

OPINION, VIEWPOINT

# 'Teachable moments' are key ingredients in autism therapy

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Lessons learned: A classroom intervention for autism turns playtime into a learning opportunity.

There's good evidence that some behavioral interventions can help children with autism learn new skills and become more independent in their daily lives. Unfortunately, most of this evidence comes from studies carried out by trained therapists in highly controlled labs. This scenario is far removed from the real world, where the job of delivering autism interventions often falls to overstretched teachers in schools with few resources.

Our research team has spent thousands of hours training and supporting public school teachers who work with children who have autism. We've seen how difficult it can be for these teachers to deliver interventions, some of which require one-on-one instruction and extensive collecting of information about the children's progress.

Without the necessary time and training, many teachers find themselves unable to deliver all the parts of a therapy. Instead, they tend to focus on a few manageable parts, fitting them in where they can. This prompted us to look for the **active ingredients of school-based autism interventions** — the components that deliver the most bang for the buck.

We conducted our study in partnership with the School District of Philadelphia, the nation's eighth largest school district and one that is ethnically and socioeconomically diverse. Most of the

students are from low-income families, and the school district struggles to find the resources to provide evidence-based care for children with autism.

We provided intensive coaching and support to 54 teachers serving 191 students in kindergarten through second grade autism-support classrooms. The teachers delivered the **Strategies for Teaching based on Autism Research (STAR) program**, a classroom therapy for young students with autism.

## Small steps:

The **program** starts with ‘discrete trial training,’ in which a teacher breaks down important skills into small steps during an intense one-on-one session with a student. For example, to teach a student how to play appropriately with a toy car, a teacher may first coach him to imitate the action of pushing the car.

The second part of the program is pivotal response training, which is more loosely structured than discrete trial training. Here, the teacher follows the child’s lead and tries to create teachable moments related to what the child is doing. For example, if the child is playing with blocks, the teacher may use this opportunity to teach imitation by asking the student to copy a stack of blocks. If the child is playing with a puzzle, the teacher may intentionally withhold a few pieces to teach the student to request the missing pieces.

Finally, the program establishes functional routines — predictable activities that occur naturally throughout the day. For many children, these routines include coming to the classroom, using the bathroom and having a snack. The teacher uses cues, such as gestures, verbal prompts or pictures to help the child carry out these routines.

We observed the teachers at work and carefully measured (using standardized checklists) how often and how accurately teachers used each of these three components with their students. We then assessed the association between teachers’ fidelity to each of these components and their students’ cognitive gains. Students’ cognitive ability was measured using the Differential Ability Scales, 2<sup>nd</sup> edition, which we administered at the beginning and end of the academic year.

We made two important discoveries. First, despite intensive training and support, none of the teachers delivered the intervention exactly as intended. In fact, the average accuracy and frequency of the delivery was pretty low. Teachers struggled to implement the various components accurately and with the required frequency — a consequence of their lack of experience with children who have autism and with autism interventions, poor classroom staffing and competing curricular demands. Also, some of the teachers just liked certain intervention components more than other components.

But our second discovery is a silver lining of sorts. Students whose teachers used pivotal response

training more frequently were more likely to improve than those whose teachers rarely or never used this approach. We didn't find an association between the other intervention components — discrete trial training and functional routines instruction — and student gains.

This suggests that pivotal response training is the essential ingredient in the STAR program. It is also, coincidentally, the most poorly implemented.

There's more work to do before we have complete confidence in this finding. For example, we don't know if teachers who use pivotal response training more are just better teachers than those who don't, or if pivotal response training really is the active ingredient in STAR. Still, our work highlights a new way of thinking about autism interventions in community settings. If we can spark significant gains in children by having teachers focus on one component of an intervention, then that's where we should invest our training efforts.

At a time when more and more children are being diagnosed with autism and school districts have fewer resources to help these children, it's our duty to find ways to make the most of our interventions.

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