



ASSISTIVE TECHNOLOGY IN THE CLASSROOM:

Examples Designed to Help Teachers and Other School Personnel

The following descriptions of assistive technology (AT) use in the classroom have been prepared by Laura Kessel, an AT specialist who supports teachers and teacher training. They may be used for individual study and practice or as part of professional development workshops and/or other training events.

Directions: Read each example and complete the list of accompanying questions on your own or in a small group. Then review, preferably with other colleagues. You might want to use the Center on Technology and Disability's (CTD's) website to search for additional information about AT devices and services.



The U.S. Department of Education established the Center on Technology and Disability (CTD) to provide a wide range of assistive technology resources for families, teachers, service providers, advocates, researchers, teacher training programs, disability organizations, and vendors.

The CTD website – www.ctdinsitute.org – has a resource library with more than 1,000 assistive technology-related materials; a webinar center with an active schedule of informational presentations, and extensive archive; and a learning center for those who want structured, in-depth modules.



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Meet Leo

Leo is an 11-year-old boy who attends your fifth-grade language arts and social studies classes. He is diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) and has a 504 plan in place allowing him to have extended time on tests and certain longer assignments. Based on his class participation, he seems to understand all of the material. Leo speaks clearly and uses an acceptable range of vocabulary in both his oral and written work. However, you are concerned that Leo's longer written work is disorganized when compared to his peers, even when he has been given extra time. He often skips from topic to topic within a single paragraph, his points do not all relate back to his thesis, and he often runs out of time without making much progress during in-class writing activities. You have made a point of reviewing basic paragraph and essay structure with Leo but have not seen much improvement.

- What other information would I like to have?
- Do I need to refer to additional professionals?
- What types of AT might I try with this student?
- How will I know if the tools provided to this student are working?
- Are there any changes I can make to my classroom as a whole, as part of Universal Design for Learning (UDL), so that all of my students can participate more easily?

Sample Answers for Discussion

What other information would I like to have?

Has Leo ever had a full speech/language or school psychological assessment done that would look at the way he organizes language? How current are his assessments for attention and memory? Has he tried any AT for this concern in the past? Do his parents have any concerns?

Do I need to refer to additional professionals?

I might want to refer to the speech-language pathologist (SLP), school psychologist, school AT Specialist, or all of the above, depending on who is available in my district.

What types of AT might I try with this student?

I would likely want to allow this student to use mind mapping or visual diagramming techniques to arrange his thoughts and then use the outline to compose the longer written work. An example of an option to accomplish this is [Inspiration](#), a popular tool available on both the computer and as an iPad app. The iPad app [Tools4Students](#) provides numerous graphic organizers. There are also several Google Chrome extensions available, such as [Lucidchart for Education](#), if your district is using Google Drive for student work. Paper-based diagramming tools are also possibilities.

I might also encourage the student to set goals for what he should have accomplished within a certain amount of time by using a timer, considering his allotted extended time for certain assignments as designated in his 504 plan. One example of a timer that could help is the iPad app [360 Thinking Timer Tracker](#), which allows for starting, mid-point, and ending goal reminders to be added to the color-coded customizable time blocks.?

How will I know if the tools provided to this student are working?

There are a few different ways I could collect data on whether the AT is working. I could periodically compare an essay from before we provided AT to one written after we provided AT and tally the number of sentences that were on-topic for a given paragraph. I could see if the student's grades improve. I could also see if the student is able to produce more on-topic writing in a given amount of time.

Are there any changes I can make to my classroom as-a-whole as part of Universal Design for Learning (UDL) so that all of my students can participate more easily?

Mind mapping is a helpful technique for many students—I could offer them all access to the tools needed to make one if they would like.



Meet DeShawn

DeShawn is an 8-year-old boy with a diagnosis of Down Syndrome. He joins your second-grade class for morning meeting, literacy instruction, library time, recess, art, music, and gym with the support of a 1:1 aide. The 1:1 aide currently modifies most assignments for DeShawn “on the fly” and they often work semi-separately from the rest of the class. The aide typically provides “fill in the blank” or multiple-choice options for DeShawn during literacy work since he is still working on developing handwriting skills. DeShawn uses an iPad with the TouchChat with WordPower communication app to communicate as he is largely non-verbal. He seems to be able to use his communication device well for more routine things, such as greeting a peer during morning meeting, but doesn’t turn to it independently during other activities. DeShawn appears to be interested in his peers and often watches them intently at morning meeting and on the playground but does not know how to ask them to play appropriately at recess, frequently running up to them and hitting them on the shoulder or vocalizing loudly to engage. You and the special education teacher are planning to meet to discuss DeShawn’s upcoming IEP meeting and possible additional supports you would like to try to maximize his access to inclusion.

- What other information would I like to have?
- Do I need to refer to additional professionals?
- What types of AT might I try with this student?
- How will I know if the tools provided to this student are working?
- Are there any changes I can make to my classroom as a whole, as part of Universal Design for Learning (UDL), so that all of my students can participate more easily?

Sample Answers for Discussion

What other information would I like to have?

How are they teaching DeShawn in the special education classroom? What types of modifications to his assignments are they using now? Was anything different tried in the past? What can I do to support the aide in including DeShawn more in my classroom activities instead of needing to pull him to the side, perhaps providing worksheets earlier for modification and planning opportunities for scaffolded peer interactions? What is the plan for teaching DeShawn to use his communication device?

Do I need to refer to additional professionals?

I would want to see if the speech-language pathologist (SLP) or augmentative and alternative communication (AAC) specialist can push-in to the classroom to model how I should be using or encouraging the use of the communication device. I might also want to consult with the district's AT Specialist (if there is one) and the occupational therapist (OT) about possible supports or handwriting alternatives. If a board-certified behavior analyst (BCBA) is on the team, I could also consult with them about how best to support DeShawn.

What types of AT might I try with this student?

I would likely want to provide additional AAC supports within my classroom to encourage his peers to use something like what DeShawn is using on his iPad. This will be more inclusive and promote greater understanding from his peers about how DeShawn is communicating. An example might be a wall poster with removable symbols that we can hold up during choice-making activities or to illustrate the use of those words during group instruction. A variety of paper-based options offered for free by several of the communication device companies can be found in CTD's Free AAC Resources Guide.

To encourage more independence in completing literacy activities and class worksheets, I might consult with an AT Specialist about providing tablet apps. Examples might include the app [Sound Literacy](#) so that DeShawn can drag and drop letter tiles instead of relying on multiple choice options from his aide to make letter selections. Another option might be the app [Clicker Sentences](#), so that DeShawn can arrange the words in a sentence with scaffolded support. I could also provide physical letter tiles or paper cutouts with the words in a sentence, or plan with his aide to have these available.

I might also want to provide social stories or video models of different ways to ask a peer to play. A social story is a story describing what to expect during a given situation and the way the child would ideally respond or interact. This can be done via an app or on paper. A video model is when a short video clip illustrating a behavior is shown to the child, and the child is encouraged to imitate it. In this scenario, I could ask a couple of DeShawn's peers to use his communication system to ask one another to play and film it for him to watch multiple times. The iPad app [Pictello](#) is often used for social stories and/or video modeling.

How will I know if the tools provided to this student are working?

The special education teacher and I would need to come up with a plan identifying which supports to introduce first, the goal of introducing the supports, and the type of data we will need to collect

to know if the supports are working. For example, the goal might be more independent communication device use, and we could have the aide note down which words his peers modeled on the wall chart and whether DeShawn later used them on his tablet. If the goal is asking a peer to play, data could be tracked on how often DeShawn watches the video model, whether DeShawn tries to imitate the model, and times when DeShawn engages with a peer on the playground using the modeled sentence(s).

Are there any changes I can make to my classroom as-a-whole as part of Universal Design for Learning (UDL) so that all of my students can participate more easily?

It's possible that many students might benefit from having tangible options such as letter tiles or cutout words for sentence construction activities. I could try having them available for everyone during small group activities or for any student who expresses interest.



Meet Lourdes:

Lourdes is a 5-year-old girl in your kindergarten classroom who did not attend preschool. She rarely makes eye contact and seems unable to sit still, frequently wiggling in her chair, leaving her assigned spot on the carpet, and picking at her fingers instead of attending to the class activities. Lourdes often speaks only about her preferred topics of horses and Disney princesses, typically with a lack of intonation and without allowing others to participate in the discussion. She struggles to take turns during games with other children in the class and might become frustrated and leave or throw things on the floor. She is very self-directed and might wander away if an activity fails to capture her interest. Lourdes sometimes has trouble transitioning from one required activity to another, especially if something happens that is not part of the usual class routine. You have noticed that she becomes very upset and cries if she answers a question incorrectly or makes a mistake while working on a picture. Her parents have confided that they have concerns that Lourdes might be on the autism spectrum. They are pursuing diagnostic assessments outside of the school system.

- What other information would I like to have?
- Do I need to refer to additional professionals?
- What types of AT might I try with this student?
- How will I know if the tools provided to this student are working?
- Are there any changes I can make to my classroom as a whole, as part of Universal Design for Learning (UDL), so that all of my students can participate more easily?

Sample Answers for Discussion

What other information would I like to have?

Is it possible that some of these concerns stem from Lourdes not having attended preschool (e.g., from unfamiliarity with peer interactions or classroom routines)? What type(s) of assessments are her parents looking into? What have they noticed at home that prompted their concern? Have they tried any strategies or tools at home that have been successful?

Do I need to refer to additional professionals?

I would likely want to let an administrator know that the family is having outside testing done. I would also ask the administrator if the district should recommend doing its own assessments or wait until the parents share information about the outside diagnostics. If possible, I would want to begin formal or informal consultation with the school speech-language pathologist (SLP) around pragmatics, the school occupational therapist (OT) around possible sensory needs, and the board-certified behavior analyst (BCBA) if there is one around handling moments of transition. If there is an AT Specialist available in the district, I would want to ask if they have any suggestions and what the process is for requesting their involvement.

What types of AT might I try with this student?

I could try a variety of visual supports with Lourdes to help her better understand the classroom and play routines. For example, a turn board might help to illustrate the nature of turn-taking more concretely. A turn board shows small photos or drawings representing the child who needs support and other classmates in an alternating fashion and allows for each turn to be checked off as it occurs. I would show Lourdes' photo, then a line drawing of a child to represent any classmate, then a photo of Lourdes again, and so on down the length of the page. Lourdes could have a princess or horse sticker to mark off each successful turn that she and a classmate take while playing a simple game. Eventually drawings representing more than one classmate could be added and the peer group engaging in the activity expanded.

Similarly, I could try providing a token board for less-preferred activities. With a token board, Lourdes would earn a token (ideally a picture of a horse or a Disney princess to maximize motivation) for each question she answered or set time interval spent engaged with the adult-directed activity. After earning the total number of available tokens, she could take a break with a more preferred toy or activity.

If I don't already have a classroom schedule in place with pictures the children can understand, I would likely want to implement one to help Lourdes track the activities we have completed for the day and what will happen next to help reduce her anxiety and upset around transitions. A timer might also help to show Lourdes the amount of time left for a given activity before the class will move to the next one. Given her age, a timer that provides visual feedback by showing a shrinking colorful wedge is advisable. Popular physical versions include the [Time Timer](#) and the light-up [Time Tracker](#). iPad app versions include a Time Timer app and the [VisTimer](#) app.

I could try introducing one or more sensory items to see if having something to hold or squish in her hands will allow her to meet her sensory needs while staying with the group and in her assigned seat. Depending on the resources available to me, I might want to designate Lourdes' space more clearly during floor time activities, such as by giving her a smaller mat to stay on or providing an inflatable disc for her to balance on.

I might also want to provide social stories or video models of peers taking turns deciding the topic of conversation. As noted above, social stories and video models illustrate a desired behavior that a child is encouraged to imitate. In this scenario, I could ask a couple of older students to role-play having finished a conversational topic by having one politely ask to talk about something else, and the other agreeing and changing the topic. I would film it for Lourdes to watch multiple times. There are a number of tablets apps that support social stories and/or video modeling.

How will I know if the tools provided to this student are working?

It will depend heavily on the tools I put in place. For example, I could date and keep the turn boards so that I can compare the number of successfully completed turns across time. I could also track the length of time that Lourdes stays with the group during her non-preferred activities when given access to various supports.

Are there any changes I can make to my classroom as-a-whole as part of Universal Design for Learning (UDL) so that all of my students can participate more easily?

If my students are currently sitting on a large rug together, I could try to make their assigned spots and the amount of space available to each student clearer by making tape boxes on the floor or using smaller mats. This might help many students, not just Lourdes, stay in their designated space. I've also noticed that Wiggle cushions and wobble seats are increasingly popular in classrooms to help students stay focused while giving their bodies the ability to move. To ease activity transitions, it's possible that the entire class would benefit from having a visual schedule and/or visual timer in place to help with understanding the structure of their day.