

# Young Children with Autism Spectrum Disorder

## Increasing Social Communication with Evidence-Based Practices

Christan Grygas Coogle, Naomi L. Rahn, Jennifer Riggie Ottley, and Ashley Zehner

Four-year-old Dominick, identified with autism spectrum disorder, is in an inclusive preschool classroom. He spontaneously uses several single words, like *ball* and *chair*, and is beginning to put two words together to form phrases (“Ball, please”). When Dominick can’t get a toy he wants, or when he doesn’t want to take part in an activity, he screams and throws himself on the floor. Ms. Susan has attempted to model more appropriate behaviors, but once Dominick’s protests escalate into tantrums, he doesn’t listen to anyone.

Ms. Susan would like to increase Dominick’s ability to communicate and eliminate his tantrums. She has tried a number of behavior strategies but has not found any that work. She wants to help Dominick be successful with communication and ensure a safe classroom environment.

**C**hildren identified with autism spectrum disorder (ASD) experience difficulties with social communication, which frequently results in challenging behaviors (Barned, Knapp, &



Neuharth-Pritchett 2011). As ASD has become far more common—with an estimated one in 68 children now identified (Centers for Disease Control 2014)—it is imperative that educators have more evidence-based, practical information about supporting the learning and development of children with ASD.

In this article, we examine the types of challenging behaviors that children with ASD frequently exhibit (especially as the result of communication difficulties), explore the types of responses by educators that tend to unintentionally reinforce those behaviors, and explain three more beneficial practices for teachers to use in their classrooms. Teachers may find that

these practices are helpful with a wide range of children who persistently engage in challenging behaviors. Still, our focus is on children with ASD because of the increasing prevalence of ASD and the complexity of working with children with communication difficulties.

## Understanding and replacing challenging behaviors

When challenging behaviors are persistent, they are probably being unintentionally maintained by something in the classroom environment. Therefore, they are unlikely to change without effective intervention (Horner et al. 2002). For example, almost every day when free play time is over, Ms. Susan asks Dominick to put away the blocks, picking up one herself and putting it on the shelf. Dominick starts shouting, and Ms. Susan gives the block back, saying, “You can have two more minutes.” Here, shouting is a challenging behavior unintentionally reinforced by the teacher’s acquiescence.

### When challenging behaviors are persistent, they are probably being unintentionally maintained by something in the environment.

To stop unintentionally maintaining such behavior—and to support children in learning a new, replacement behavior—educators need professional development (Snell et al. 2012). The early education field has acknowledged that there is often a gap between classroom practices and practices that are evidence based (Odom 2009). Therefore, the purpose of this article is to help bridge that gap.

Before attempting to address a challenging behavior, it is important for the team working with the child (i.e., teacher, family, and related service providers) to collaboratively conduct a functional behavior assessment. This is both an evidence-based practice (Wong et al. 2014) and a Division for Early Childhood (DEC) Recommended Practice in the instructional topic area (DEC 2014). The functional behavior assessment process helps the team determine

- › The antecedent, or what occurs immediately before the behavior (Ms. Susan asked Dominick to put away the blocks)
- › The function of the challenging behavior—to obtain attention, obtain a desired item, be given help, escape an undesired activity, avoid interaction with a peer, escape sensory stimulation (Horner et al. 2002)
- › The maintaining consequence or action (Ms. Susan allowed two more minutes after Dominick shouted)

Once the team identifies the function of a behavior, it is essential to intentionally identify an appropriate replacement behavior that will be easy for the child to do and more effective than the challenging behavior. Intentionally identifying an appropriate behavior that is just as easy to engage in as the challenging behavior is the key to the child choosing to use the new behavior. For example, if a toddler who has difficulty with verbal communication regularly climbs on furniture to obtain items that are out of reach, appropriate replacement behaviors could include the child pointing to the desired item or giving a picture of the item to an adult. Of course, the adult will need to respond warmly and promptly to reinforce the toddler’s engaging in the appropriate behavior.

## Practices for teaching appropriate behaviors

After Ms. Susan collects data throughout all activities, she and the rest of Dominick’s team note that every time Dominick has a tantrum, he is either given the desired item or is removed from the group. They identify Dominick’s tantrum behavior as serving the functions of attaining desired objects and escaping undesired activities. Team members feel that a more appropriate behavior to teach Dominick is the use of single-word communication to attain items and to escape uncomfortable situations. Even though Dominick is already capable of using single words to communicate, he tends to do so only in low-stress situations. Therefore, the team recognizes that to teach Dominick to use effective communicative behavior in lieu of his tantrum behavior, they need to give him systematic instruction on specific single words to vocalize.

Ms. Susan and the rest of Dominick’s team are on the right track. They have determined *what* to do—but *how* should they do it? How does an adult help a child with ASD replace tantrums with words? By working with children and teachers, researchers have identified several effective, evidence-based practices (Wong et al. 2014). Here, we explain three of them: discrete trial teaching, functional communication training, and naturalistic intervention. (For a brief overview of each practice, see “Evidence-Based Practices for Increasing Desired Behaviors,” on page 84.) These practices can be embedded in natural environments, as shown in the following examples and vignettes that describe their use across classroom routines and activities.



Evidence-based practices must be used with fidelity—that is, carried out as intended—to ensure their effectiveness (Cook & Odom 2013). Because these interventions are complex, practitioners often require training in order to use them with fidelity (Stahmer et al. 2015).

### **Discrete trial teaching**

In implementing this practice, the teacher uses repeated trials to teach specific skills (Fleury 2013; Wong et al. 2014). The teacher carefully plans antecedents, such as Ms. Susan telling Dominick it is time to put away the blocks, to create opportunities to practice a skill, and the teacher also plans consequences in order to be prepared to reinforce desired skills (or, early on, reasonable attempts at desired skills). The teacher then delivers the instruction using a highly structured series of teacher-directed steps (Fleury 2013; Wong et al. 2014). In discrete trial teaching (DTT), target child responses—that is, the responses desired for the child—are selected based on an inventory of current student skills. Those skills in which the child has less proficiency are selected and precisely defined (Holding et al. 2011), but the desired new skill should not be very difficult. With Dominick, Ms. Susan may begin with teaching him to say “blocks” when he wants more block time, instead of having a tantrum. Once he is consistently responding with “blocks,” she may teach him “more blocks” and eventually “more time with blocks.”

Discrete trial teaching has four steps: (1) presenting the planned antecedent to create the opportunity to practice, (2) observing the child’s response, (3) providing a consequence that intentionally rewards appropriate behavior or avoids reinforcing inappropriate behavior, and (4) pausing before beginning the process again with the first step (Anderson, Taras, & O’Malley-Cannon 1996).

One of Dominick’s individualized education program objectives is to use single words to make requests. The team agrees that this would be an appropriate replacement behavior for Dominick’s tantrums. Because Dominick is still gaining proficiency in effectively using single words to request objects, information, and attention (Ms. Susan has observed him grabbing activity materials during small group instruction), Ms. Susan decides to use discrete trial teaching to help him learn how to ask for objects.

Since Dominick loves to build with blocks, Ms. Susan purposefully sets the box of blocks out of his reach. When Dominick tries to reach the box, Ms. Susan pulls out two blocks, holds them up, and models communicating by saying “blocks.” Ms. Susan continues to prompt him to use the single word request until he is successful. By immediately giving him two blocks and smiling, she reinforces him for saying “blocks.” Knowing

that he wants lots of blocks to build with, she then asks if he wants more blocks. Since she has set the whole box of blocks out of his reach, she can rapidly lead Dominick through several trials.

Ms. Susan will continue to use discrete trial teaching during one-on-one sessions with Dominick until he becomes proficient in asking for many classroom materials, such as paper, crayons, and felt. Then she will create new opportunities to use his single-word communication skill during small group activities to determine whether he has generalized this skill to other situations, ensuring that he names the desired object before reinforcing his request.

For example, as Ms. Susan helps Dominick learn to say “more” to request more food during snack time, she shows him a picture symbol of a cheese cracker. If he says “more,” Ms. Susan gives him a cheese cracker, then pauses before repeating this process. Ms. Susan repeats this sequence multiple times during snack time. If Dominick tries to obtain more crackers in an inappropriate manner (grabbing the box of crackers), then Ms. Susan offers corrective feedback, pauses, and begins another trial.

### Functional communication training

Functional communication training (FCT) is an evidence-based practice that emphasizes meaningful—though not necessarily verbal—communication. Unlike discrete trial teaching, which can be used for

purely behavioral learning—like deep belly breathing to calm down—functional communication training always focuses on helping the child express himself. Pointing (and other gestures), signing, using pictures, and speaking are all reasonable options. When identifying an appropriate communicative behavior to teach, it is critical that the teacher consider a number of factors, including (a) the child’s development and current abilities, (b) the feasibility of teaching and reinforcing the behavior, and (c) the efficiency of the new communicative behavior in serving the function of the challenging behavior (Gibson et al. 2010).

For example, if a child has difficulty saying “I don’t like that” or “no” to indicate dissatisfaction with an environmental context, such as other children crowding her space, the child may show aggression toward herself, her peers, or adults. Using functional communication training, the teacher could support the child in replacing her aggressive acts with holding up one hand, flat with fingers up, to express that she needs a break.

When it is time for music and movement, Dominick tends to experience challenges. He throws tantrums, which Ms. Susan frequently (and unwittingly) reinforces as a successful escape strategy by removing him from the activity. She wants to prevent him from harming himself or others.

Today, before music and movement begins, Ms. Susan approaches Dominick and provides

## Evidence-Based Practices for Increasing Desired Behaviors

Evidence-based practice	Definition	Notes for implementation
<b>Discrete trial teaching</b>	The use of antecedents and consequences during structured one-on-one teaching	<ul style="list-style-type: none"> <li>■ Select highly motivating reinforcers</li> <li>■ Provide feedback on the child’s response</li> <li>■ Fade prompts as the child’s mastery increases</li> <li>■ At the beginning of each session, deliver a maintenance trial to ensure mastery of previously acquired skills</li> </ul>
<b>Functional communication training</b>	A systematic practice that aims to replace a child’s inappropriate behavior with effective communication	<ul style="list-style-type: none"> <li>■ Ensure that when the communication is used, it serves the same function for the child</li> <li>■ Select a form of communication that is appropriate for the child and recognizable to others in the environment</li> <li>■ Consider the antecedents, such as people and places that trigger challenging behaviors</li> </ul>
<b>Naturalistic intervention</b>	The encouragement of specific target behaviors, based on a child’s interests	<ul style="list-style-type: none"> <li>■ Follow the child’s lead throughout the activity</li> <li>■ Select behavioral intervention strategies that can easily be embedded into the child’s typical routines and activities</li> <li>■ Respond to all communicative attempts as if they were purposeful</li> </ul>



a choice—offering “movement” or “break.” When Dominick says “break,” Ms. Susan allows him to go to a quiet area of the room where he can listen to music using headphones. In this way, Dominick uses an appropriate behavior (one-word communication) in making a request, and this appropriate behavior results in a desired outcome (his removal from the activity), as opposed to Dominick’s being removed due to a tantrum.

### Naturalistic intervention

Naturalistic intervention is a combination of practices that are designed to capitalize on children’s interests and to be used in their everyday settings. Naturalistic intervention includes arrangement of the environmental and adult–child interaction techniques used during typical routines and activities (Wong 2013; Wong et al. 2014). There are a variety of naturalistic interventions (such as Hanen Centre’s More Than Words, Enhanced Milieu Teaching) that systematically embed these practices across activities and routines to ensure children get many opportunities to develop new skills (Lane, Shepley, & Lieberman-Betz 2016). One common element among the interventions is the responsiveness of the adult in reinforcing the child when the child practices a target skill (Lane et al. 2016). There are also many effective naturalistic strategies that can be used to create opportunities for a child to practice communication (Coogle et al. 2013).

For example, once Dominick makes progress in requesting blocks through discrete trial teaching, Ms. Susan may create some naturalistic opportunities for practicing the same skill. She may put his favorite truck out of reach, support him in saying “truck,” and give it to him only after he has said “truck.” Unlike the blocks, which provide an opportunity for repeated, rapid trials (if she gives him two at a time), she would naturally give him the truck once and then allow him to immediately play with it. To naturalistically repeat this practice, she could put the truck out of reach again before Dominick arrives the next morning.

## What Is the Difference between Discrete Trial Teaching and Naturalistic Intervention?

Discrete trial teaching is similar to naturalistic strategies because with both practices, the teacher provides multiple opportunities to practice a skill. However, DTT differs from other more naturalistic methods because the sequence of steps might take place in an environment that is not natural to the child—or the environment (like the classroom) might be natural, but the repetition of practicing the skill several times in rapid succession is not natural. Moreover, DTT is carefully planned prior to the sequence taking place, as opposed to a teacher capitalizing on opportunities incidentally as they arise throughout the day.

Discrete trial teaching has been criticized for being a strategy that makes using the skill in new and different situations difficult for children because the teaching traditionally takes place in a one-on-one setting with minimal distractions; however, it is also recognized as an effective practice to support children’s acquisition of new skills (Holding, Bray, & Kehle 2011).



Ms. Susan notices that Dominick really enjoys swinging at recess. Because she is working with Dominick to use single words to attain materials, during planning time she decides to use the playground as an environment in which to give Dominick an opportunity to use expressive communication to request a desired activity.

Ms. Susan makes her way to the swings ahead of Dominick. She holds a swing in her hand

and prompts Dominick to say “swing.” When Dominick approximates “swing,” Ms. Susan gives him the swing and one big push. When the swing slows to a stop, Ms. Susan pauses, looks expectantly at Dominick, and asks, “Swing?” She waits until Dominick says “swing” and then gives him an additional push. In this way, she capitalizes on his interest and provides multiple opportunities for him to practice an important skill that can prevent challenging behaviors.

## Conclusion

Young children with autism spectrum disorder frequently engage in challenging behaviors due to their social communication difficulties (Buschbacher & Fox 2003). To reduce challenging behaviors, it is important to use a functional behavior assessment and to identify a desired replacement behavior that is just as easy and more effective for a child to implement than the challenging behavior. The team should consider what types of supports might be necessary to help the child be successful in using the replacement behavior. For example, some children may need a communication system, such as assistive technology (e.g., a visual picture system, communication applications on a tablet, or a communication button), or other types of visual or organizational supports (e.g., social stories, video modeling, and management systems) to succeed. Once a team identifies an appropriate replacement behavior, systematic instruction is necessary to teach the child the new social communication skills.

**Intentionally identifying an appropriate behavior that is just as easy to engage in as the challenging behavior is the key to the child choosing to use the new behavior.**

Providing differentiated supports for children who use challenging behaviors is critical because without effective intervention, challenging behaviors will persist (Horner et al. 2002). Discrete trial teaching, functional communication training, and naturalistic intervention are research-validated methods that early childhood practitioners can use to increase appropriate

behaviors among students with ASD across a variety of activities and routines in their natural environments. We recommend that practitioners consider using these practices to teach social communication skills and seek additional training (through the resources listed in the box opposite), so the practices are implemented with fidelity.

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## Web-Based Resources for Using Evidence-Based Practices

- **IRIS Center**—Reviews the process, from identifying the function of a challenging behavior to identifying a replacement behavior and implementing an evidence-based practice. <https://iris.peabody.vanderbilt.edu/module/asd2/cresource/q1/p02/#content>
- **Autism Internet Modules**—Provides access to several modules on a variety of best practices. It does require a complimentary sign up. [www.autisminternetmodules.org/dash.php?cat=dash\\_tab\\_mn](http://www.autisminternetmodules.org/dash.php?cat=dash_tab_mn)
- **The National Professional Development Center (NPDC) on Autism Spectrum Disorder**—Has information on evidence-based practices that have been identified and an overview of each practice. <http://autismpdc.fpg.unc.edu/evidence-based-practices>
- **NPDC on Autism Spectrum Disorders**—Has information on discrete trial training. <http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/imce/documents/Discrete-Trial-complete10-2010.pdf>
- **Texas Statewide Leadership for Autism Training**—Provides a step-by-step guide to, and evidence base for, functional communication training. <http://txautism.net/interventions/functional-communication-training-fct>
- **Texas Statewide Leadership for Autism Training**—Provides a step-by-step guide to, and evidence base for, naturalistic intervention. <http://txautism.net/interventions/naturalistic-intervention-ni>
- **Indiana Resource Center for Autism**—Has a step-by-step guide to, and examples of, self-management techniques; lists resources. [www.iidc.indiana.edu/pages/Dont-Forget-About-Self-Management](http://www.iidc.indiana.edu/pages/Dont-Forget-About-Self-Management)
- **IRIS Center**—Shows a sample video for video modeling teaching practices. [www.youtube.com/watch?v=CdYquPJT4Ak](http://www.youtube.com/watch?v=CdYquPJT4Ak)
- **Autism Speaks**—Offers templates for creating social stories. [www.autismspeaks.org/family-services/personalized-stories](http://www.autismspeaks.org/family-services/personalized-stories)

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### About the authors

**Christan Grygas Google**, PhD, is an assistant professor of early childhood at George Mason University, in Fairfax, Virginia. She teaches courses in early childhood special education. Christan's research centers on bridging the research-to-practice gap in inclusive early childhood environments. [ccoogle@gmu.edu](mailto:ccoogle@gmu.edu)

**Naomi L. Rahn**, PhD, is an assistant professor in special education at West Virginia University. Her research interests focus on young children with special needs, including increasing the use of evidence-based practices in early care and education settings. [Naomi.rahn@wisconsin.gov](mailto:Naomi.rahn@wisconsin.gov)

**Jennifer Riggie Ottley**, PhD, is an assistant professor in special education at Ohio University, in Athens, Ohio. Her teaching and research focus on strengthening early childhood practitioners' abilities to use evidence-based strategies with young children who have disabilities. [ottley@ohio.edu](mailto:ottley@ohio.edu)

**Ashley Zehner**, MA, is a doctoral student in special education at Duquesne University in Pittsburgh, Pennsylvania. Her research is focused on positive behavior supports, transition planning, and bridging the research-to-practice gap. [zehnera@duq.edu](mailto:zehnera@duq.edu)

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