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THE MATH ADDS UP

McCarthy-Teszler Improves Social-Emotional Outcomes for Autistic Students While Saving Thousands.

THE QUICK SNAPSOT

Case Study by Interactive Educational Systems Design

McCarthy-Teszler, a specialty school in South Carolina, works with 7 districts, drawing from 76 schools, to serve the highest-need special education populations. On average, McCarthy-Teszler educators work with 90 students on the autism spectrum during the course of the school day.

Originally, RoboKind's program was deployed as an assistive technology for improving social-emotional skill mastery. Administrators quickly realized it's impact as a multi-tier system of support. Specifically, the facility realized such significant reductions in behavioral incidents that several students returned to full-day, Gen Ed. classes. The net result: over $875k in estimated savings in Year 1 of the program.

Yes, the math adds up; but, improving educational and social-emotional outcomes for students with autism changed not only the students' lives, but those of their families and educators.

THE REAL IMPACT:

7 Districts, 76 Schools

$157K
Saved Per Student

Multiple students returned to half- or full-day schooling

Accelerated progress and mastery of IEP goals.

ROBOKIND®
ADVANCED SOCIAL ROBOTICS

LET'S DIVE DEEPER

Program Manager: Elena Ghionis

Professor of Education & Director of Converse College's SPED Program

At the start of the program, McCarthy-Teszler Autism Specialists were chosen and trained in a remote setting. Using video conferencing software, RoboKind trainers worked with each specialist, ensuring a comprehensive understanding of the program background, deployed evidence-based practices, and proper use of the technology and corresponding iPad application.

The 17 pK-12 students chosen for the program each had large deficits in communication & social skills, and struggle with emotion regulation. Additionally, these students had perviously shown limited or no progress toward IEP goals with other forms of therapy and intervention. Each week, students worked with Milo and a facilitator for two or three 30-minute one-on-one sessions. The initial phase of the program continued for 27 weeks. Lessons began with a short "game" involving Milo, a key component of the warm-up and skill assessment technique within the RoboKind program.

After the first 27 weeks, the Interactive Educational Systems Design team gathered data from both the McCarthy-Teszler and RoboKind teams. After a review period, they presented their findings.

Importantly, the results show that the RoboKind program accelerated IEP progress compared to other therapies. In fact, the Calm Down and Emotional Regulation modules helped seven students make enough behavioral progress that they returned to their home school. One of those students was placed back into General Education classes.

When extrapolating the qualitative impact and comparing it to the average spend on special education services per student, McCarthy-Teszler documented over $897k in first year savings and future cost mitigation. In short, the program heavily aligns to student success, not a reduction in services.

When asked about the results, Elena Ghionis commented, "We could not have good outcomes without Milo."

As of 2021, McCarthy-Teszler is in their 5th year of working with RoboKind.

> *One teenage student working as a cashier in the teacher's cafe was making change with her head down and no [facial] contact with customers when her teacher asked, 'What would Milo say?' Immediately the student turned her head, looked at the teacher, and said 'Here you go' as she was handing back change.*

The Impact

As originally presented by Interactive Education Systems Design, Inc., a 3rd party, education data analysis and research firm.

GARS-3 Data

Of the 17 students in the McCarthy-Teszler study, 8 showed improvements on both the 4-score index and the 6- score index on the GARS-3 (Gilliam Autism Rating Scale, 3rd ed.), comparing scores prior to use of the program with scores afterward.

Another 4 students showed reductions specifically in the area of restrictive repetition.

Lead autism specialist Elena Ghionis noted that this is a particular benefit of working with Milo:

"Many children with autism tend to use repetitive behavior as a calming behavior. Milo teaches alternative, socially acceptable, age-appropriate, calming behavior—so children have less need for restrictive repetitive behavior."

Progress Toward IEP Goals

Review of the students' IEP data and information from teacher records by the school's lead autism specialist showed that during the first nine week quarter before students started using the RoboKind program, all 17 students showed minimal progress toward their IEP goals.

However, over the next three quarters after they started using RoboKind's program, students showed significant progress or mastery related to their social, communication, behavioral, and academic goals.

General Impressions

Autism specialists who worked with the RoboKind program as facilitators thought the program had helped many of their students to:

- Recognize and communicate about their emotions,
- Express and regulate their emotions,
- Apply calming down skills, thereby reducing behavioral issues,
- Maintain eye contact with other people in social situations, and
- Engage in appropriate, two-sided conversation.

Specialists commented in particular on the value of Milo as a model for student interactions. For example, one teenage student working as a cashier in the teacher's cafe was making change with her head down and no eye contact with customers when her teacher asked, "What would Milo say?" Immediately the student turned her head, made eye contact, and said "Here you go" as she was handing back change.

Classroom teachers confirmed that students were enthusiastic about working with Milo, and that they were able to see the results of students' work with Milo in their classrooms.

Examples of Progress

Example #1:
An elementary student on a half-day schedule due to severe behavioral issues was able to go to a full-day schedule after working with Milo.

Tantrums and aggression decreased to no more than twice a day, and he is now able to self-regulate his emotions by removing himself from a whole-group setting to sit alone in a calming area.

He improved from being resistant to using the toilet to following a toileting schedule with minimal prompts and very few accidents.

Where before he was able to follow along with a story that was being read to him, he now reads some books independently—a change the autism specialist attributes in part to interaction with Milo.

Example #2:
After working with Milo, another elementary student, whose only oral speech had involved repeating words and phrases without functional meaning (echolalia), starting using verbal language for simple forms of communication.

Communication using an assistive device also became much more in-depth. The student's behavioral issues (e.g., screaming, hitting, and

The Impact (continued)

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kicking) were greatly reduced. He was able to identify and communicate how he was feeling, where before he had made no attempts to play, interact, or communicate with others.

Example #3:
One elementary student who did not show a gain on the GARS-3 index nonetheless made an important transition while working with the RoboKind program.

Prior to use of the program, he was able to use an iPad as an assistive communication device, but could not speak. After using the program, he was able to speak functionally.

Example #4:
A high school student who before working with Milo used to make multiple verbal outbursts in the classroom, did not readily look at people, and had problems interacting appropriately with others, has now reduced the number of verbal outbursts she makes, is doing a better job with eye contact, and engages more appropriately with both peers and adults.

Where before she was unable to functionally communicate her emotions without shutting down, now she can identify and demonstrate multiple emotions, including happy, sad, angry, hurt, tired, and worried. Her interactions with others has grown to include socially appropriate greetings and reciprocal conversations.

Key Lessons Learned

While initial implementation proved an easy process, deploying the program effectively for each student took some time. This was expected given the unique circumstances of each student. In particular, facilitators noted that RoboKind was very open and willing to making adjustments to the modules and program features on an ongoing basis in response to problems or other obstacles.

Specific lessons mentioned by the McCarthy-Teszler educators include:

- In order to interact successfully with Milo, students need to be able not only to verbalize but also to listen and talk/communicate with understanding. For some low-functioning students, the facilitator had to rephrase a question asked by Milo. In other cases, the facilitator had to switch to simpler modules when students couldn't pick up on small details of the video interaction.
- For five of the lower-functioning students, the facilitator found it useful to pre-teach symbols used in the program before having students use them with Milo.
- While some students loved Milo from the first, others needed more time. For example, one student was initially scared of Milo and wouldn't go anywhere near the robot. Over time, the facilitator moved the child's workstation progressively closer to Milo so he could see Milo interacting with another student. Then the facilitator had the student interact with Milo using the iPad from across the room. Now the student loves working with Milo.

For more information regarding this impact report or any other case studies, visit our website:

https://www.robokind.com/impact-reports

Or, to schedule a demo of the RoboKind Social-Emotional Robotics and Curriculum program, pick a time on our calendar!

You can also email our team at milo@robokind.com!