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# Practices and Experiences of General Education Teachers Educating Students with Autism

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*Abstract: As the number of students with autism included in general education (GE) increases, researchers highlight the impact of attitudes, knowledge, and experiences of GE teachers on successful inclusion. One way to support teachers is to link evidence-based autism practices to existing training initiatives. Universal Design for Learning (UDL) is an initiative that positively influences inclusion and shares commonalities with Classroom Pivotal Response Teaching (CPRT), an evidence-based approach for autism. Understanding teachers' perceptions and utilization of these and other evidence-based autism strategies is important for maximizing the benefit of inclusion while minimizing teacher burden. Using a qualitative design, this study conducted focus groups with 12 GE teachers to examine the strategies they used to support students with autism in inclusive classrooms and identified common themes. Teachers reported using a variety of strategies, including some evidence-based practices for autism, and had generally positive perceptions of UDL and CPRT. Implications for future research and teacher training are discussed.*

The number of students with autism included in general education (GE) classrooms continues to steadily increase (Kurth & Mastergeorge, 2010). In 2016, approximately 40% of students with autism were included in regular classrooms 80% or more of their day (USDOE, 2018). Compared to more segregated classrooms, students with autism in inclusive classrooms demonstrate significantly better verbal communication, adaptive behavior, and social competence (Fisher & Meyer, 2002; Sainato et al., 2015) and show significant increases in IQ, functional communication, cognitive and play skills after inclusion (Nahmias et al., 2014; Stahmer & Ingersoll, 2004). Inclusion also has positive effects on typically developing peers, such as improved social-emotional growth, positive perceptions of, and comfortability with disability, without having an adverse impact on their academic achievement (Kalambouka et al., 2007; Katz & Mirenda, 2002; Szumski et al., 2017). While this shift towards increased inclusion is a positive trend, there is still considerable work to be done to make effective, high quality inclusion a reality for all students with autism. A thorough examination of the determinants of successful inclusion is critical for this effort.

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Two identified barriers impacting successful implementation of inclusive practices for students with autism also suggest mechanisms for potential intervention to improve outcomes for this population. First, GE teachers consistently report a lack of adequate training, knowledge, and resources to effectively educate students with autism (Able et al., 2015; Corkum et al., 2014; Lindsay et al., 2013). More specifically, GE teachers need strategies and support to adapt their classrooms for successful accommodation of the unique learning needs of students with autism (Able et al., 2015).

Second, the attitudes and perceptions of many teachers and school personnel regarding autism and inclusion can influence the success of inclusive placements (Koegel &

Oliver, 2018). GE teachers often perceive students with autism to be difficult to teach and report concerns about challenging or disruptive behavior (Cassady, 2011; Sansosti & Sansosti, 2012). Often, GE teachers believe specialized autism instruction cannot be provided in a GE classroom and have concerns that simultaneously supporting a student with autism and maintaining high standards for the rest of the class are incompatible (Cassady, 2011). Research highlights the significance of these barriers, as teacher training, knowledge, attitudes, and perceptions affect their implementation of evidence-based strategies (Stahmer & Aarons, 2009). Therefore, innovative approaches are needed to facilitate teacher buy-in for inclusion while also providing them with the tools and support they need.

An additional barrier may include leadership support to teachers as they are asked to learn new strategies. For example, when new initiatives are introduced frequently, teachers often experience initiative fatigue, which can include feelings of stress and failure (Reeves, 2012). Rather than introducing something new, such as evidence-based inclusion practices for autism, to teachers who are already inundated with numerous job responsibilities and training requirements, tying autism-specific strategies to educational initiatives to which GE teachers are already exposed could minimize initiative fatigue, reduce teacher burden, and increase buy-in.

Additionally, research suggests that for inclusion to be successful, it is critical that interventions have good contextual fit. That is, if an initiative or intervention does not align with the values, beliefs, and/or practices of the teachers implementing the strategies and/or the environmental setting in which it is being implemented, implementation quality will be low (Harn et al., 2013). Thus, it is critical to understand how teachers perceive evidence-based autism strategies to fit into the context of their GE classrooms and how these interventions fit within the current initiatives and directives from leaders.

One potential solution to address these implementation issues may be to explore teacher experiences with certain strategies in order to demonstrate the link between what teachers are already doing and evidence-based practices (EBPs) for autism. Additionally, exploring GE teacher perceptions and utilization of strategies consistent with EBPs for autism may shed light on current knowledge held by a majority of teachers that could be applied to supporting students with autism. That is, understanding which strategies consistent with EBPs for autism *are* being successfully used by GE teachers might be a helpful jumping off point for developing teacher training programs that promote inclusive practices and increase buy-in.

One framework GE teachers use to support diverse learners is Universal Design for Learning (UDL), a nation-wide initiative described as "a scientifically valid framework for guiding educational practice" (IDEIA, 2004). UDL positively influences inclusion efforts by recognizing individual learning differences and creating flexible learning environments to accommodate these differences by providing students with multiple means of engagement, representation, action and expression (Capp, 2017; Hitchcock et al., 2002). UDL provides a framework for using a variety of strategies based on student needs. UDL shares a constructivist philosophy and many commonalities with evidence-based naturalistic autism interventions (Schreibman et al., 2015).

Naturalistic Developmental Behavioral Interventions (NDBI; Bruinsma et al., 2020; Schreibman et al., 2015) represent a class of evidence-based autism strategies that may fit well with UDL and inclusion. One example of an NDBI adapted in collaboration with special education teachers for use in public school classrooms is Classroom Pivotal Response Teaching (CPRT; Stahmer et al., 2011). CPRT is a naturalistic, child-led intervention made up of multiple strategies that specify how teachers can set up learning opportunities and respond to their students to maximize motivation and responding. With training and support, special education teachers can implement CPRT with fidelity and report it to be acceptable, feasible and effective to use in their class (Stahmer et al., 2012; Suhrheinrich et al., 2019). However, researchers have a limited understanding of whether interventions such as CPRT might be acceptable to GE teachers.

To gain a better understanding of GE teacher's use and perceptions of strategies that would support positive outcomes for

students with autism in inclusive settings, this study focuses on UDL and a specific autism EBP, CPRT, as exemplars for examining the potential for linking GE and special education methods. This represents a first step for determining how to best incorporate evidence-based autism strategies into GE teacher training to positively influence inclusive practices in GE classrooms. The current study explored the following questions:

1) What strategies, teaching tools, and/or modifications do GE teachers use to support inclusion of students with autism? 2) How do these strategies/tools align with and differ from evidence-based strategies for students with autism and/or with CPRT and UDL strategies? 3) What are teachers' perceptions and experiences with CPRT and UDL? What challenges or barriers exist with using these strategies?

## Method

### *Participants*

The research team distributed an informational flyer through postings on the University website and social media outlets and through educational listservs. Inclusion criteria included being the lead teacher in a GE classroom serving students in kindergarten through eighth grade and having at least one student with autism in their classroom during the past two years. Twenty-seven interested teachers contacted the research team via email. Of those, 16 responded to an email regarding scheduling time to participate in a focus group. Of the 16 teachers scheduled to participate, four did not participate due to scheduling conflicts. Twelve general education teachers participated in one of four focus groups.

Participants had an average of 11.8 (*SD* = 8.6) years of teaching experience and were 100% female. All participants currently had students with autism who were included in their class at least 75% of the school day. The majority of participants taught at a public school (59%), with private (8%) and charter (33%) schools also represented. The majority (50%) of participants taught kindergarten, 9% taught first grade, 8% taught second grade, 25% taught third grade, and 8% taught fourth grade. One of the participants had received some training in CPRT, the remaining teachers had not received training and had limited information about CPRT.

### *Data Collection*

Focus groups are a widely used method for understanding the subjective opinions and experiences of individuals regarding a predetermined topic (Merton, 1987). For the current study, focus group data provided an in-depth examination of teachers' self-reported experiences, ensuring support that has a good contextual fit (Harn et al., 2013). Groups were conducted via Zoom, a free, secure web-based program that allows individuals to connect to a virtual discussion space through a computer, tablet, or phone. Digital audio recordings of the focus groups were made using the recording feature through Zoom. These recordings were uploaded to OneDrive, a secure online server, and transcribed using Word for later coding.

### *Procedure*

This study was determined by the Institutional Review Board to be low-risk, so an abbreviated informed consent process was used in which participants reviewed an outline of study information, participant expectations, and audio recording procedures, and then verbally agreed to participation and recording. The day prior to the focus group, teachers received an email containing the focus group questions, brief information about CPRT and UDL, and two short hypothetical vignettes about two fictional students with autism (see Table 1).

The first two authors co-facilitated focus groups and have backgrounds in special education research and educational psychology, respectively. Once teachers agreed to participate, they received a link to connect to the Zoom meeting. Facilitators informed participants the meeting would be recorded. Focus groups lasted approximately one hour and included 1-4 participants per group. The facilitators followed a pre-established interview

**TABLE 1**

**Focus Group Questions and Vignettes**

Vignette #1

David is a 5-year-old diagnosed with autism spectrum disorder who communicates his wants and needs through single word utterances and pointing. His vocabulary consists of around 50 words and he independently and spontaneously requests for items and activities he wants. He repeats short verbal models and follows simple directions, such as "come here". David is very interested in dinosaurs and can identify many dinosaur names when looking at dinosaur books. He also enjoys simple puzzles and coloring, especially when they involve dinosaurs. David has difficulty relating to others and infrequently makes eye contact with his peers and teachers. He rarely interacts with other children during play but will engage in parallel play beside peers. Transitions to new tasks or activities are difficult for David and often lead to disruptive behavior.

Vignette #2

Ben is an 8-year-old diagnosed with autism spectrum disorder. His verbal communication is detailed and varied. Ben often talks at length about topics of interest to him, like his favorite video game, though he doesn't often initiate questions or comments to others. Ben has strong skills in mathematics and enjoys drawing detailed maps of his favorite cities. He sometimes exhibits frustration when he makes a mistake and when the schedule changes unexpectedly. Writing tasks are also challenging for Ben and he often shouts out or tries to leave during these lessons.

Questions

1. What type of supports would you set up for this student if he were in your classroom?
2. Would you need to adapt your current practices if this student were in your classroom? If so, how?
3. What barriers might you anticipate to including this student in your classroom?
4. Please review the specific strategies that are used in Classroom Pivotal Response Teaching. Would you use any of these strategies? If so, how?
   a. Are there any strategies you wouldn't use or that would be challenging to use?
5. Please review the specific strategies that are used in Universal Design for Learning. Would you use any of these strategies? If so, how?
   a. Are there any strategies you wouldn't use or that would be challenging to use?

guide (see Table 1). Consistent with a well-established and widely used format in focus group methodology (e.g., Merton, 1987), including focus group research in autism (Suhrheinrich et al., 2012), teachers read the hypothetical vignettes and information provided about CPRT and UDL. Moderators then asked teachers to discuss any strategies they would use to support the student from the vignette in their classroom as well as the benefits and challenges to using CPRT and UDL strategies. The vignettes were meant to give all participants the same jumping off point for discussion and teachers were encouraged to share their own relevant experiences with students they have taught. Participants were not required to respond to every question, though moderators checked in with each person to help ensure equal opportunity to share. Following the group, each participant received an electronic $25 gift card to Amazon.com.

*Data Analysis*

Focus group responses were transcribed using Microsoft Word Processor. Grounded theory approach was utilized to analyze the qualitative data (Harry et al., 2005). First, the team used open coding to search for patterns related to strategies teachers used, and categories and themes were developed based on these patterns. Open coding was conducted separately by two individuals with doctoral or master's degrees in a field relevant to autism. Codes were organized into themes using thematic analysis, an approach for identifying patterns and common themes in responses while maintaining the rich complexity of details (Braun & Clarke, 2006; Vaismoradi et al., 2013). The team then utilized collaborative coding to provide a more comprehensive analysis, wherein the team discussed codes and themes and reached a consensus on

**TABLE 2**

**Teacher Reported Use of Strategies to Address Student Goals**

| | *Goal Domain* | | | |
|---|---|---|---|---|
| *Strategy* | *Social* | *Communication* | *Behavior* | *Academic* |
| Sentence starters | | X | | |
| Modeling (adult) | | X | X | |
| Modeling (peer) | X | X | X | |
| Priming | X | X | X | X |
| Visual supports | X | X | X | X |
| If/then contingencies | | | X | X |
| Breaks | | | X | X |
| Support staff | | | X | |
| Reinforcement | | | X | X |
| Scaffolding | | | | X |
| Using student interests | | | X | X |
| Educating peers | X | | | |
| Technology-aided instruction | | | | X |

disagreements (Saldaña, 2009). Focus groups continued until saturation of themes was reached. To determine whether the teacher-reported strategy was an EBP for autism, the research team referred to the meta-analysis by Wong and colleagues (2015) and identified whether each reported strategy aligned with one of the EBPs from this research.

## Results

### *Themes*

Primary themes related to support strategies teachers currently used in their classrooms, positive and negative feedback regarding CPRT and UDL, and barriers to inclusion.

### *Strategies Used by Teachers*

Main strategies teachers reported using to support students with autism were sentence starters, modeling, peer-mediated support, priming, visual supports, if/then contingencies, breaks, support staff, reinforcement, scaffolding, incorporating student interests, and educating peers (Table 2). Many of these strategies aligned with EBPs for autism (Table 3). Four main themes emerged regarding how teachers used these strategies: to improve communication, self-regulation, social interaction, and academic engagement.

*Sentence Starters.* Teachers used sentence starters to facilitate communication by setting up the initial part of the sentence for students to fill in the rest. One teacher described how she used sentence starters to facilitate conversation during morning circle by presenting the sentence frame "This weekend I…" and giving each student a turn to respond using the sentence.

*Modeling.* Teachers used adult modeling to facilitate communication and behavioral skills and peer modeling for social, communication, and behavioral support. Teachers reported using verbal modeling, or demonstrating spoken examples of the expected responses (Wong et al., 2015), to support communication skills. One teacher modeled complete sentences for a student who spoke in short phrases "so that he can hear how it sounds."

*Peer-Mediated Support.* Teachers often discussed peer-mediated support to facilitate social interactions between students with autism and their classmates. One teacher would "choose a child to pair him with that is very social, very good at taking those social cues, and provide an opportunity for some of those

**TABLE 3**

**Teacher Reported Practices and Alignment with Evidence-Based Practices for Autism**

| *EBP* | *Examples from Teachers* |
|---|---|
| Antecedent-based interventions | Priming vocabulary and conversation skills, "anchor chart" of questions to use with peers |
| Differential reinforcement of Alternative, Incompatible, or Other Behaviors | First/then contingencies, reinforcement systems (e.g., tokens) |
| Exercise | Letting students take breaks to walk/stretch/jump/run around and move |
| Modeling | Adult and peer modeling: language, appropriate transitions |
| Parent-implemented intervention | Parents "frontload" (i.e., prime) students with vocab words, task instructions, examples, etc. at home the night before the lesson in class |
| Peer-mediated instruction and intervention | Peer modeling expected behavior, supporting academics and transitions |
| Prompting | Visual, verbal |
| Reinforcement | Reward systems based on interests (e.g., using preferred items as the tokens in a token economy system, earning a preferred item/activity) |
| Technology-aided Instruction and Intervention | Text-to-speech dictation, apps to read digital content to students, using iPad for academic project |
| Time Delay | Sentence starters ("this weekend I will. . .") |
| Visual Support | Schedule; support for conversation; timer |

back and forth exchanges." Another teacher described running "social groups" in which students work together on a task in a small group, peers model skills, and students rotate through these groups to interact with a variety of peers. In regard to self-regulation skills, teachers mentioned that peers were helpful for modeling and supporting expected behaviors during transitions, such as having a peer group for the student with autism who "would be there to help him through transitions, to help him clean up his things and move on to the next activity." Another teacher mentioned selecting a peer partner with "a lot of patience who can be with him and work with him but kind of learn when they need to back off."

*Priming.* Teachers frequently reported using priming, or letting students "preview" the expectations of a task or activity ahead of time, to address social, communication, behavioral, and academic skills. These strategies were often referred to as "front loading" by teachers, such as when a teacher mentioned front loading vocabulary for a student by discussing written questions that the student could refer to later. One teacher describes her process: "Before the activity began I would go to my kiddo and ask him the question and then help prep him or give him options." For a student who exhibited frustration with making mistakes, one teacher would "do some frontloading ahead of time" by pulling the student and a small group of peers to give them information. Priming was also frequently discussed as a helpful strategy for smooth transitions between tasks. One teacher said she reminds a student "one to three times before we get ready to transition that we're getting ready to make the change." Another teacher would clearly explain the visual schedule to her students before the day began so they knew what to expect. For priming for academic tasks, one teacher described collaborating with the parent of her student with autism by letting them know the topic of the class writing assignment the night before so they could brainstorm ideas to increase the student's confidence with writing.

*Visual Supports.* Teachers often reported using visual supports, which are pictures or text that serve as a guide for what to do (Wong et al., 2015), to facilitate communication. One teacher reported posting a chart on the wall with various sentence starters for students to initiate conversation with peers. Another teacher posted speech bubbles on the wall outlining the steps of a reciprocal conversation. A third teacher reported using the Picture Exchange Communication Systems (PECS; Bondy & Frost, 1994) in the form of "visual cue cards and prompts they can use to help them [students with autism] because they cannot necessarily articulate needs and wants so they have picture cards." Visual supports were also frequently referred to when talking about supporting self-regulation. These supports usually involved a timer or digital clock counting down to transition times or calendars and schedules so that students knew what to expect. Teachers reported posting pictures of task directions, steps for transitioning, and a board of pictures of various emotions to help students identify and regulate their feelings. Another visual support teachers reported using was a poster that showed a picture of the task with a picture of the reward students earned for completing the task.

*If/then Contingencies.* Teachers reported using if/then contingencies for self-regulation, which involves first presenting what the task is, then presenting what the student could earn as reinforcement for completing the task. To encourage students to complete academic tasks, teachers used if/then contingencies by allowing for a choice activity if they complete "short bursts of work." One teacher described telling her student "if you do a certain amount of the work that we're doing then you can take a break and play with dinosaurs." Another mentioned how successful it had been for her to have an "if/then menu" individualized based on the student goals and interests that listed the target behaviors and a variety of rewards the student could choose for engaging in those behaviors.

*Breaks.* Teachers also mentioned letting students with autism take breaks to support self-regulation. Some described "calming centers" as areas within or just outside the classroom with low levels of light and sound that include things like noise-canceling headphones, comfortable chairs, blankets, bean bags, and fidget toys for students to self-regulate. Some mentioned giving students with autism breaks by giving them time with a preferred item or activity or letting them stretch, jump, or walk around.

*Support Staff.* Utilizing support staff to assist with the self-regulation of students with autism was another common theme. For example, one teacher felt that for students with autism who exhibit disruptive behavior in class, having "another adult that functions as an instructional aide, that would help because I think that this would be difficult to manage with just one teacher and a large group of students in a general ed classroom with like 25 other students."

*Reinforcement.* Positive reinforcement was commonly described as an effective way to support academic skills and teachers seemed to find reinforcement to be easily implemented and important for students with autism. One teacher said "it would be very simple to do a kind of reward system with dinosaur stickers or something" that the student liked. Another said, "there has to be a payoff for him to be doing something that is really challenging for him."

*Scaffolding.* Multiple teachers also mentioned using scaffolding, or breaking tasks into smaller steps or "chunks" and asking the student to complete portions of the work rather than the whole thing at once. One teacher described breaking instructions of an academic task into shorter steps to make it clearer for the student with autism to understand "so he can feel small successes as he goes." Another suggested listing the steps to the task on a piece of paper, cutting the paper into strips by steps, and giving the student one strip of paper at a time.

*Incorporating Student Interests.* Teachers frequently mentioned how incorporating

student interests into academic tasks was beneficial for their motivation, engagement, and task completion. Teachers talked about finding a topic that is highly preferred to a student and allowing them to write about that rather than the assigned topic. For a student who loved dinosaurs, one teacher said she would integrate dinosaurs into her curriculum as much as possible to "be able to really grab his attention and get him to buy into that and be really engaged in the academics." Another student had strong interests in technology, so that teacher allowed him to create a multiplication video using computer software for his math project.

*Educating Peers.* Educating typically developing peers on diversity and differences was found to be an important component of successful inclusion. One teacher discussed addressing bullying that might occur and the "strong need to talk about these things when they happen and promoting that tolerance and also making it clear that that is *not* going to be accepted in the classroom and that every different student's way of being is correct."

*Technology-aided Instruction.* Teachers often described using technology, such as tablets and computer software, to facilitate academic engagement for students with autism. One teacher described giving a student the opportunity to complete an academic task using a computer program, another mentioned how some students used voice-to-text software for academic tasks, and another discussed letting a student video-record their presentation to play to the class.

### *CPRT Feedback*

Overall, teachers generally gave positive feedback about CPRT strategies (Table 4). Themes from teacher responses included CPRT components that were a good fit for the teacher, classroom, and/or student and CPRT components that received mixed feedback.

*CPRT Components That Were a Good Fit.* Teachers often discussed how CPRT components fit well with their teaching style and/or classroom context. One teacher summarized a commonly shared sentiment about CPRT components: "while they have this fancy name, they're just good teaching strategies." Similarly, one teacher felt that "whether or not there's a specific name for these things that you would do for children on the spectrum, I think you would just do it naturally for all children." The most common CPRT components teachers mentioned that they used or would use were interspersing easy and difficult tasks, sharing control, providing choices, reinforcing attempts, responding to student interests, and using direct and contingent reinforcement (Table 4). For interspersing easy and difficult tasks, teachers mentioned that language development for their students with autism can be difficult so it is helpful to mix in short tasks. For shared control teachers agreed that letting students have a say in what they learn is powerful for all students, not just those with autism. For reinforcing attempts, teachers said that providing rewards for incremental progress on a task was helpful for students with autism. Teachers agreed that responding to student interests and incorporating those into tasks was a helpful strategy. Finally, teachers described how providing reinforcement, such as preferred items or activities, was helpful for supporting skill development and task completion.

*CPRT Components That Received Mixed Feedback.* While feedback was generally positive some CPRT components received mixed feedback, as teachers perceived some things to be challenging to implement and not a good fit for them, the classroom, and/or student. These included following the student's lead, shared control, interspersing easy and difficult tasks, direct reinforcement, and reinforcing attempts. Some teachers felt that following student lead might be challenging if their strong interests lead the class "down a long rabbit hole" and diverted them from what they were supposed to be doing. Teachers mentioned that it is important to establish boundaries with student lead. Similarly, some teachers reported that providing students with shared control over tasks and interactions was challenging, such as if the student

**TABLE 4**

**CPRT Component Definitions and Teacher Feedback**

| *CPRT Component* | *Definition* | *Focus Group Feedback/Examples* |
|---|---|---|
| Gains attention | Have student attention before presenting instruction | A) Teachers "definitely use"<br>B) Good for all students |
| Clear opportunities/ instruction | Instruction must be clear and developmentally appropriate | A) Teachers "definitely use" |
| Choice | Provide student with choice of tasks and choices within tasks | A) Choices within activities, choices about how long to do task<br>B) Aligns well with UDL<br>C) "Doing this for the whole class makes it better, not just for one student" |
| Interspersing easy/difficult tasks | Tasks that are easy must be interspersed with more difficult tasks | A) For students still developing language, including short tasks helps<br>B) Adding difficult task when student not ready might lead to undesirable response |
| Shared control/turn-taking | Follow the student interests and model appropriate give-and-take interactions with student | A) "Letting students have a say in what they learn is really powerful for all students, not just those with autism"<br>B) Aligns well with UDL<br>C) Share control but with boundaries because it could "go down a long rabbit hole" and distract from work<br>D) Following strong interests could lead class away from where they need to go<br>E) Student might only want to do one thing<br>F) Can be difficult to give up control to student |
| Reinforcing attempts | Goal-directed attempts to respond must be reinforced | A) Rewards for progress and effort<br>B) Specific feedback for attempt ("Wow you included great transition words!")<br>C) Difficulty knowing how far to push them and when to require more |
| Direct and contingent reinforcement | Reinforcement is directly related to the desired behavior and contingent on student response | A) Easy for students to understand<br>B) Might be more appropriate when you have verbal ability<br>C) May be challenging for teachers to provide direct reinforcement immediately |

only wanted to do one specific thing. One teacher described herself as a "control freak" and felt that giving students control would be difficult. One said that sharing control was tricky at first, but now she only offers "the choices that I truly want to give and that are on the table" and it is important because "that's where you have their buy-in." Interspersing difficult and easy tasks had generally positive feedback except one participant who

worried about an undesirable response if she is "throwing in the difficult tasks when the student's not ready for it. It's sometimes difficult to anticipate the reaction that you're going to get." The only concern teachers expressed about direct reinforcement was that they would not be able to provide it quickly enough. With reinforcing attempts, one teacher worried about knowing when to require more from her student. She had concerns that if her student with autism received reinforcement for an attempt, they would only put forth that amount of effort on future tasks.

### *UDL Feedback*

Teachers generally had positive feedback regarding UDL and gave many examples of utilizing strategies consistent with the UDL framework in their classrooms (Table 5). Themes included UDL components perceived to be a good fit for the teacher, classroom, and/or student, components perceived not to be a good fit, and similarities between and CPRT and UDL.

*UDL Components That Were a Good Fit.* One teacher commented that the UDL framework is helpful because she already has "to modify strategies with every student because they all have different needs." Similarly, another teacher stated: "I feel like UDL is something that…I sprinkle throughout my practice. I think maybe I just intensify it when I have a certain student that needs it more than another." Teachers often reported recruiting student interest by incorporating students' preferences into activities to increase their motivation to engage in tasks. Teachers described providing self-regulation strategies and explicit teaching to develop learners' abilities to regulate their emotions. Some teachers felt that providing options for students to express their knowledge was important and described various ways they present information, such as visual examples or written instructions when speaking, and ways they allow students to use a different modality of representing their knowledge, such as art project, poster, or oral presentation. Sequencing cards in the correct order to demonstrate reading comprehension was another example a teacher gave of an alternative option for comprehension.

Providing students with multiple means of action and expression was described as a strategy that "catches all students in the net instead of letting some kind of fall through." Teachers discussed a variety of alternative ways they gave students to communicate, such as PECS (Bondy & Frost, 1994). One teacher described providing options for expression and communication to facilitate inclusion: "there are things on a tablet that can help modify it [task] for him, and so I allow everyone to do that to where he feels and appears to be included so he doesn't stand out." In terms of options for physical action, several teachers reported allowing students to take breaks for physical movement.

*UDL Components That Were Not a Good Fit.* Teachers had largely positive feedback on UDL components and few mentioned strategies they would not use or that would be challenging to use. Teachers most frequently mentioned providing options for physical action to be challenging. One teacher discussed how she could not always provide options for physical action because the timing is not right or when it is a matter of safety, such as with her student that elopes. Another said that providing a variety of seating options, such as rocker chairs and wobble stools, has been challenging because after 30 years of teaching, it was a big adjustment for her to have kids moving around frequently. Teachers rarely mentioned strategies that fit with providing options for executive functions and when it was mentioned teachers appeared to be unclear about what it meant. Another teacher with kindergarten students felt this component was not applicable to her students based on their developmental level. Finally, a teacher said that sustaining effort and persistence would be challenging and would require a "group effort to work on."

*Similarities Between CPRT and UDL* Many teachers reported that CPRT and UDL were similar and both examples of good teaching that benefitted all students, not just those with autism. One teacher described the CPRT

**TABLE 5**

**UDL Component Definitions and Teacher Feedback**

| *UDL Component* | *Definition/Description* | *Focus Group Feedback/Examples* |
|---|---|---|
| Multiple Means of Engagement | | |
| Provide options for recruiting interest | Alternative ways to gain interest that reflect individual differences and preferences | A) Use student interests as rewards for work completion<br>B) Embed student interests in task |
| Provide options for sustaining effort and persistence | Supporting learners who differ in motivation, self-regulation skills, etc. | A) Do short periods of work and then allow for a choice activity<br>B) Rewards for progress and effort |
| Provide options for self-regulation | Explicit teaching to develop learners' intrinsic abilities to regulate their own emotions and motivations | A) 'Calming area' to regulate<br>B) Use emotion board to identify feelings, recognize need for break<br>C) Allow physical movement break (stand, stretch, jump, run) |
| Multiple Means of Representation | | |
| Provide options for perception | Same information given through different modalities (sight, sound, or touch) that is adjustable by user | A) Visual aid when teacher speaks or write down directions |
| Provide options for language, math expressions, and symbols | Variety of representations of math expressions, symbols, etc. are provided for clarity and comprehensibility | A) Use sentence starters and allow student to repeat after teacher or peer<br>B) Give prompts such as saying beginning sound of a word<br>C) PECS for communication |
| Provide options for comprehension | Design and present information with necessary scaffolds | A) Sequencing cards to show reading comprehension<br>B) Break up long tasks into steps |
| Multiple Means of Action and Expression | | |
| Provide options for expression and communication | Alternative modalities for expression to allow the learner to easily express knowledge, ideas and concepts | A) Use break cards or PECS<br>B) Show work on different media/material such as white boards, computer, art project, poster, oral/pre-recorded presentation<br>C) Speech-to-text on computer<br>D) Oral assessments instead of written |
| Provide options for physical action | Interactive materials to allow physical interaction | A) Allow physical movement breaks<br>B) Wiggle stools, rocking chairs, cushions, fidget toys |
| Provide options for executive functions | Expand executive capacity by scaffolding lower level skills | A) Break up longer/more complex tasks into steps for student to complete |

strategy incorporating student interests stating that this "falls really well into UDL." Teachers also agreed that the CPRT components sharing control and providing choices align well with the student-centered approach of the UDL philosophy. One teacher said that "doing this for the whole class makes it better, not just for one student."

*Barriers to Inclusion*

*Peer Acceptance.* Teachers consistently identified peer acceptance of students with autism as a barrier to inclusion. One teacher summarized these concerns well: "you have to be very proactive about discussing differences, and being open and honest with kids that we're not all going to communicate the same way and encouraging tolerance and that social acceptance element." Another said, "a huge strategy that I had to learn my first year with that student was taking steps to address any prejudice you see students displaying towards that student."

*Student Characteristics.* Teachers often expressed concerns regarding characteristics of students with autism that might interfere with successful inclusion. Multiple teachers mentioned concerns about disruptive behavior, such as eloping and "outbursts." One teacher mentioned that addressing disruptive behavior would be challenging while also attending to the other students in the classroom. Others were concerned about students having highly preferred interests that might interfere with social interactions and academics, such as becoming hyper-focused on talking about a topic.

*Adult Support in the Classroom.* Teachers reported a lack of additional adult support in the classroom to be a barrier to inclusion. Teachers mentioned that students with autism often needed one-on-one support that they could not always provide. One teacher said that without having another adult in the room, it would be challenging to have student with autism that leaves the classroom when upset. One teacher described how, without adult support, her focus on the student with autism is sometimes at the expense of the other students in the class.

*Perceptions and Support from Administration.* Teachers referred to the perceptions and actions of administration as barriers. For example, multiple teachers described how their districts did not understand the level of support the student needed to succeed in GE and that they had to work hard to prove the student had additional support needs. One teacher received pushback from the district when trying to get one-on-one support for her student. Some teachers discussed how districts made placement decisions based on little knowledge of student needs and characteristics, such as recommending placement in GE after only reading about the student without ever meeting them. One teacher reflected on how administration placed a student with extreme challenging behaviors in GE without recognizing or preparing for the potential negative impact: "they don't get it. They want to say it's the rights of this one kid, but what about the other rights of the other kid whose safety is in jeopardy?"

## Discussion

The results of this study highlight how CPRT, UDL, and evidence-based practices for autism have multiple applications and benefits in inclusive classrooms, which has implications for research and practice. An encouraging finding was that participants identified several practices they use to support their students with autism that align with EBPs for autism including modeling, priming, visual supports, if/then contingencies, peer mediated support, and reinforcement (Wong et al., 2015). Illustrating that many EBPs for autism have a good contextual fit with existing classroom practices could help minimize teacher burden and maximize buy-in and may be an important component of teacher training and professional development.

Since the literature reports teacher attitudes to be critical for successful inclusion of students with autism (Koegel & Oliver, 2018), it is also encouraging that participants generally had positive perceptions of CPRT and UDL strategies. This is consistent with

previous research illustrating that special education teachers had positive reports about CPRT strategies, with a few minor exceptions (Stahmer et al., 2012). However, the current study is notable in that the sample consisted entirely of general education teachers which offers unique insight into the application of CPRT in inclusive classrooms. In the current study, multiple participants emphasized that CPRT and UDL strategies were simply good teaching practices and had benefits for all students in their classrooms, not just those with autism. Many teachers also pointed out similarities between UDL and CPRT components. Demonstrating how an autism-specific intervention such as CPRT aligns with principles of a widespread educational framework like UDL may reduce initiative fatigue and help teachers to feel as though they are not taking on the burden of a whole new intervention just for autism. If general education teachers are already receiving pre- or in-service instruction in UDL implementation, it might be beneficial to consider how to integrate and/or illustrate the connection to CPRT components. This might also be an important aspect of training for instructional aides supporting students in GE classrooms, who may be less familiar in UDL and/or CPRT. While overall CPRT and UDL received positive feedback, there were some components that received mixed reviews. Future research should examine these elements to gather more information on what specifically teachers find challenging about these components and systematically examine how essential each component is to successful outcomes for students with autism.

Much of what teachers reported regarding the challenges to including students with autism was consistent with the literature, such as responding to disruptive behavior while trying to maintain the rest of the class (Cassady, 2011; Lindsay et al., 2013). This implies that it is important to provide teachers with effective strategies, ongoing training and support for managing disruptive behaviors. Teachers also consistently reported the need for additional support staff. This has important implications for how administrators allocate resources to best support inclusion. School leaders may need training in leadership practices to provide the necessary and appropriate types of supports for teachers in inclusive classrooms (Stahmer et al., 2020). For example, leaders should be trained to assess teacher-reported needs and seek out high-quality professional development opportunities and other support related to these needs. Future research should also examine the outcomes of providing support staff with training in EBPs for autism, as GE teachers emphasize the importance of their support in inclusive classrooms.

Teacher concern about students with autism being the victims of bullying is also consistent with the literature (Sreckoic et al., 2014). Teachers often explained that educating the entire class on differences and diversity was a key factor to successful inclusion. There are a variety of programs that provide disability awareness to typically developing peers (Lindsay & Edwards, 2013), which should be considered and utilized by teachers and school leaders to maximize the benefits of inclusion for students with autism and their classmates.

### *Limitations and Future Research*

While the data are compelling, there are a few limitations. Future research should explore these topics with a larger sample representing a wider range of grades across a larger geographical region and should include male teachers. Since these teachers had primarily positive attitudes towards inclusion, an important next step would be to hold focus groups with teachers with less positive attitudes towards inclusion to get a comprehensive understanding of barriers and facilitators. Responses may not necessarily be an exact portrayal of what is going on in the classroom due to social desirability, or the tendency to provide a socially appealing response rather than one reflecting their true feelings or experiences (Nederhof, 1985). Therefore, it is important to observe GE teachers and directly measure their use of strategies and associated child outcomes. Regardless, this study provides meaningful insight into teacher experiences and preparing school personnel to facilitate successful inclusion.

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