

# DADD *Express*

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Focusing on individuals with autism, intellectual disability, and related disabilities

## Teachers' Corner

### Using Technology to Support Social-Communication Skills for Students with ASD



**Amelia K. Moody**

*University of North Carolina Wilmington*



**Sierra Bowling**



**Christopher B. Denning**

*University of Massachusetts Boston*

Educators and researchers continuously examine ways to incorporate new technological tools to improve outcomes in communication skills, social skills, and academic performance for students with autism spectrum disorder (ASD). Technology-aided instruction and intervention (TAII) refers to instruction or intervention in which technology is the primary form of instruction (Steinbrenner et al., 2020). Some TAII currently being used includes speech generating software, robotics, virtual reality, augmentative and alternative communication, video-modeling and more. TAII can be particularly beneficial for students with ASD because it is predictable in nature and can lead to increased independence (Hedges & AFFIRM Team, 2018). While technology should not be used as the primary form of instruction and intervention for students with ASD, it can be very effective as a supplement to existing classroom practices.

Hedges & AFIRM Team (2018) indicated that TAII meets evidence-based practices criteria based upon 11 single case design studies and 9 group design studies in which technology effectively developed “social, communication, joint attention, behavior, school readiness, cognitive, motor, adaptive, vocational, and academic outcomes” for learners ages 3-22 years old (p.2). Grynszpan and colleagues (2014) examined the overall effectiveness of TAII programs designed to support individuals diagnosed with ASD and noted that longer interventions correlated with improved outcomes. Therefore, it is important for educators to carefully determine the target skills to support, plan for long-term interventions, and take time to

reinforce newly learned skills.

#### How to Use TAII to Focus on Social & Communication Skills

Social-communication skills are often challenging for students with ASD. Deficits in recognizing emotions and developing effective responses to non-verbal emotions is a common feature of ASD and can cause delays in social interaction skills (Daou et al., 2016). Using TAII to teach these skills can be highly effective as a part of systematic instruction (Alzrayer et al., 2019). Although more research is needed to examine how and when these tools should be used when teaching students diagnosed with ASD, the existing evidence and practitioner experience highlights current best practices.

There are multiple ways that educators can use TAII in the classroom and community to support students’ social and communication growth including the use of iPads, communication generated devices, and other technologies. TAII can be used to increase requesting, social reciprocity, social responding, and social problem-solving skills (Steinbrenner et al., 2020). For example, a teacher could use video modeling to teach a child to ask another child to play or use a robot to gain joint attention with peers since it is so engaging (see Figure 1).

It is important to ensure everyone is trained with the technology tool/program so it can be used correctly across school settings. Technology programs can be presented on a desktop, laptop, or tablet to increase independence, learning, and communication. For example, technology

can be used to offer prompts, model behaviors, assist with scheduling, or used to self-monitor behaviors (Odom et al., 2015).

More innovative technology like humanoid robots, virtual reality, computer-based instruction, gaming, and eye tracking are also being used to teach students with ASD social communication skills. These technologies offer collaborative features (Boyd et al., 2015) and shared learning experiences (Sobel et al., 2015), and offer immediate feedback to the user.

### How to Introduce TAI to Students

It is important to establish an effective process for moving from identifying an IEP goal and technology that can assist a student to assessing student progress across settings (see Figure 2). A packet of resources outlining effective checklists, tools, and assessment forms can be found in the AFFIRM EBP/TIAA packet here:

<https://afirm.fpg.unc.edu/sites/afirm.fpg.unc.edu/files/imce/resources/TAI%20EBP%20Brief%20Packet.pdf>

Hedges and AFIRM Team (2018) outline suggested steps for using TAI in the classroom. These include: (a) discussing technology options and preferences with students and their family; (b) review technology

### Figure 1:

Using Robotics in the Classroom



rules with the student, if applicable; (c) prepare materials; (d) teach student how to use the technology; (f) provide prompting and reinforcement; and (g) support use across settings. Teachers can do the following to support these steps:

1. Introduce various technologies to see what the students can easily use, and which technologies are engaging. It is important to consider whether a student struggles with operating technology, self-stimulates

on technology, or is less excited about one form of TAI than another when making decisions.

2. Consider how to train students on new technologies and think about the implications for use in the home environment. For example, will the child be able to access learning in the home and will families be able to support their children with the TAI selected.

3. Ensure training is provided for the student and anyone who will be working with the child (e.g., regular education teachers, family members, teaching assistants).

4. Figure out what supports are needed when using technology (e.g., visual supports, slant board, prompts, reinforcers). Make sure they are used and take data on (e.g., frequency, duration).

5. Make sure the technology is accessible in all settings so students can practice across natural settings like classrooms, after school, and home. This will increase fluency and improve outcomes.

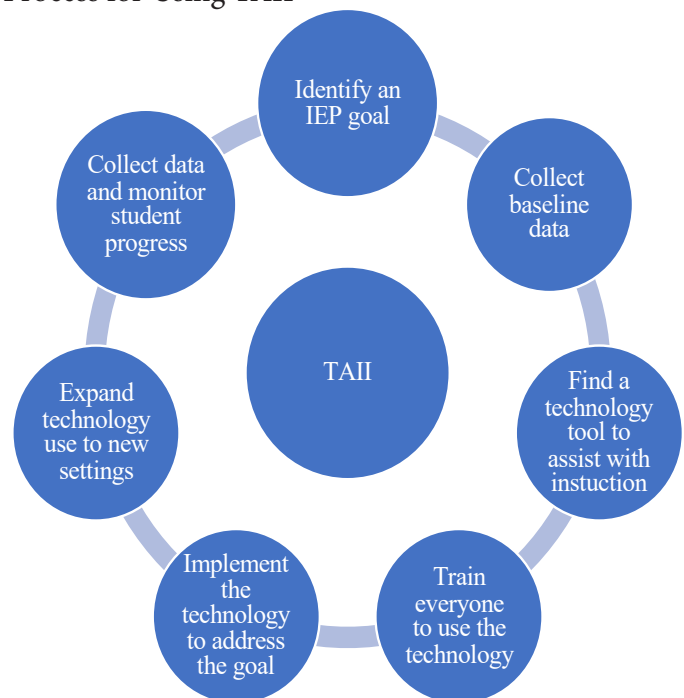
Many technology/assistive technology loan programs offer free trainings and trials with TAI in efforts to decrease costs and ensure the TAI is effective with the student before purchases are made.

### Considerations When Using TAI

Students with ASD are diverse in their needs and preferences. TAI might be highly effective for one student but aversive to another, depending on their response to technology. Conducting a technology assessment can assist in

### Figure 2:

Process for Using TAI



determining what technology the students can best engage with to be successful so they can obtain needed training (Odom et al., 2015). It is also essential that educators consider their ability to afford and get technology support as needed when choosing a device. Teachers could consult with instructional technology experts at their school to determine which technologies are available for students and consult with families to determine how the technology can be used at home. By working together, school personnel and families can use TAI to expand student success across settings.

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