Worried)

This student has 2 goals related to the Milo curriculum. He began working with Milo this year. He is demonstrating positive trends toward meeting his IEP goals. He has additionally demonstrated growth in areas that particular goals were not written to address, which we attribute to his instructional time with Milo. His greetings, conversational turn taking and

conversational termination strategies have increased because of this curriculum. Update: student has met 1 of 2 goals

Curriculum lessons:

Conversational Module 1: Initiation Greetings

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It

Going, How Are You?)

Conversational Module 2: Leave-Taking

Lesson 1: Introduction – Leave-Taking

Lesson 2: When to use Leave-Taking Skills

Lesson 3: Student Practice Lesson – Initiating Leave-Taking with

the Robot

Lesson 4: Different Leave-Taking Words (Includes Bye, Goodbye,

See You Later)

Lesson 5: Responding to Other People's Leave-Taking

Lesson 6: Student Practice Lesson – Responding to Leave-Taking with

the Robot

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Conversational Module 2: Leave-Taking

Lesson 1: Introduction – Leave-Taking

Lesson 2: When to use Leave-Taking Skills

Lesson 3: Student Practice Lesson – Initiating Leave-Taking with

the Robot

Lesson 4: Different Leave-Taking Words (Includes Bye, Goodbye,

See You Later)

Lesson 5: Responding to Other People's Leave-Taking

Lesson 6: Student Practice Lesson – Responding to Leave-Taking with

the Robot

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Lesson 4: Playing Together, Sharing Toys

This student has the following goal that includes elements of the Milo curriculum.

"When placed in a small-group setting for preferred activities and presented with action and character figure toys, __ will interact with other students in play involving back and forth conversation and interactions at least 4 times in a 5 minute period on 4 out 5 daily trials by the end of the IEP."

Data indicates that he is Making satisfactory progress toward meeting his goal. Comments in his progress reports include that he has been playing and engaging well and that he is expressing himself orally in this setting

Curriculum lessons:

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Lesson 2B: Starting a Playdate – Greeting

Lesson 3: Starting a Playdate: Choosing an Activity (Host Has

First Choice)

Lesson 4: Playing Together, Sharing Toys

Lesson 5: When the Guest Makes the First Choice

This student met the following goal pertaining to the Milo curriculum.

"By the IEP completion date __ will identify and understand various non-verbal social communication behaviors (ie. Tone of voice, personal space, vocal volume, body orientation, facial expressions) by stating their implied meaning in 4 out of 5 opportunities to do so."

Student met goal prior to the expiration of the IEP

Curriculum lessons:

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Emotional Understanding Module 3: Identifying & Imitating

Facial Expressions (Scared/Surprised/Worried)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Scared"

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)

in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/

Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.

Worried)

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

This student is making progress toward the following goal related to elements taught in the Milo curriculum.

"By the IEP completion date ___ will identify and understand various non-verbal social communication behaviors (i.e. Tone of voice, personal space, vocal volume, body orientation, facial expressions) by stating their implied meaning in 4 out of 5 opportunities to do so."

On the most recent assessment, this student was able to demonstrate this goal in 3 out of 5 opportunities. Update: student has mastered goal

Curriculum lessons:

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Emotional Understanding Module 3: Identifying & Imitating

Facial Expressions (Scared/Surprised/Worried)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Scared"

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)

in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/

Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.

Worried)

Emotional Understanding Module 1: Identifying & Imitating

Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in

Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided

Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations:

Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look,

& Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC

("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

This student is making progress toward the following goal related to elements taught in the Milo curriculum.

By the end of the IEP period, __ will initiate to play a structured game/activity with his peers four out of five school days as measured by teacher observation record.

___ is able to initiate a game and or activity with peers with 80 accuracy on 3 out of 5 days. Student has mastered this goal.

Curriculum lessons:

Situational Module 1: Playdates

Lesson 1: Intro to Playdates

Lesson 2A: What is a Playdate?

Lesson 2B: Starting a Playdate – Greeting

Lesson 3: Starting a Playdate: Choosing an Activity (Host Has

First Choice)

Lesson 4: Playing Together, Sharing Toys

Lesson 5: When the Guest Makes the First Choice

Lesson 6: Leave-Taking (When Student is the Host)

Lesson 7: Leave-Taking (When Student is the Guest)

Situational Module 2: Playdate Problems

Lesson 1: Being a Good Friend on a Playdate

Lesson 2: Problem Solving During a Playdate

Lesson 3: Bored Is a Playdate Problem. What Is Bored?

Lesson 4: When I Am Bored During a Playdate

Lesson 5: When My Friend is Bored During a Playdate

Lesson 6: When I Am Not Ready for a Playdate to Be Finished

This student is making progress toward the following goal related to elements taught in the Milo curriculum.

__ will respond to social greetings by using appropriate verbal expressions and non-verbal gestures when prompted 4 out of 5 times by the IEP completion date

Student has mastered this goal on time.

Curriculum lessons:

Conversational Module 1: Initiation Greetings

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It Going, How Are You?)

Conversational Module 3: Conversation Dynamics

Lesson 1: Conversation & Conversational Turn-Taking ("One-Sided Conversation")

Lesson 2: Conversational Turn-Taking ("Two-Sided Conversations: Question-Answer")

Lesson 3: Nonverbal Components to Conversation ("TLC: Turn, Look, & Check Your Space")

Lesson 4: One-Sided Conversations with TLC

Lesson 5: Using TLC in More Difficult Conversation – QAC ("Question+Answer+Comment")

Lesson 6: Topic and Topic Maintenance

Emotional Understanding Modules

Emotional Understanding Module 1: Identifying & Imitating Facial Expressions (Happy/Sad/Angry)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Happy"

Lesson 3: Identifying & Imitating the Facial Expression for "Sad"

Lesson 4: Discriminating Between 2 Emotions (Happy/Sad) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Angry"

Lesson 6: Identifying 3 Emotions in Still Photos (Happy/Sad/Angry)

Lesson 7: Identifying Emotion in Videos of Happy/Sad/Angry

Lesson 8: Demonstrating Target Emotion (Happy vs. Sad vs. Angry)

Emotional Understanding Module 2: Identifying & Imitating

Facial Expressions (Hurt/Tired/Excited)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Hurt"

Lesson 3: Identifying & Imitating the Facial Expression for "Tired"

Lesson 4: Discriminating Between 2 Emotions (Hurt/Tired) in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Excited"

Lesson 6: Identifying 3 Emotions in Still Photos (Hurt/Tired/Excited)

Lesson 7: Identifying Emotion in Videos of Hurt/Tired/Excited

Lesson 8: Demonstrating Target Emotion (Hurt Vs. Tired Vs. Excited)

Emotional Understanding Module 3: Identifying & Imitating

Facial Expressions (Scared/Surprised/Worried)

Lesson 1: Introduction

Lesson 2: Identifying & Imitating the Facial Expression for "Scared"

Lesson 3: Identifying & Imitating the Facial Expression for "Surprised"

Lesson 4: Discriminating Between 2 Emotions (Scared/Surprised)

in Still Photos

Lesson 5: Identifying & Imitating the Facial Expression for "Worried"

Lesson 6: Identifying 3 Emotions in Still Photos (Scared/Surprised/

Worried)

Lesson 7: Identifying Emotion in Videos of Scared/Surprised/Worried

Lesson 8: Demonstrating Target Emotion (Scared vs. Surprised vs.

Worried

When given a visual means of indicating how she is feeling and what she needs, __ will independently indicate what she needs and engage in calming strategies with 80% accuracy.

 It was most recently reported that ___ was making satisfactory progress in this area. Her IEP has not yet expired and she is expected to master this goal on time.

Curriculum lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

___ met his goal related to the milo curriculum on his last IEP. A new goal was recently written and is in progress.

Curriculum lessons:

Conversational Module 1: Initiation Greetings

Lesson 1: Introduction – Greeting

Lesson 2: Student Practice Lesson – Greetings with the Robot

Lesson 3: When to Greet – When We Have Been Away from Them

Lesson 4: Different Greeting Words (Includes "Hi, Hey, Hello")

Lesson 5: When to Greet – When to Say "Hi" and When Not to Say "Hi"

Lesson 6: Idiomatic and Colloquial Greetings (What's Up, How's It

Going, How Are You?)

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

This student is making progress toward the following goal related to elements taught in the Milo curriculum.

When ___ becomes upset, frustrated, or angry, he will use a self-regulation/coping strategy to avoid engaging in an unexpected behavior, with one reminder, on 4 out of 5 opportunities, as measured by observations and documentation.

Curriculum lessons:

Calm Down Module

Lesson 1: Introduce Concept of Calm Down and Calm Down Strategies

Lesson 2: Help My Friend Calm Down

Lesson 3: What Do You Use to Calm Down

Calm Down Tool 1 – Take a Break

Calm Down Tool 2 – Take a Breath

Calm Down Tool 3 – Count to 10

Calm Down Tool 4 - Say Words

Calm Down Tool 5 - Squeeze a Stress Ball

This student has not only met this goal prior to the expiration of his current IEP, he is teaching and encouraging others to participate in the Milo taught coping strategies. He has brought Milo in for show and tell to share with his peers in the general education environment.

This student's parents funded the purchase of a second bot.

Attachment B:
Teacher Perspectives Year 2
Techer perspective questions

Questions and Responses
Respondents include:
- Occupational Therapist, 6 years, OT 23 years, support
- Autism Teacher, SLP
- Teacher of self-contained autism, working with grades 3 to 5, k to 5.
- ABAs Therapist, work with children mainly with Autism
- Special Services facilitator supports teachers and student, speech therapist autism self-contained. Autism classroom
- Functional Self-contained Special Ed teacher, support kids in a setting that have multiple disabilities.

Question 1: Prior to using Milo, describe one to two challenges you or your school were facing that were not being fully met or addressed to your satisfaction.
- Prior to bringing in Milo, did not have a structured program for calm down, did not have the use of the iPad, which engages kids.
- Didn't really know the best way to work with situation that were non-limited verbal skills, and progress them to be able to communicate with expressive language
- Behavior issues within the class and school, communication with student among each other
- did not have a social emotional program until Milo stepped in.
- for all children from one degree to another their needs are different, their challenge was to design a curriculum for children with autism
- One of the big things were that they did not have a curriculum until she came up with one. It was very tough because General Ed was easy to come up with a curriculum, but for Special Ed it was difficult for obvious and various reasons

Question 2: How were you addressing behavioral, social/emotional understanding and conversational dynamics prior to robots4autism?
- ABT, Speech, OT address through behavior
- -Traditional practices, some working some outdated.
- Prior to working with this program, she looked at individual student and tried to find reinforcements they could use, and eliminate distractions. Had to create everything on her own
- The school had a behavior team, would work with younger kids not part of ABA, mainly with children 3 to 7, and after there was nothing else to help them.
- As a speech therapist, they have used picture cards, low to high tech devices, sign language, and all sorts of things dependent on the need of the child. It is hard to break it down to individual steps to help kids that struggle with social emotional issues
- One of the big things were that they did not have a curriculum until she came up with one. It was very tough because General Ed was easy to come up with a curriculum, but for Special Ed it was difficult for obvious and various reasons

Question 3: How did you implement robots4autism in your school? Classroom?

- Started with two teachers, started with introduction and went from there on year 1, year 2 added older and more severe children and handled lessons
- Had parents meet Milo first, classroom to one on one
- -Since she works with low incident children, she tried to work with kids that would get the most benefit from the program. She also tried to work with children that were more severe. Noticed that not all kids would react to Milo. She had one student that could not wait to work with it. Use it in a group setting initially, then gradually moved into a one on one setting
- -They have a two-robot schedule. They both do one to one sessions, one stays in one location, while the other visits other areas with the robot. They originally had one robot in one location, but eventually needed to expand by visiting other locations
- They have worked one on one and have done group sessions as well. The reason why they are here is to have more people trained to use the robot in order to use the Milo program more often.
- Small group setting is what they aim to start. During small groups, they will attempt to get one of their paraprofessionals to work with their children individually
- Small group setting to start. During small groups, they will have one of their instructors to work with their children individually

Question 4: What changes in student behavior, attitude, engagement, or grades did you and your students experience initially as well as over time?

- Improved attention times, total lesson times improved, more sustained visual
- Most students were receptive and excited to get to work with Milo. Felt as if the program was very helpful, and beneficial, students addressed some of the lessons. Communications have increased with teachers; they had two brothers that were both improving. Acknowledge behaviors
- There was one student she went through the calm down module with, he started getting upset and vocalize that he needed to calm down, acknowledging the lesson. Some students could not wait to work with Milo. Noticed improved interaction with kids on the playground.
- The robot is a tool, but has not fixed all issues. She has noticed some students that become rusty with the skills learned after coming off the program. They would like to be able to continue.
- Take one student to reading groups, sometimes struggles with his behaviors, but is now able to verbalize his frustrations.
- They had a student show progress with social skills, at first they would wait on prompts to respond to social cues, but later took in all the steps and incorporated lessons.
- The one child that remembered that he needed to implement the lesson he learned to calm down. Also noticed how kids are maintaining eye contact with Milo and each other
- A child that developed tremendously from Milo in all aspects, and is due to go to Special Olympics

Question 5: Would you recommend robots4autism to others? If so, why? If you were asked to describe Milo and robots4autism to a colleague that had no prior knowledge, what would you share with them?

- Yes, she thinks it is a strong program, and well structured. Describe Milo as a robot with unique features, facial expressions, it can make various expressions. The attention to detail. The scaffolding, repetition, structured organization. Students that are greeting better
- Absolutely. It has really helped with their kids with behavior and social/emotional skills. Their kids hold attention. Explains that he is a humanoid robot, developed for autism to help children learn social and emotional skills. Progress is being made.
- -. Thinks it is highly beneficial especially with the types of kids that tend to fall through the cracks. Some kids that you cannot get to engage. Helps kids, but also helps with the collection of data. Which has been huge with progress reports. The reports have proved that the program actually worked for some of her kids. In the curriculum, the kids are very into interactive games, and the children love technology. Looking forward to working with the program on a daily schedule. Helps immensely with IEP objectives and goals. The child knowing that he needed to calm down even when not in front of Milo. Eye contact is improving.
- They would recommend the program, and think it is a great first step. Would explain the program by trying to illustrate the reason why a robot works, the lack of changing in emotional response, the consistent repetition with no frustration. Have seen greetings improved with their kids. One of their kids would not greet you, but did get to the point where he was.
- Yes. They appreciate any tool that can help kids with their social emotional issues. Did notice improvement with children with cognitive delays. They enjoy giving different children the opportunity. It is a tool that works due to the children's fascination with technology.
- The breaking down of skills, and individualization with different children, the database and information kept by the program. It also teaches teachers to be patient by studying the slow-paced modules of the robot. The child made friends with another student. They also noticed his interaction with other students and the tablet became better. Milo was able to successfully, and patiently, reiterate instruction. The child responded well to that.

Attachment C:
Year 3 Teacher Summary of Robots4Autism Program

Respondents include implementing teachers and paraprofessionals

Implementing educators were asked to summarize the 3-year experience of implementing the Robots4Autism program within their schools in relationship to efficacy of program for students, program components, and ease of implementation. The responses are written below with non-identifiers.

Response 1:

> *"The staff implementing Milo lessons had good things to say about the way Milo was received by students and with the quality of the lessons. This was prior to the inclusion of the app-based component now available.*
>
> *Some points for possible improvement related to me by staff were the limited number of trained staff and the large time commitment required for implementation. I do feel that these issues could be remedied by having staff trained as trainers so that more SLPs and paraprofessionals could implement the programming."*

Response 2:

> *"The Robots4Autism program has proved effective for my students being able to learn skills that they were deficit in, in a relatively short period of time. IEP goals were mastered and students began on the road to generalizing the skills. Having a pre-assessment would really help me, as a teacher, to determine baselines of skills that the student each have rather than having to use various academic measures or unrelated behavior assessments."*

Response 3:

> *"The Calm Down Module, Emotional Module, and Conversational Modules are great! The Situational Module does not really pertain to my students because they are older and do not go to "playdates". I would love to have some lessons that teach about appropriate behaviors in different school settings like the library, the cafeteria, and the hallways. My students have learned well through the lessons they needed according to their IEP. "*

Response 4:

"I have students who function at a level that requires a lot of repeated lessons. While it takes my paraprofessional who is also trained and myself alternating to implement the program, the great thing about the curriculum is that the robot never tires and repeats the lessons with the same level of engagement no matter how many times it is repeated. The extension activities give me more support as I work to help my students generalize their skills."

Response 5:

"Every one of my students has mastered at least one IEP goal beyond mastering the lessons in the curriculum. The curriculum is easy for students to follow. The videos and pictures are connected and logical for my students who need this step-by-step learning. I would like more assessment to progress monitor, but the curriculum is definitely effective. My parents have told me how their children, my students, have successfully transitioned their learning to other environments."

Response 6:

"The program is definitely effective for my students. It is heavy on the implementing side for teachers, and I feel that with ongoing professional development to keep more teachers trained the program would be easier to implement. But I am glad we have the program. It makes such a difference to the students and families I serve."

Response 7:

"The curriculum is well- laid out and easy to follow as a teacher. The data that we receive is a lot but can be difficult to analyze. I would like more of a progress-monitoring program within the program. I would like a way to determine what skills my students are deficit in and what skills they already have rather than using their IEP goals to enroll them in the program. This would be a lot easier to see who the program fits. I feel like I have to piece meal to see what students have skills missing because I don't have a pre-test. But the curriculum is great and really move the students forward in their social emotional skills.

Response 8:

> *"What a wonderful program for my students!" We went from having nothing specific for students with autism to a fully functioning program. The robot, itself, has been a great tool that helps to engage my students. While students require repetition to learn, they are learning and mastering their goals. The emotional understanding module has really helped my students to recognize emotions that they have struggled with for so long. And I have students who now are actually using verbal language to communicate. It has been a purposeful three- year pilot!*

Response 9:

> *"I'm glad we were chosen to participate. This program has been effective. It has required a lot of work on the part of the teachers to implement but worth it. I used various assessments like the GARS to determine baseline data and skill levels for my students in order to know where to place them in the program. I was able to choose the modules and lessons that each student needed without having to do the entire curriculum. That was a definite positive.*

Attachment D: Year 1 Data Charts

Impact Summary Report
Pilot Program
October 20, 2017 – June 6, 2018

Module Distribution

- Group Activity 1%
- Calm Down Module 16%
- Conversation Module 26%
- Emotional Module 42%
- Situational Module 4%
- Introduction Module 11%
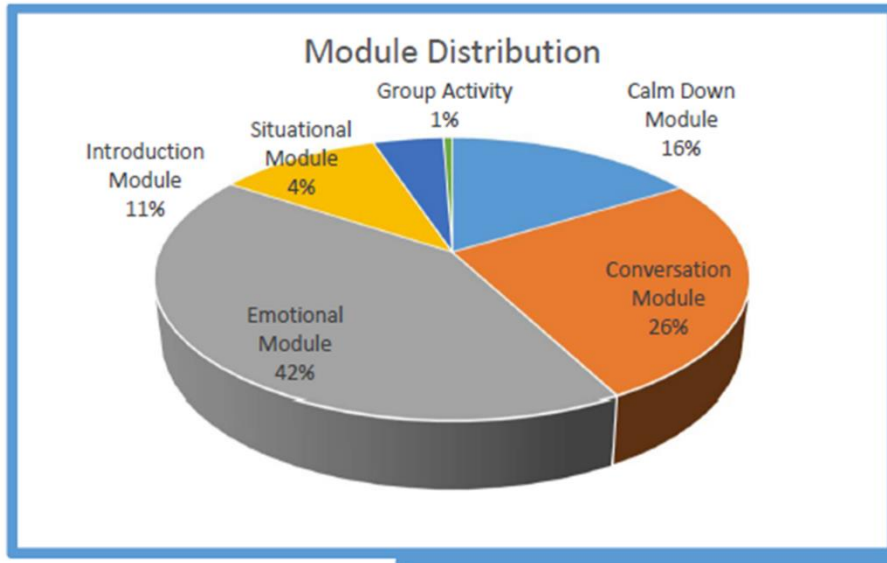
Highlights

- 13,769 Lessons logged
- Heavy focus on emotional understanding compared to other modules

Highlights

- 90.5% of students obtained a mastery score
- 68.9% of students used repetition to a gain mastery score

Lessons with Mastery

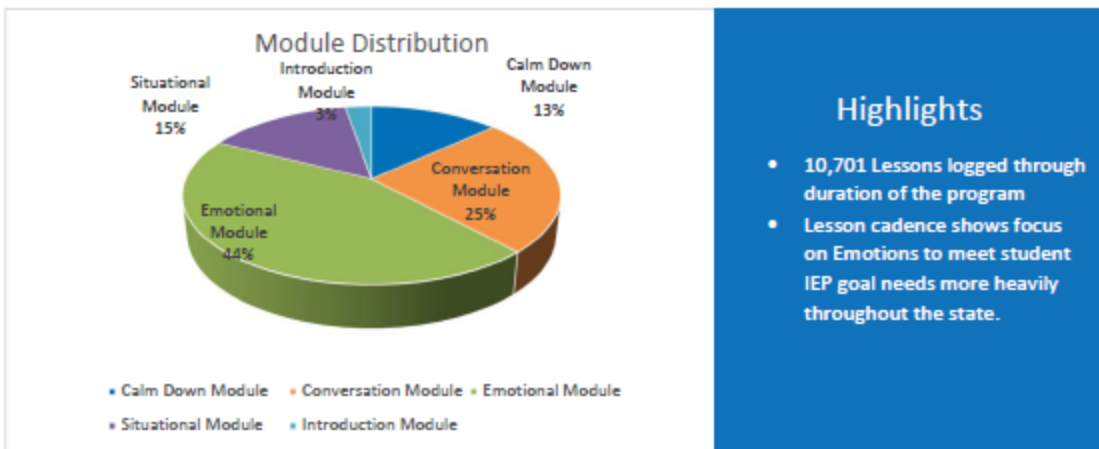Number of Lessons (y-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500)

Categories: Games, Calm Down Tools, Conversational, Emotional, Situational

Attachment E: Year 2 Data Summary

Impact Summary Report – Year 2

State of South Carolina

**Progress Summary Report**
August 07, 2018 – May 31, 2019

robots4autism®
ENGAGE | ENHANCE | ENRICH

Prepared by: Sarah Perry
sarah@robokind.com
972-331-7050 x108

Module Distribution

- Calm Down Module 13%
- Conversation Module 25%
- Emotional Module 44%
- Situational Module 15%
- Introduction Module 3%

Highlights

- **10,701 Lessons logged through duration of the program**
- **Lesson cadence shows focus on Emotions to meet student IEP goal needs more heavily throughout the state.**
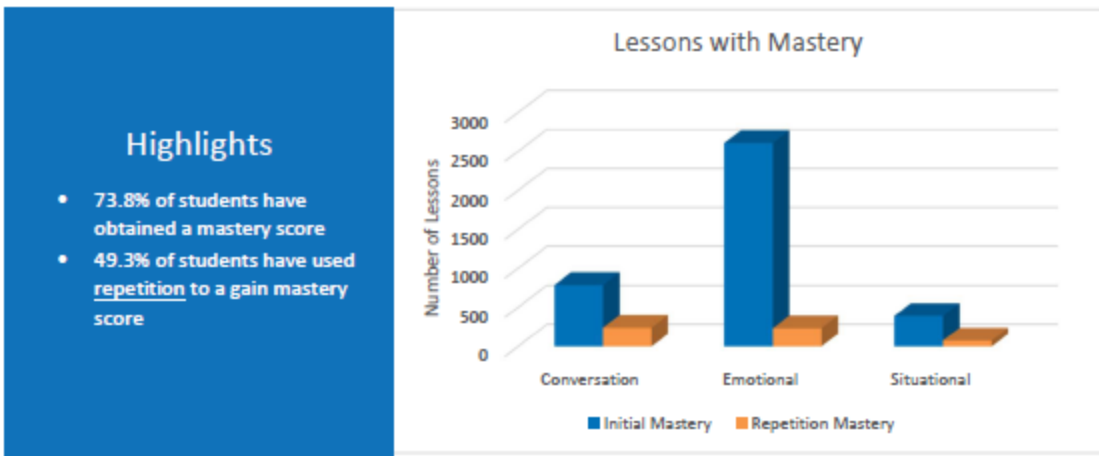
Highlights

- **73.8% of students have obtained a mastery score**
- **49.3% of students have used repetition to a gain mastery score**

Lessons with Mastery

■ Initial Mastery ■ Repetition Mastery

Overall Highlights:

1. 46.1% of Conversation lessons where questions were asked resulted in a score of mastery
2. 68.2% of Emotion lessons where questions were asked resulted in a score of mastery
3. 45.7% of lessons where questions were asked resulted in a score of mastery across the full curriculum.

*Utilization of a 40-week period excluding holidays

Attachment F: Year 3 Pilot Data

Schools who used the program more heavily (columns K - M) showed better results in the percentage of students attaining mastery (H - J)
Original reports showed results of up to 90% of students attaining mastery. It is believed that this report provides a more complete and accurate overview of progress.

Total Students			Attaining Mastery			Percent attaining mastery			Total Lessons Executed			Mastery Stars Earned		
Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
18	30	22	18	30	19	100%	100%	86%	3106	1078	797	1290	427	417
14	9	11	14	8	10	100%	89%	91%	407	546	1276	131	127	488
17	20	6	15	16	1	88%	80%	17%	2846	2464	55	661	371	1
15	19	17	14	14	15	93%	74%	88%	588	435	442	196	49	282
10	3	10	10		3	100%	0%	30%	362	10	131	105	0	17
8	10	13	8	8	14	100%	80%	108%	596	247	253	159	38	43
		7			7			100%			1946			247
30	15	12	27	14	4	90%	93%	33%	2498	574	73	1030	209	15
6	11	14	6	11	14	100%	100%	100%	783	1233	1057	379	596	171
12	12	9	10	7	8	83%	58%	89%	452	532	190	145	110	63
1	7	2		1		0%	14%	0%	6	38	7	0	6	0
	42	14		19	4		45%	29%		515	90		205	6
11		9	7		2	64%		22%	92		270	33		5
	13	5		2	1		15%	20%		81	25		3	3
8			8			100%			91			24		
21	17	11	17	11	6	81%	65%	55%	517	430	135	240	90	62
11	13	6	7	7	3	64%	54%	50%	160	149	75	56	30	18
1	2	1	1	1		100%	50%	0%	327	58	18	51	12	0
16	16	3	9	14	2	56%	88%	67%	219	349	19	68	126	6
22	10	18	11		12	50%	0%	67%	309	26	326	41	0	154
38	6	2	27	4		71%	67%	0%	889	25	16	300	13	0
31	76	52	22	52	37	71%	68%	71%	382	1135	1057	89	322	479
32	25	17	28	17	12	88%	68%	71%	1010	487	317	421	111	45
9	7	8	9	6	7	100%	86%	88%	652	591	94	251	300	18
17	8	4	17	5	3	100%	63%	75%	1051	155	211	379	10	52
348	371	273	285	247	184	82%	67%	67%	17343	11158	8880	6049	3155	2592

Attachment G: Media Newspaper Anecdotal Data

SumterITEM

Meeting Milo: Robot uses spectrum of facial expressions to engage with autistic students at Kingsbury Elementary

The many faces of Milo the Humanoid, a robot who is helping autistic engage students at Kingsbury Elementary School.
Photos by Micah Green / The Sumter Item

Robots are slowly becoming an increasing part of our culture in the U.S., with much debate as to whether that's good or bad.

But with this robot – which has the appearance of a human and helps increase social engagement for children with autism – there's mounting research and evidence as to its effectiveness.

He's Milo the Humanoid, and he's at Kingsbury Elementary School in Sumter School District as part of a pilot study in the state.

Seventeen of South Carolina's 81 public school districts are taking part in the three-year pilot study with Milo, who delivers a thorough social, emotional and behavioral research-based curriculum to students with autism. All costs associated with Milo and his software are paid with federal funding.

People with autism generally have challenges with social and emotional skills and may struggle with eye contact, interacting verbally with others and reading social cues, which all affect their ability to learn, said Julie Jeffcoat, lead teacher for special education at Kingsbury.

There's a wide variation of challenges and strengths for each person with autism, Jeffcoat said. Some children, for example, are completely non-verbal, while others can communicate more easily.

Jeffcoat has been teaching children with autism at the school for 10 years and said Milo is revolutionary in the kids' developmental process. Complete with 32 muscles in his face to model human facial expressions, Milo speaks at 82 percent of the speed of normal human speech and engages students with perfect eye contact and a predictable tone of voice in the learning process.

He models conversational greetings to adults and fellow children, how to act as a guest at a birthday party and other social interactions. Students practice the behaviors in working with Milo, and if they get it wrong, Milo will continue to present the topic in the same way, every time, with no change in his interaction.

"His reactions are very predictable and non-judgemental," Jeffcoat said. "For a humanoid, Milo has compassion built into him, if that's possible."

Also with built-in camera sensors to detect changes in student behavior, Milo can discern when a student is getting emotionally upset and needs to calms down. He can model for them how to take a deep breath, count to 10 and even squeeze a stress ball.
Jeffcoat said in just more than a month, she has already seen progress in the students' social communication and behaviors.

Jeffcoat noted that, with Milo's assistance, some students can calm down now in five minutes, versus 30 to 40 minutes before.

Milo has been functioning and working with children at Kingsbury since mid-October. A total of 15 students with autism are in the pilot study at the school and will have specific performance data tracked by the robot throughout the year. Each student in the study has two 30-minute sessions per week with Milo. A teacher always sits behind the student and observes as a facilitator, according to Jeffcoat.

About 60 students have autism at Kingsbury, and all are getting at least some interaction with Milo, she said.

If students with autism can enhance their social, communication and behavioral skills, they can potentially transition into a mainstream classroom, Jeffcoat said.

Jeffcoat said it also helps that Milo is a "cool robot" because all youth are so involved with technology these days. Previous tools to aid students with autism were fairly outdated, including kits and puppets and other materials, she said.

"He's a ground-breaker," Jeffcoat said. "We haven't had anything like this before. This is the first curriculum where we are simply facilitating, and the child and the robot are where the meat of it happens."

Last week, Kingsbury fourth-grader Devon Lester, 9, went through a learning exercise with Milo in front of the district's board of trustees.
His mother, Connie Lester, said she has been pleased with Devon's progress since meeting Milo.

"I do see a difference with Devon," Lester said. "He's more engaged in conversation now than he was before."

Greenwood, SC
Index-Journal
Robot grabs student's attention
By ARIEL GILREATH agilreath@indexjournal.com
Oct 17, 2017

Student ----danced with ------ District board members Monday night while demonstrating Milo – a robot sent to the district for the Robots4Autism pilot program the state is debuting this year.

The program uses Milo, an expressive, human-like robot, to capture the attention of students with autism to increase engagement during Applied Behavioral Analysis (ABA) therapy.

Milo goes through lesson plans geared at assisting therapists and teachers during ABA therapy with curriculum based on social and emotional support.

----, 14, is a student in District 50 with autism who attended the first parent meeting about the program with his mom,, last week.

"We were kind of sitting there and they were talking and (Parker had) no interest at all, and they turned it on, and it was like, 'Can you blink your eyes?' And he was blinking," Egbert said. "He was doing everything Milo was asking."

Egbert compared it to a "robotic iPad," and said Parker becomes highly engaged with his iPad often.

"He was messing with the iPad and they turned Milo on," Egbert said of the first meeting. "It was just amazing."

Studies done by RoboKind, the creator of Milo, found that children with autism are typically engaged about 3 percent of the time – with Milo, that number jumps anywhere from 18 to 85 percent of the time.

Parker, who recently starred in the Penguin Project's "Annie Jr." last month, was nonverbal until age 6. Egbert said she was skeptical of Milo at first because she thought it was for younger children, but after watching Parker engage with it, she's excited about what it can do for people with autism.

"Anything you can do in addition to what we're doing currently for all these kids is just gonna help them in the future," Egbert said.

Egbert said people with autism typically don't like to look at people, but love technology.

"Everything the robot said, he was doing. And all of us were just kind of sitting there for this meeting," Egbert said. "And we're looking over like, 'Holy cow, this child's doing everything.'"

Amy Hildenbrand, director of special education in the district, told board members Milo is used with people ages 3 to 21, and there are students with autism in every school in the district.

"We have seen great success with middle school," Hildenbrand said.

The district was the one of 15 in the state to receive Milo from the state Department of Education, and the only one to receive two Milos.

The program will start with 17 students per Milo later this fall.

Contact staff writer Ariel Gilreath at 864-943-5644 or follow on Twitter @IJARIELGILREATH.

Kershaw, SC

WACH Fox 57

Mother of boys with autism says new Milo robot has "taken them out of their shell"
by Michelle Zhu
Tuesday, February 6th 2018

LUGOFF, SC (WACH)--According to state education officials, the number of S.C. students diagnosed with autism has doubled from 4,000 in 2011 to 8,000 in 2017. Traditional teaching methods don't always reach those students, but a school in the Midlands has a new tool making a difference.

Carrie Watson has two sons coping with autism. She says communication hasn't always been easy. But a new robot called Milo is being used at their elementary school in Lugoff. Watson says it's helped Colby and Jacob go from nonverbal to expressive.

"I've noticed in the past couple of weeks, especially since they brought Milo in here, he has been talking to me more, he has been telling me his needs and wants more. Colby is the same thing," says Watson.

Right now, Kershaw County is one of fifteen school districts in South Carolina under the three-year pilot program. Thirty Milo robots were introduced last October as a way to help students with autism develop social skills. He shows more than 10 emotions and can act and dance. This all works in conjunction with scenarios played on a tablet.

Special education teacher Lynn Looney says her students have been fascinated by the new learning tool.

"They have a hard time reading people's facial expressions and this really teaches them things like that. Milo talks at a rate that's about 85 percent of normal. So it's a little slower because a lot of students with autism have processing disorders," says Looney.

It's an invention Watson hopes will continue in special education classrooms for years to come.

"When you have a child who talks and then they stop, for them to come back and actually talk to you, there's no greater thing. That in itself, you yearn for your children to talk to you and when you don't have that and something like this can bring them out of their shell, there's no greater joy," says Watson.

Students with autism find their voice thanks to interactive robot

By Sam Bleiweis | May 1, 2018 at 10:52 PM EST - Updated August 14 at 6:55 AM
LUGOFF, SC (WIS)

For kids with Autism Spectrum Disorder (ASD), the simplest of social interactions can be difficult. But, Lugoff Elementary in Kershaw County is one of several schools in 15 districts across South Carolina piloting a new program to help bring those kids out of their shells and teach them the basics of emotions and social interactions.

"Socialization is a very hard thing," said Lynn Looney, who teaches children with autism at Lugoff Elementary. "They're very literal and they don't always understand emotions and facial expressions so Milo has been a wonderful tool to teach them that."

The "Milo" she's referring to – is a robot! He models facial expressions and explains different social scenarios to kids with autism while walking them through modules and lessons. "Higher level students are able to use the techniques," Looney said. "And they're able to say 'I'm using Milo's techniques to calm down.'"

Carrie Watson has two children at Lugoff Elementary. Her oldest, Jacob, is 11 years old and in Looney's class. Her other son, Colby, is 7 years old and in the first grade. Both of her boys have autism.

"Colby's biggest thing is interacting with friends, space… the volume is a huge barrier for him," Watson said. "When Milo was introduced I've noticed him wanting to grow and greet friends, talking about keeping the space, talking about what's a good choice with friends, what's not a good choice with friends."

The South Carolina Department of Education launched a statewide three-year pilot of RoboKind's Robots4Autism program in the fall of 2017.
Kershaw County School District is one of 15 districts piloting the program.
WIS caught up with Colby as he worked through a greeting module with Milo. Milo would show Colby different scenarios and ask which greeting was appropriate for each scenario. Milo can also walk and show other aspects of social interactions – like the appropriate amount of space.

"He helps us," Colby said. "Space means you don't have to be too far away… you have to be medium. Not too close."
Carrie said Milo has helped both her boys – even with their differing levels of language barriers.

"The huge thing with children on the spectrum is their language barrier. A lot of them have a hard time communicating," Watson said. "People who don't understand autism don't understand that's a hard part for them. Having something like this is opening that door for them because their brain functions differently from a neurotypical child."

The program serves 8,000 students statewide. Watson said she hopes the program continues to help these kids find their voices – showing the rest of the world what she and so many other parents already hear, see and feel from their own kids.

"They have more love to give than anything," Watson said.

Attachement H: Media Video Reports

Kershaw County, WACH 57
Parent video on outcomes of ASD Pilot Program effects on her sons.
https://wach.com/news/local/mother-of-boys-with-autism-says-new-milo-robot-has-taken-them-out-of-their-shell

Spartanburg 2 School District
New robots at Spartanburg District 2 helping students with autism
https://www.wspa.com/news/new-robots-at-spartanburg-district-2-helping-students-with-autism_20180102075933628/896496024

Attachment I: Observational Form for Program Fidelity
Developed by Dr. L Kershaw, A. Roman, IT, and E. Moore, AT

Robots4Autism On-Site Visit Observation

District _____ Reviewer _____

Implementing Teacher /Therapist name _____ role _____

School _____ Visit Date/time _____

School _____ Visit Date/time _____

School _____ Visit Date/time _____

Technical
Evidence of Dedicated Access Point for Robots4Autism use only   Yes _____   No _____
Recommendations

Evidence that the Robot is working seamlessly   Yes _____   No _____

Robot physical motions Yes _____   No _____
Notes

Video Play Yes _____   No _____
Notes

Sound/Voice Yes _____   No _____
Notes

Screen   Yes_____ No _____
Notes

Lesson Observations

Observed Student in a lesson   Yes _____   No _____

Notes

Teacher sitting in appropriate position behind student facing robot Yes _____ No _____

Student at appropriate eye gaze position in front of robot   Yes _____ No _____

Student and teacher have working tablets   Yes _____ No _____

Student observed responding to program

Visual engagement   Yes_____ No _____
Verbal engagement   Yes _____No _____
Tablet response   Yes _____No _____

Strengths of Implementation

Challenges in Implementation

Monthly Usage Data Notes   Months Reviewed