

Learning Disabilities & the Accommodations and Assistive Technology that provides accessibility

By Tracey Antista

K-6th ELA Resource Teacher



What does your CEC
membership mean to you?



Challenge

Find the AT in
the photo

Assistive Technology



Assistive Technology

If AT can be so beneficial and crucial to student learning, why are educators and school teams sometimes hesitant to use it in the classroom?

It's possible that the answer lies in misunderstandings about what assistive technology is and how it functions in education.

The logo for edutopia, featuring the word "edutopia" in a white, lowercase, serif font, centered within a solid orange rectangular background.

edutopia

5 misunderstandings

1 Using AT is cheating

Do we consider a student who wears glasses to be cheating? Glasses are AT; they allow someone with poor eyesight to see better.

AT allows students with reading, writing, communication, visual, hearing, and mobility challenges to improve their functioning in the classroom.

2 AT is expensive

Some AT costs a lot, it's true—but some is free or very inexpensive.

-Slant Boards using a binder \$1
-Free apps
-[AT Device Loan Program](#)

3 AT is more work for the teacher

AT is a tool that teachers can use to deliver instruction.

For example, creating centers that give students the option of listening to an audiobook while their peers read silently is an example of how to easily incorporate AT.

4 AT is only for those with severe disabilities

AT can benefit all students with disabilities
However, students with learning disabilities are the fastest growing group to utilize technology tools.

5 AT is only for the Classroom

AT tools can be used at home and at school. AT is used in academics and learning, recreation, daily living activities, communication, mobility, and more.

Student who uses an augmentative and alternative communication (AAC) device to communicate in school, can also practice using it in the community

**What got you thinking
or what questions do
you still have?**

Post in the chat box



Rethinking Assistive Technology

by Jennifer Sullivan

For students with disabilities, assistive technology isn't a nice -to-have; it's crucial to their learning and success in school.

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edutopia

Note Taking

1 Use sketchnotes technique



2 Copy the presentation.

Use speaker notes area at the bottom of the slide to take notes

3 Photos of Slides

Save to [Notability](#) then mark-up.

4 Website Bookmarking Tools

[Google Keep](#)

[Padlet](#)

[Wakelet](#)

[Pinterest](#)

[Symbaloo](#)

[Bookmark](#)

5 Create a graphic organizer

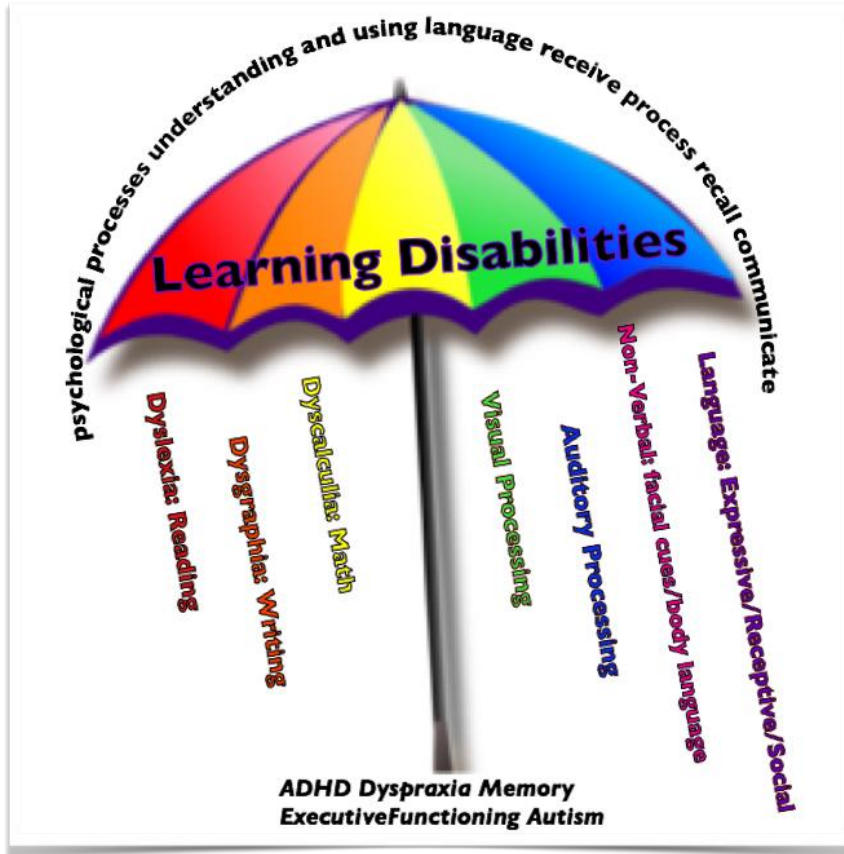
Use pre made [Google Drawing](#) template or create your own,

Is there an app for everything?



What AT tools help
students with learning
disabilities?

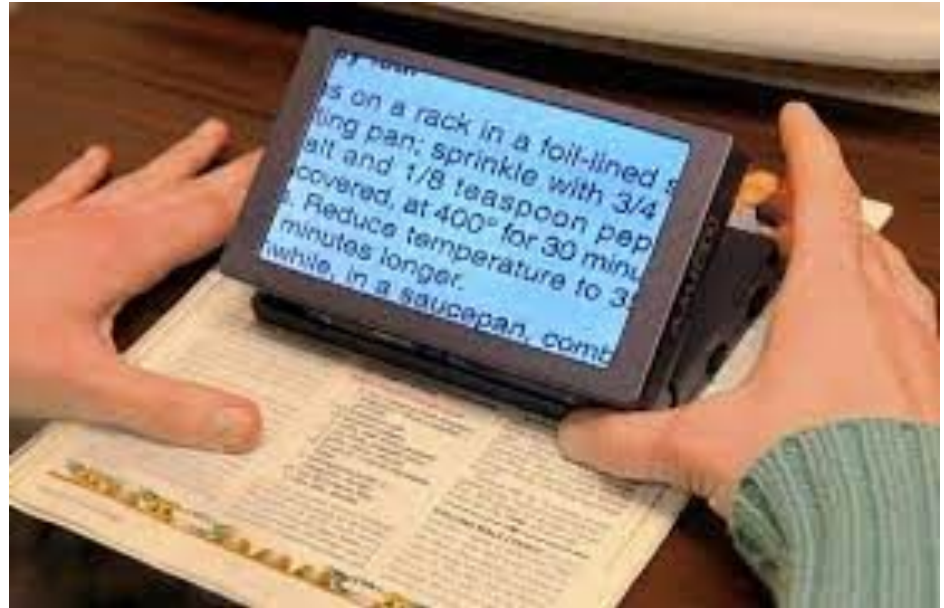
“**Learning Disabilities**” is an “umbrella” term describing a number of other, more specific learning disabilities, such as dyslexia, dyscalculia and dysgraphia.

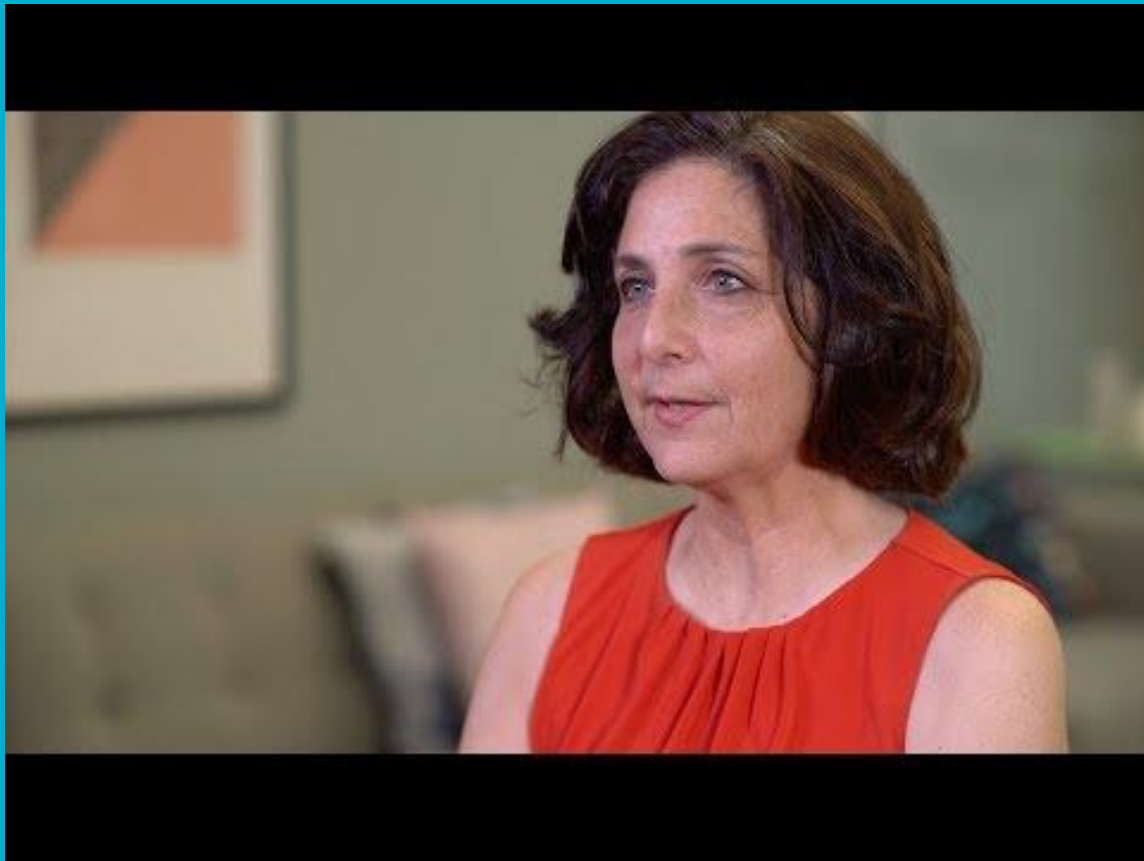


The invisible disability

Reading

- A specific learning disability that affects reading and related language-based processing skills.
- Can affect reading fluency, decoding, reading comprehension, recall, writing, spelling, and sometimes speech.
- Dyslexia is another term.





Assistive Technology for Dyslexia: One Mother's Story

Try This!

“ehT kcalb tac tas no eht
toh nit foor”

Reading

- Text to Speech

- [Natural Reader](#)
- [Read and Write](#)
- [Word wizard - Talking Alphabet](#)



Reading

- Audio Books

- [BookShare for students with print disabilities.](#)
- [Libby Public Library](#)
- [YouTube Chapter Books](#)
- [Learning Ally](#)

Reading

- **OCR**

Extract text from image or
convert PDF to have read
aloud

[onlineocr](#)

Reading

- **Graphic Organizers**

[Scannable](#)

[Text Grabber](#)

Notes app iOS

[PDF to Go](#)

[Canva](#)

[Google Drawings](#)

Make you own using Google Slides

[EdrawMax](#)

Reading

- **Digital PDF's**

[Scannable](#)

[Text Grabber](#)

Notes app iOS

[PDF to Go](#)

Reading

- **Flashcards**

[Quizlet](#)
[Flippity](#)

What tools would you have her explore?

Student with Learning Disabilities

B.D. was 15 years old in ninth grade. She was very motivated to learn and aware of the extent of her learning disabilities. Her test results revealed that her oral reading and spelling were between a first- and second-grade level, while her auditory comprehension was at a 12.6 grade level.

B.D. has had access to a laptop, which has not increased her writing skills as the word processing program did not provide her with the level of support she required.

Student with Learning Disabilities 2

B.D. tried a variety of strategies and decided what tools best met her needs. She was able to immediately recognize the benefit of many of the tools and could use the **various tools available over the Internet.**

- **Word prediction, a text reader, and a scanning component**
- **Computer- or web-based graphic organizers**
- **Voice recognition**
- **e pens that allow auditory information to be recorded**
- **e-text resources and signed up for Bookshare**
- **Learning Ally**

Writing

- A specific learning disability that affects a person's handwriting ability and fine motor skills.
- May include illegible handwriting, inconsistent spacing, poor spatial planning on paper, poor spelling, and difficulty composing writing as well as thinking and writing at the same time.



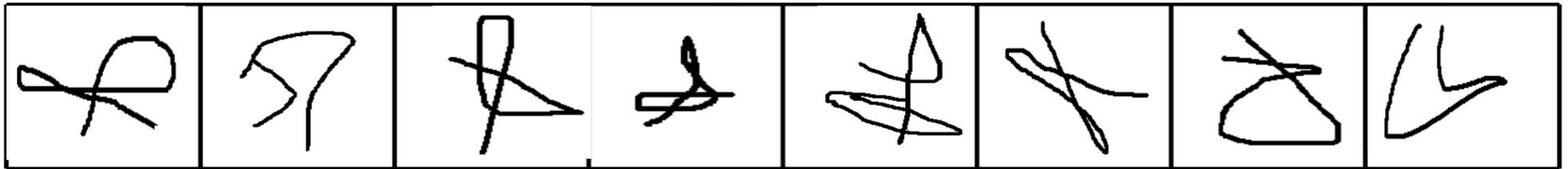
**ASSISTIVE TECHNOLOGY
FOR WRITING**



Try This!

Use your non-dominant hand to perform the following:

Copy the designs you see below with your neatest and
quickest skill



Writing

- Processors
- Spell Checkers
- Proofreading Programs
- Outlining
- Brainstorming Programs
- Speech to Text
- Text to Speech
- Word Prediction Programs
- Alternative Keyboards
- Handwriting Tools



Writing

★ Processors

- **Google Docs**
- **Microsoft Office**



Writing

★ Spell Checkers

- Ginger corrects mistakes & rephrase

Writing

- Proofreading Programs

- [Grammarly](#)
- [Quill](#)

Writing

- **Brainstorming Programs & Outlining**

- [Mindomo](#)
- [mindmeister](#)

Writing

- ★ **Speech to Text**
- ★ **Text to Speech**
- ★ **Word Prediction**

- [read write](#)
[google chrome](#)

Writing

Word/Picture Prompts

- [write about this iOS](#)
- [write about this iOS](#)
- [Video Writing Prompts](#)
- [write about](#)
- [Tell about this iOS](#)

Writing

Alternative Writing
Assignments
Videos, quizzes, Digital
Story Books

- [Pixton](#)
- [Book Creator](#)
- [Flip Grid](#)
- [**Chatterpix**](#)
- [Socrative](#)
- [Kahoot](#)
- [Peardeck](#)

Writing

A 7-year-old student with cerebral palsy is unable to use a pencil to write letters and words clearly. He dictates answers to his teacher for many assignments. What expectations should his teacher have for him to independently write answers in his school assignments? Should AT be considered?

Writing

- A 13-year-old student with learning disabilities is able to write assignments. However, because of severe spelling and grammar errors, most of his assignments are unacceptable. What are the expectations for this student to be able to correct spelling and grammar in all assignments? Should AT be considered?

Dyscalculia - Math

- A specific learning disability that affects a person's ability to understand numbers and learn math facts.
- May have poor comprehension of math symbols, may struggle with memorizing and organizing numbers, have difficulty telling time, or have trouble with counting.



Dyscalculia - Math

- Talking Calculators



- [Photomath - Camera Calculator](#)
- [Symbolab](#)
- [WebMATH](#)

Dyscalculia - Math

- Visuals

- [TouchMath](#)
- [Virtual Manipulatives! by ABCya.com](#)
- [Toy Theater](#)
- [National Library of Virtual Manipulatives](#)

Dyscalculia - Math

- Graph Paper
- Graphing Tools
- Charting

- [Panther Math Paper iOS](#)
- [ClassPad](#)
- [GeoGebra](#)
- [Math Apps by The Math Learning Center](#)
- [Digital Math Tools](#)

Dyscalculia - Math

- Drawing Tools

[Smartdraw](#)

[My blackboard + by AKRIO iOS](#)

[My blackboard + by AKRIO
Google](#)

[Various WhiteBoard
Educreations](#)

Dyscalculia - Math

- Electronic Math Worksheets

**Electronic Math
Worksheets
(snaps handwritten
problem converts to
digital form)**

[MathPix Snip](#)

Dyscalculia - Math

- Equation Solving Tools

- [Khan Academy Kids](#)

Dyscalculia - Math

- Drill and Practice

- [Prodigy](#)

What AT could be used?

A student with developmental disabilities participates in a fourth-grade inclusion classroom. The parents want the student to participate in all activities that the other students are doing. The subject material is cognitively becoming difficult for the student. Therefore, a full-time aide assists him so that he can complete assignments. Are the curriculum expectations appropriate for this student? Should AT be considered?

Language Processing

- Language Processing Disorder (LPD) relates only to the processing of language.
- LPD can affect expressive language and/or receptive language.



Language Processing

- Visuals

[Educreations iOS Socrative](#)

[Edulastic](#)

[Plickers](#)

[EdPuzzle](#)

[YouTube](#)

[Lesson Pix](#)

[Green Screen pre-loaded](#)

[activities](#)

Language Processing

- Audio Supports

Provide pre-recorded lessons instead of taking notes

[Tell about this iOS](#)

[Flip Grid](#)

[Notability](#)

Language Processing

- Mapping

Mind Meister

Popplet

mural

Language Processing

- Story Starters

[write about this iOS](#)

[Video Writing](#)

[Prompts](#)

[write about](#)

Language Processing

- Vocabulary Supports

[WordWall](#)

[Visual Dictionary](#)

[kids wordsmyth](#)

Language Processing

- Reading Supports

- [BookShare for students with print disabilities.](#)
- [Libby Public Library](#)
- [YouTube Chapter Books](#)
- [Speechify](#)
- [Text to Speech](#)
- [Add Captions to Video Files Google](#)

Non-Verbal Learning

- A disorder which is usually characterized by a significant discrepancy between higher verbal skills and weaker motor, visual-spatial and social skills.
- Typically, an individual with NLD (or NVLD) has trouble interpreting nonverbal cues like facial expressions or body language, and may have poor coordination.



Activity: No Words

Player: Chose one of the 7 phrases below and figure out a way to let player 2 know what the sentence is without writing, speaking or using any letters of the alphabet.

- I feel funny.
- I want a Coke.
- I lost my homework.
- My foot hurts.
- I want a hamburger for lunch.
- I'm allergic to strawberries.
- I hate ketchup

Discuss:

Was it difficult to communicate using this method? What would have helped? How can we communicate with someone who can't talk back? How can we help them communicate?

Non-Verbal

Accommodations/AT	Tech Tools
Simplify instructions or concepts	Rewordify
Use social stories when the child seems lost, confused, or upset	Tellagami ABA Resources
Provide a daily and/or weekly schedule in advance for field trips, assignment due dates, report due dates	Lesson Pix
Provide calming activities at signs of overload (it's best to provide prior to)	smilingmind GoNoodle

Auditory Processing

- This is a condition that affects how sound that travels unimpeded through the ear and the way it is interpreted by the brain.
- Individuals with APD do not recognize subtle differences between sounds in words, even when the sounds are loud and clear enough to be heard.
- They can also find it difficult to tell where sounds are coming from, to make sense of the order of sounds, or to block out competing background noises.



Auditory Processing

- Personal listening devices (PLD)
- Sound field systems
- Noise-canceling headphones
- Audio recorders
- Captioning
- Text-to-speech (TTS) software



Watch this!

Follow the directions

<http://youtu.be/vzegGXoZY30>

Auditory Processing

Accommodations/AT - APD	Tech Tools
Personal listening devices (PLD)	Auditory Processing Communicator by James Munro iOS
Noise-canceling headphones	White Noise
captioning	Add Captions to Video Files Google
Show rather than explain	Jamboard Educreations Canva
Supplement with more intact senses (use visual cues, signals, handouts, manipulatives)	VisTimerFree App Toy Theater Online
Reduce or space directions, give cues such as “ready?”	Nearpod

Auditory Processing

Accommodations/AT - APD	Tech Tools
Reword or help decipher confusing oral and/or written directions	<u>Rewordify</u>
Provide visuals or written explanations of vocabulary	<u>Sketchnotes</u> <u>Lesson Pix</u>
Teach abstract vocabulary, word roots, synonyms/antonyms	<u>Kids Word Smyth</u>
Vary pitch and tone of voice, alter pace, stress keywords	<u>Tellagami</u> <u>Animoto</u>
Teach visualization and verbalization approach to spelling and reading decoding skills that reinforce sound-symbol association	<u>UFLI Virtual Teaching Resource Hub</u> <u>edrawmax</u>
Ask specific questions as you teach to find out if they do understand	<u>Socrative</u> <u>Edulastic</u> <u>Plickers</u>

Captioning

Captioning allows kids to read text that matches what's being said. This can make it easier for kids with APD to understand spoken language. A classic example is closed captioning on television. Movies and some Internet videos, like those on YouTube, also offer captioning.

The use of captioning may be helpful for children learning to read



Visual Processing

- A disorder that affects the understanding of information that a person sees, or the ability to draw or copy.
- A characteristic seen in people with learning disabilities such as Dysgraphia or Non-verbal LD, it can result in missing subtle differences in shapes or printed letters, losing place frequently, struggles with cutting, holding pencil too tightly, or poor eye/hand coordination.



Blend

Try This!

Read this quickly.

Know that there will be a quick reading comprehension quiz at the end.

Disability Inclusion

The Jewish Federation
MAKE IT YOURS

A Children's Story:

Ono^e ud^on a tⁱne, iⁿ teh m idd^le of a t^bick
fcre^sts too^d a sma^l co^{tt}e ge. I taws the h^om^e oP a
qr^et ty Ii^tt^e gr^{ll} kⁿo^W i to^e ver^ycn^e a s Li^tl^e Red
Ridⁱug Ho^oq, bce^a us^e ol t^he b^righl^ly clo^ored
co at she w^or^e. Oⁿ e baY, he^rno^the^r ya^ve h^er a
vo^ven da^s ekt fu^{ll}oP g^eli^cious fo^ob, and saⁱd :

"Gr^andm^as ill. Tak^e h^er t^hi^s ba^sko^t of ca^kse,
but de v^ey^r car e^fu!. Don^t strag^form te h^dath
t^hroug h^t h^e wo^ols."

Visual Processing

Accommodations/AT	Tech Tools
Practice handwriting instruction	Wet-dry-try Little Writer Learning Without Tears
Provide copies of notes or outlines to reduce the amount of writing required./Reduce copying tasks/Create digital PDF of work	Scannable Text Grabber
Provide tracking tools: ruler, text windows	Reading Ruler
Provide visual alternative for written assignments	Pixton Book Creator Chatterpix
Speech to text/ Text-to-speech/color highlighting/word prediction	read write google chrome Text to Speech

Visual Impairment

- An 8-year-old student has a severe visual impairment. The text in the second-grade books is too small for her to recognize. Other students read the text aloud to her. What expectations for increased independence are there for this student to gain information from text material? Should AT be considered?

Wrap-Up Thoughts

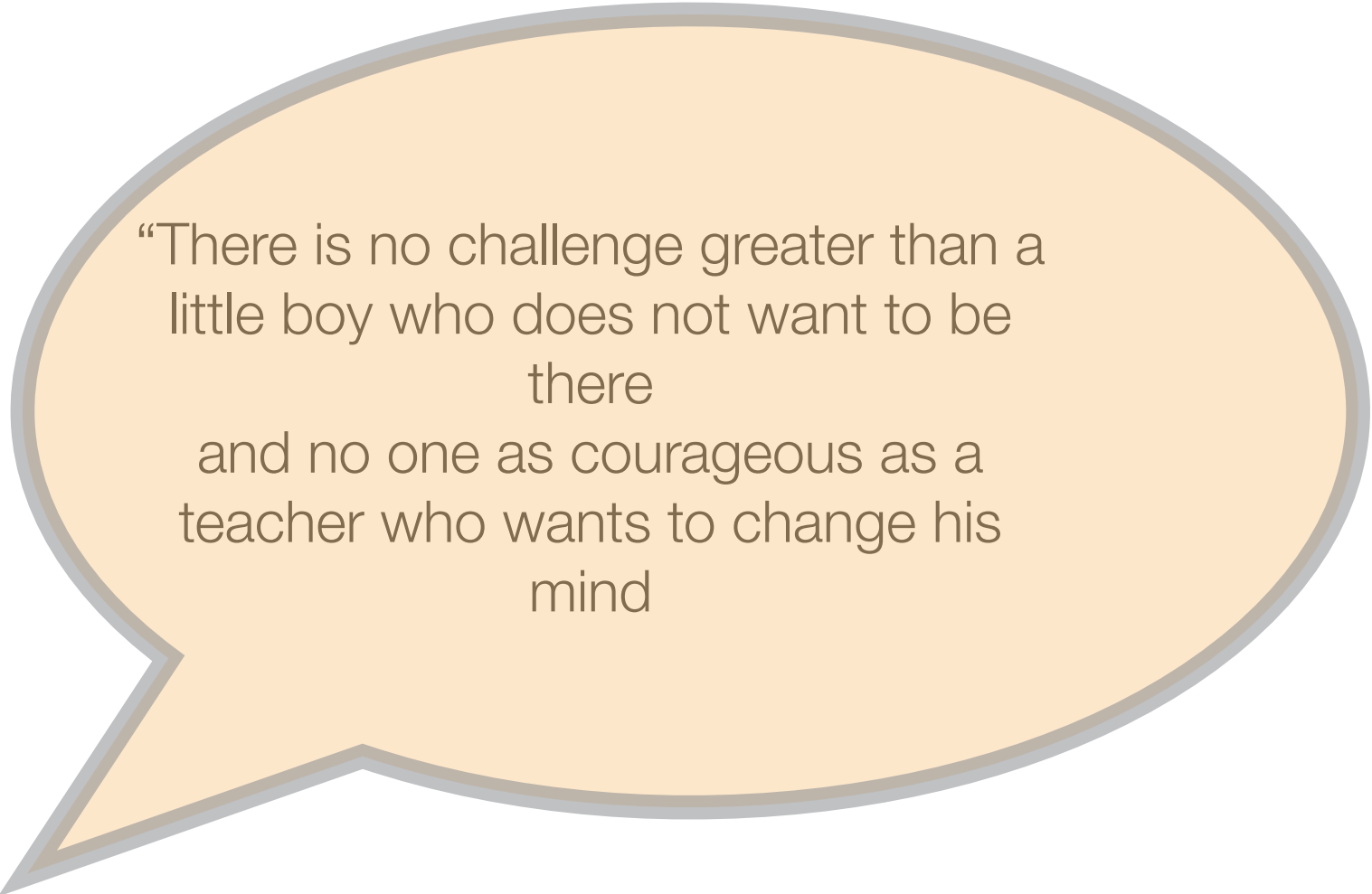
In each of these instances, the student is unable to participate in classroom activities through typical modes due to his/her disability. Determination of special education services and goals and objectives must be based on a clear understanding of the student's needs and the classroom expectations. When developing the student's IEP, the Present Levels of Performance should define the educational expectations as well as the student's areas of difficulty due to his/her disability. The educational expectations should start with the expected participation of typical students and then specify what is expected of the student with disabilities. **Enabling the student to participate may involve a series of interventions, strategies, modifications, accommodations, as well as AT.** For these reasons, consideration of AT must be integrated into the IEP process, as opposed to being an afterthought as simply a "special factor."



Dear Teacher,

Heartfelt advice to teachers from students

https://youtu.be/ITMLzXzqB_s



“There is no challenge greater than a
little boy who does not want to be
there
and no one as courageous as a
teacher who wants to change his
mind

-Unknown

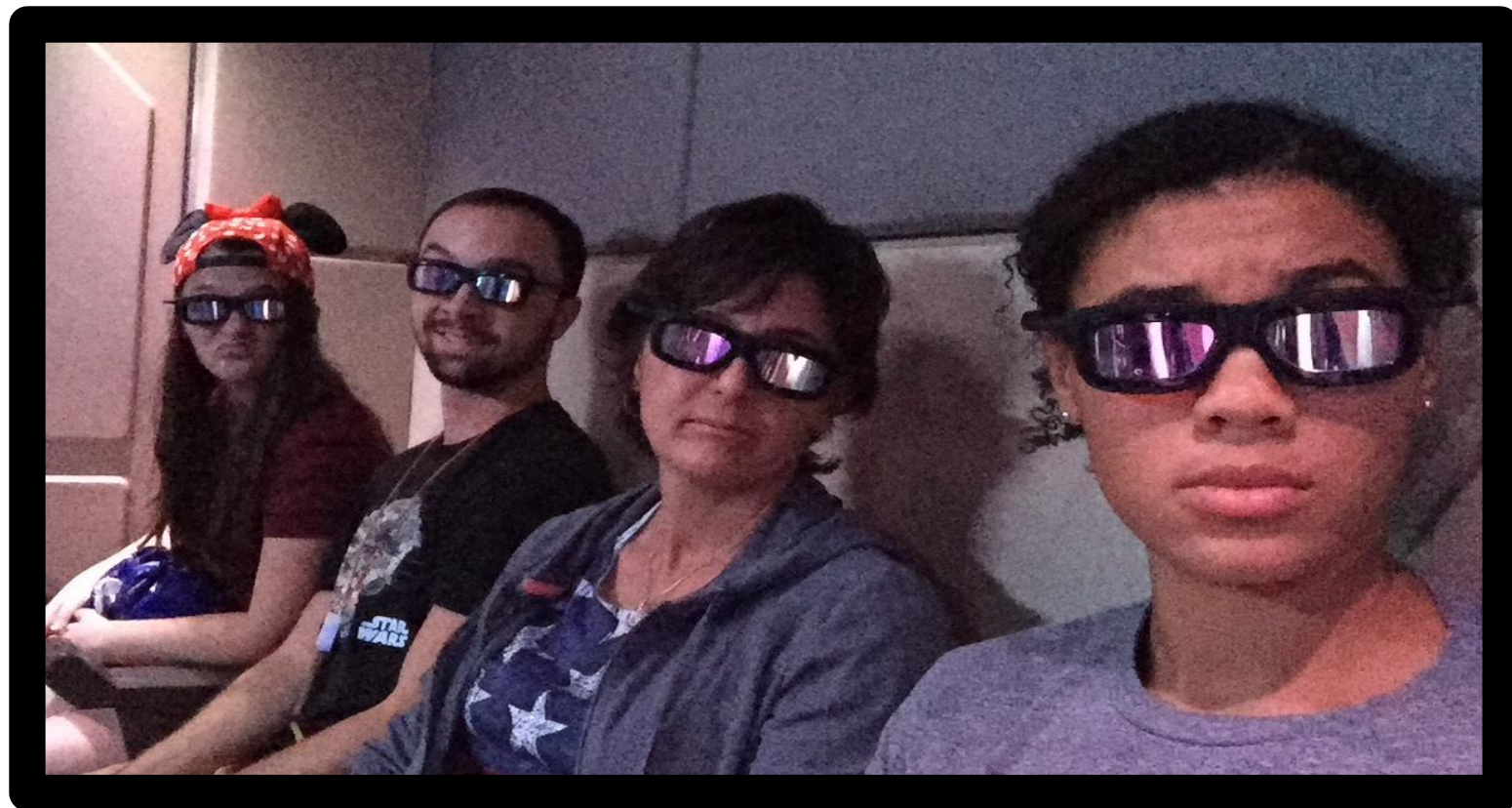
Assistive Technology

“For most people, technology makes things easier. For people with disabilities, however, technology makes things possible.”

edutopia



Disneyland & AT



Resources

- [50+ Accommodations/AT tech tools](#)
- SPEDBITS website: <https://spedbits.weebly.com/>
- [What is assistive technology?](#)
- [Assistive Technology: Resource Roundup](#)
- [Rethinking Assistive Technology](#)