

SOCIAL AND AFFECTIVE NEUROSCIENCE OF AUTISM LAB

Official Laboratory Newsletter



Photo courtesy of Yale University and Jack Devlin

Welcome

Happy New Year to all of you from all of us at the Yale Social and Affective Neuroscience of Autism Program! We hope you have all been well during this tumultuous period of the pandemic. We have continued welcoming families safely to our clinic and research lab for in-person visits. As always, we adhere to guidance provided by the CDC and Yale's Office of Environmental Health and Safety. Our study schedule has been quite busy, with visits from pregnant moms, newborns, infants, toddlers, and school-age children on a daily basis!

In this month's Newsletter, we bring you news about our recent Autism Center of Excellence grant submission (p. 2), the 2021 Yale Child Study Center Associates Meeting (p.3), excerpts of media coverage of our recent study on children's attention to puppets in collaboration with the Henson Foundation (pp.4-5), as well as our participation in their outstanding Puppetry Workshop (pp.9-11). We are proud to include a wonderful piece from our own Mariana Torres-Viso, PsyD, Helping Your Child Regulate (pp. 7-8). In this article, she explains the distinction between social-emotional and behavioral strategies for regulation and suggests including both approaches in your child's treatment program.

Thank you for your commitment to our work and we look forward to seeing you soon. Stay well!

ACE Grant Submission

By Emma Brennan-Wydra

Did you know that most of the research in the SANA Lab is funded by grants from the National Institutes of Health (NIH)? The NIH is the largest public funder of biomedical research in the world and invests more than \$32 billion each year in research programs such as ours.

The grant money that we receive from the NIH and other funding sources is used to:

- Support the salaries of our research and clinical staff
- Purchase research equipment and supplies, which includes everything from the fun toys used in our assessment procedures to our state-of-the-art eye tracking machines
- Pay for special research procedures such as fMRI scans
- Provide tokens of our appreciation (such as onesies, toys, and gift cards) to children and families who participate in our research studies
- ...and much more!

As you can see, grants play a major role in supporting all aspects of our research studies – but unfortunately, the NIH doesn't automatically give us money just because we have a cool idea for a study! Instead, researchers must submit grant applications, also known as proposals, which are then reviewed by a panel of expert scientists. Only the grant applications with the highest potential to produce life-enhancing scientific breakthroughs are selected by these expert reviewers to receive funding.

What does a grant application look like? The application itself consists of dozens of different documents that describe:

- The overarching motivation for the research studies we plan to do
- Descriptions of our research hypotheses, what data we plan to collect, and how we will analyze that data in order to prove (or disprove!) our hypotheses
- Estimates of how many children and families we will need to enroll in our studies to ensure we will be able to draw valid scientific conclusions from our data
- Preliminary results demonstrating that our studies are feasible
- Plans for protecting our participants from any risks that might be associated with participating in the research
- Descriptions of our research team as well as our facilities, equipment, and other resources
- Plans for how we will share our research findings with the community

Our research team recently submitted an NIH grant application that, if selected for funding, will allow us to continue our Autism Center of Excellence (ACE) research studies for another five years. Preparing the grant application took us a lot of hard work over several months. In total, the application was 790 pages long! We won't find out until next summer whether our proposal will be funded – so keep your fingers crossed until then!

2021 Associates Meeting

The 2021 Associates Meeting at the Yale Child Study Center was held virtually. Please take a look at these posters from our group, summarized below!

Regulatory Strategies, Emotional Expression, and Physiological Responses During a Frustration Task in Toddlers with and without ASD.

A. Boxberger, E. Diamond, C. Banarjee, R. Foster, K. All, B. Gordon, V. Donthireddy, E. Brennan-Wydra, K. Powell, S. Macari, A. Verneti, K. Chawarska

Toddlers with autism spectrum disorder express similar behavioral and physiological responses to frustration as typically developing peers, but use different emotion regulation strategies.

Toddlers with Elevated Autism Symptoms Show Limited Attention to Familiar Faces during Live Eye-Tracking Interaction.

A. Verneti, C. Banarjee, A. Boxberger, E. Diamond, K. All, S. Macari, K. Chawarska

From the screen to real life: First demonstration of feasibility of capturing attentional vulnerabilities of toddlers with autism during face-to-face interaction with a parent. Cutting-edge paradigm can be used in pre-symptomatic infants to detect early signs of autism.

Salience Network Functional Connectivity Predicts Attention to Faces in Neonates with Familial History of Autism

A. Verneti, R. Ray, D. Scheinost, L. Ment, S. Macari, H. Neiderman, C. Nutor, C. Gershman, H. Feiner, R. Foster, T. Constable, J. Chang, & K. Chawarska

First demonstration that brain connectivity at birth predicts later attention to faces, which constitutes one of the core symptoms and one of the earliest markers of autism in infancy.

Sharing Joy during Puppet Shows: Toddlers with Autism Spectrum Disorder Share their Positive Affect as Frequently as Typically Developing Controls

E. Diamond, K. All, C. Banarjee, B. Gordon, R. Foster, A. Boxberger, V. Donthireddy, E. Brennan-Wydra, A. Verneti, S. Macari, & K. Chawarska

Toddlers with autism spectrum disorder share positive affect with their parents as frequently and as long as typically-developing peers during a joy-eliciting puppet show.

[Click here to view these posters and more!](#)

The Power of Puppets

Interacting with puppets may represent an intermediate step in helping toddlers with autism develop better engagement skills with human social partners



Our recent study, conducted in collaboration with the Jim Henson Foundation, showed that puppets can attract and hold the attention of children with autism similarly to peers with typical development. This suggests that puppets may help to foster social engagement and learning in children with autism.

The study, published in the journal *Autism Research*, was the first to illustrate that children on the autism spectrum, like their peers, attend well to puppets. When shown a brief video of a conversation between a puppet, Violet, and a person, young children with ASD paid as much attention to the puppet's face as typically-developing children. Notably, the severity of autism symptoms had no notable effect on the results; often, children with more severe autism symptoms are more difficult to engage, but that wasn't true with the puppets.

Since puppets can engage in back-and-forth interactions and model social interactions and communication, they may play a promising role in interventions for young children with ASD.

"...we found that while children with autism paid less attention than typically developing peers when an interactive partner was human, their attention was largely typical when the interactive partner was Violet, the puppet," said study lead author Katarzyna Chawarska. "Our findings highlight the attentional and affective advantages of puppets which, hopefully, can be harnessed to augment the therapeutic efforts in children with ASD."

Puppets, she notes, tend to inspire a lot of smiling and laughter and general positive emotion in people. Positive emotion, in turn, releases dopamine, which is important to processes such as learning, memory, and motivation. If puppets can make children with autism happy, that could suggest a distinct capability for teaching.

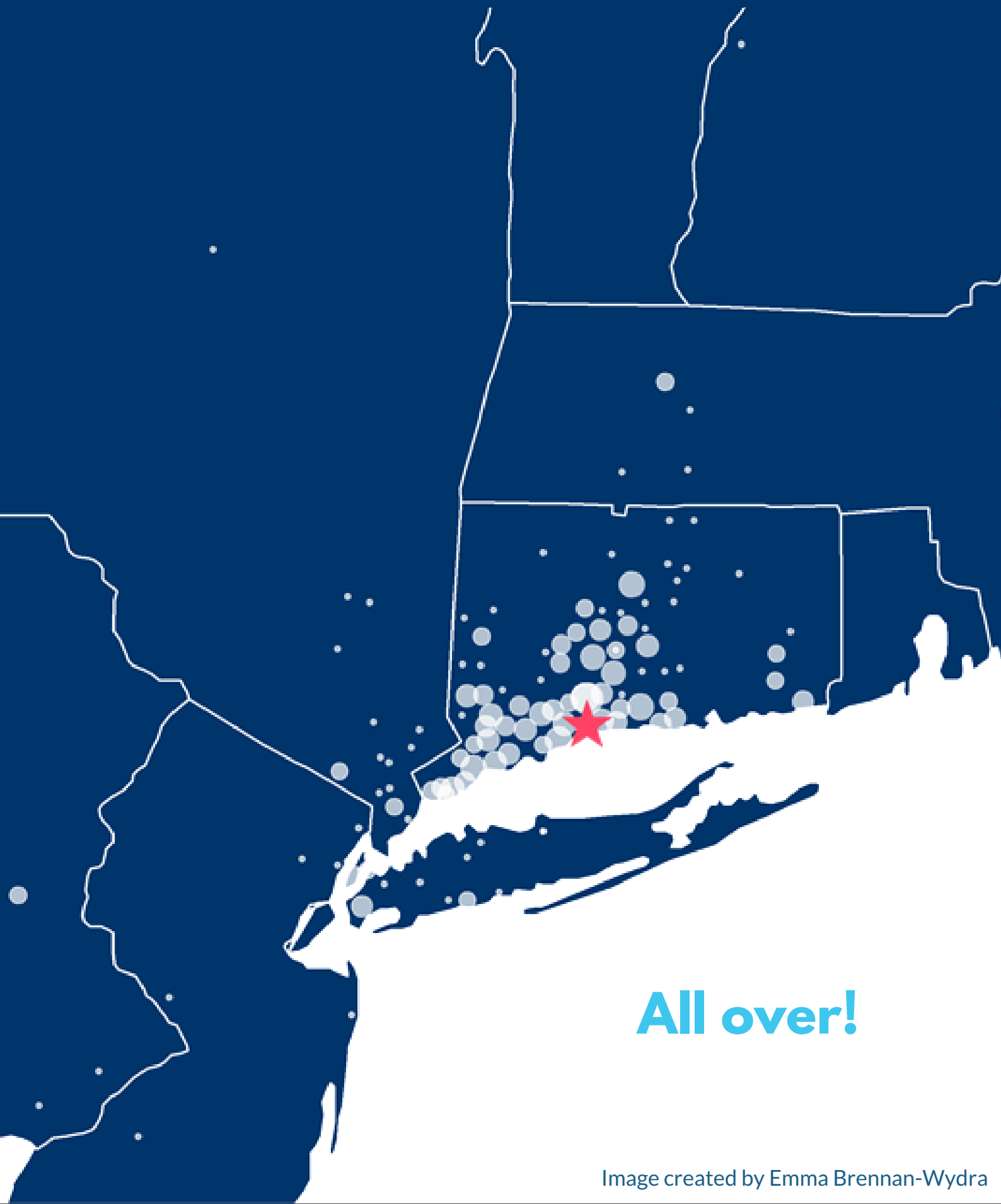
This potential to elicit joy among children with autism is a very important ingredient," Chawarska says. "That would enhance the children's motivation to engage—and, perhaps, facilitate how well they learn in a therapeutic context." We are grateful to all the children and families who participated in this study.

Above excerpts from the Yale Alumni Magazine article:

[*A Path to Joy \(click to read full article\)*](#)



Ever wonder where our participating families come from?



All over!

Helping your child regulate:

Combining social-emotional and behavioral strategies

By Mariana Torres-Viso , PsyD, BCBA-D, LBA

Many children, including children with ASD, struggle to tolerate feelings of discomfort, to communicate their needs to others, and to bring themselves to a self-regulated, calm state. Moreover, caregivers may receive what sometimes feels like contradictory advice on how to help their child during an emotional breakdown – “Do I ignore their behavior and wait for them to stop?” “Do I hug them?” “Do I validate their feelings?” “What about a distraction?” This, in turn, can make adults who are hoping to support the child feel even more overwhelmed and frustrated, which we know won’t help the situation!

This difficulty around emotional regulation is part of children’s jobs of “growing up,” and their developmental stage will play a role on what they will have the capacity to do. Learning what it feels like to have Big, Uncomfortable Feelings, and how to manage them, is something many of us continue to grapple with! Sometimes children may learn that loud and disruptive ways of showing feelings (e.g., hitting, throwing, screaming) can get the attention – and support or comfort – of others, and that it may even lead to preferred outcomes. However, this is not always the case. Other times, the Big, Uncomfortable Feelings are so distressing that children (and adults!) may resort to external ways of getting those feelings out.

Why is this distinction important? Because understanding the factors that may lead a child to experience a meltdown tends to inform how people respond to them. For instance, for those children who we understand as using hitting, screaming, or tantrums as a way of communicating a want or need, we tend to teach them Replacement Skills, or a new way for the child to ask for what they want. This may include asking for a break (e.g., “Can I do this later?”), for attention (e.g., “Can you play with me?”), for a specific toy (e.g., “Can I have the iPad?”), or others. Conversely, for children whose behavior we understand to stem from an inability to appropriately defuse the Big, Uncomfortable Feelings, our approach tends to veer towards teaching Coping Skills, or new ways for the child to identify and “lower the volume” of physiological and emotional discomfort without having to resort to disruptive behavior. This may include deep breathing, progressive muscle relaxation, or retreating to a calming space.

“Coping Skills versus Replacement Skills” seems to be a common dilemma experienced by caregivers and professionals alike. However, what is unclear is why we are asked to separate, rather than join, these two approaches! Why not teach a child how to self-regulate AND to self-advocate? Coping and replacement skills play distinct yet complementary roles in a child’s emotional/behavioral “toolbox:” Coping skills help us to tolerate and lower internal distress, but they do not tell us what to do with the situation that evoked the distress. Replacement skills, on the other hand, help us approach the evocative situation in a different way, but they do not always help us self-regulate. In essence, if a child experiences a meltdown when they finish their favorite snack, deep breaths may calm their body, but they will not magically result in more food, while asking “Can I have some more, please?” may lead to a second helping, but the act of making that statement will not magically result in the child returning to a calm state. In fact, dysregulation may even prevent them from seeing that they already have more snack!

This combined approach of Coping and Replacement skills can have a range of benefits. First, teaching children the purpose of each skill, what it does, and what it does not do (coping skills as “Things I can do to help me feel calm and comfortable” and replacement skills as “New ways for me to ask for what I need”), may increase their buy-in to trying these strategies as well as their likelihood of success. Second, caregivers would naturally have the opportunity to teach that many situations actually require both skills: “First, check and help your body feel comfortable, and then ask for what you want.” Finally, by helping children to pause, self-regulate, and then self-advocate, we are increasing the likelihood of their voice being heard, and of adults knowing how they may help and when. Taking and combining social emotional and behavioral approaches to help a child self- or co-regulate may therefore increase their likelihood of successfully managing a variety of stressful situations!

If this sounds like an interesting idea, talk to your child’s providers to get a sense of how this combined approach may benefit them! Recommendations and strategies will likely vary based on your child’s developmental level, their goals, strengths, and areas of need.

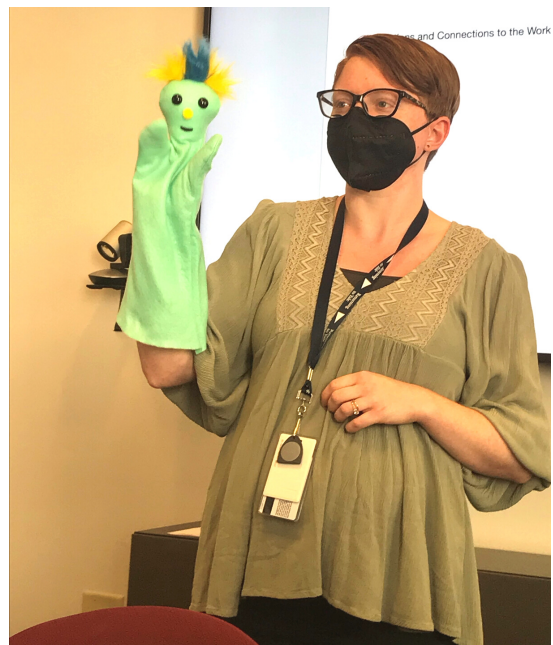
Henson Foundation Puppetry Workshop

By Brigid Gordon, Research Assistant

Not many people can say they have gotten to play with puppets at work, but the members of the Yale Child Study Center's Social & Affective Neuroscience of Autism Lab can! On October 20th, members of the lab, myself included, had the wonderful opportunity to participate in the Henson Foundation's "Making Connections Through Puppetry" workshop. The workshop, led by Cheryl Henson, president of the Jim Henson Foundation, and professional puppeteers Lindsey "Z." Briggs and Adelka Polak, focused in on how clinicians and researchers can use puppetry to build engagement, connections, and relationships with children with neurodevelopmental disorders. On the road to this goal, participants were taught the basics of puppetry performance and technique...and had a massively fun time!

Upon entering the conference room, participants were greeted by puppet "kits" with their names on them. Each kit contained, among other things, a unique, customized hand puppet that would be our companion for the day's journey. Mine, mint green with a yellow pom-pom nose and multi-colored tufts of hair, I affectionately named "Toby".

After everyone had settled in with their new friends, Cheryl Henson delivered the keynote presentation on the amazing connections that puppets can make to those with autism and related neurodevelopmental disorders. Many of the touching anecdotes contained within were stories of parents who had previously struggled to bridge communication with their children but found surprising success with puppets. I was struck by the nuanced emotions puppets seemed to draw out of these children when other forms of connection had failed.



Research Assistant Brigid Gordon demonstrates use of a hand puppet

Our fearless leaders in puppetry didn't leave us sitting for long, however! Soon we were up and circling about the room. Z encouraged us to link our puppets with our own breath and movement, using them as an extension of ourselves. We tried various exercises such as "noticing" objects in the room with our puppets, mirroring movements with a partner, and saying "hellos" and "goodbyes". In another exercise we learned the basics of lip syncing. We all got to see a wonderful duet performance by Cheryl and Z in the process, and even practiced a little lip syncing ourselves! Smiles and laughter abounded as we all discovered the basics of performing with our puppets.

Following, Z gave an informative keynote presentation on different kinds of puppets, puppet displays, and applications of puppets in classroom and therapy sessions. One application was different classrooms having puppet "pets" that the class would take care of and interact with during circle/table-time. These puppets gave the children a chance to learn appropriate social interactions and communication skills that they might otherwise have a difficult time learning. Z showed us different videos of "breakthrough" moments that children had in this structure. One was of a little boy, normally reticent and withdrawn, singing aloud with the puppet during table time. It was inspiring to witness how a simple puppet could facilitate such meaningful connection.



Z Briggs (left) and Cheryl Henson (right) present two different styles and functions of puppets



Z Briggs demonstrates a hand puppet picking up a block (photo courtesy of Adelka Polak)

As the workshop wound down, we were encouraged to apply what we had learned. A few members of the lab, myself included, were invited up to introduce their puppets. “Toby” and I went up and greeted the crowd, chattering about how friendly he was and how much he loved high-fives. Another’s puppet was shy and needed some coaxing to come out of their shell. Still another was a puppet ready and eager to watch eye-tracking movies with the participants. It was awesome to see the lab members’ creativity shine through as we built our puppet personalities and thought of ways we could apply puppet use in the lab and research.

As we wrapped up, Z and Cheryl encouraged us to use the time between this first session and the next, scheduled for December 8th, to use the puppets in the lab with our participants. We were challenged to report back about how things had gone, and if we had made any of our own connections with the children we work with using our new puppetry skills. The lab members set off to discover these new connections, puppet partners close at hand.



Closeup of a hand puppet (left), and Cheryl Henson demonstrating additional styles of puppets (right)

For the Little Ones:
It's coloring time!

SANA



Artwork by Chippy Banarjee

LEARN A MOTIVATION-BASED EARLY
AUTISM INTERVENTION FROM A FREE
APP ON YOUR PHONE...

UC SANTA BARBARA
Koegel Autism Center

THE UCSB KOEGEL AUTISM CENTER IS NOW ENROLLING
FAMILIES IN A RESEARCH STUDY OFFERING AN APP-
BASED PARENT TRAINING FOR CHILDREN WITH AUTISM
(1 - 4 1/2 YEARS OLD)

Participation is free and families will be compensated up to \$90 for
completing our self-paced, app-based program and survey measures

Visit www.education.ucsb.edu/autism/research/prtapp
or scan the QR Code to learn more or enroll...

This research is funded by the Department of Defense (CDMRP Autism Research Program)

[Our colleagues at UC Santa Barbara](#) are recruiting parents to participate in an app-based research project called [Pivotal](#), which teaches them the basics of Pivotal Response Treatment and allows them to record, review, and upload videos of them practicing with their child. It is intended for families with kids ages 1 - 4.5 years old who are nonverbal or currently use single words. It is a free training opportunity, and families are compensated up to \$90.



Family Corner

We Want to Hear From You!

Let us know how your family is doing! You can send us updates, pictures, and cards to:

Yale Child Study Center
Developmental Disabilities Program
Social Neuroscience Laboratory
300 George St. Suite 900
New Haven, CT 06511

New contact info? Let us know with an email to sanalab@yale.edu

"It takes away my worries and my anxiety and my wondering because I don't have to wonder. I'll know just as soon as any signs (of ASD) are evident."

Melissa Patao, Autism Center of Excellence Parent

"It has been a pleasure being a part of the ACE prenatal and newborn studies. The staff and clinicians are extremely knowledgeable, kind, and helpful. The visits get more and more fun for my son as he gets older, and I find it interesting to learn about his development at each visit."

Deanna Macris, Autism Center of Excellence Parent

*"We appreciate the opportunity and the time the team dedicated my son. [He] truly enjoyed playing with you all. You are all so special for all that you do!
Happy Holidays team!"*

Sandy Cuapio-Romero, Autism Center of Excellence Parent



Members of the team learning to use their hand puppets at the Henson Foundation Puppetry workshop

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INTERESTED IN PARTICIPATING?

Call our program manager, Karen Franchi, at (203) 764-5933

