

Powering Up with Technology: A Guide for Parents

**Prince George's County Public Schools
Technology Conference
13 November 2010**

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Presentation Overview

- What is Universal Design?
- How does technology work with UDL?
- Advocating for assistive technology
- An overview of the technologies

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Buildings

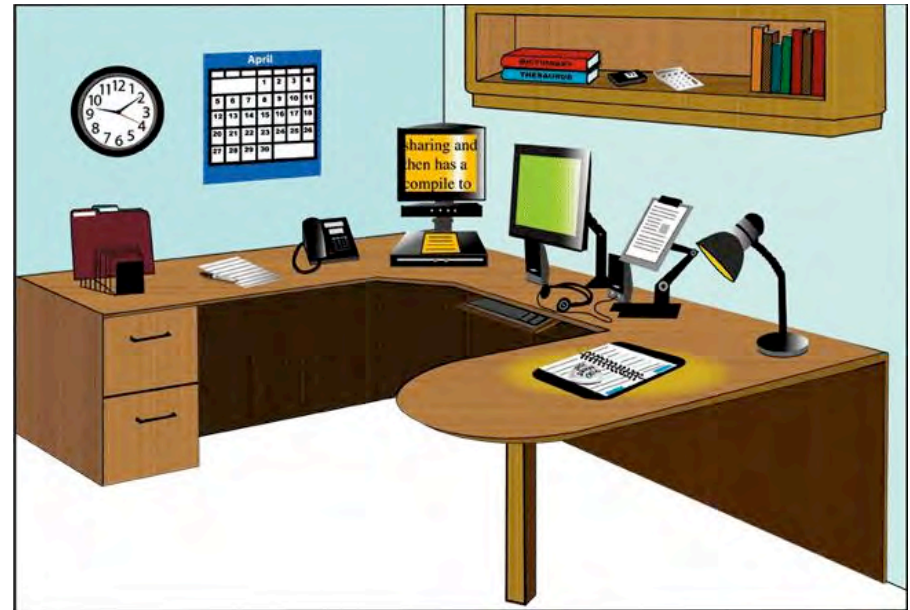
Universal Design For Architecture



Plan to accommodate during the design phase

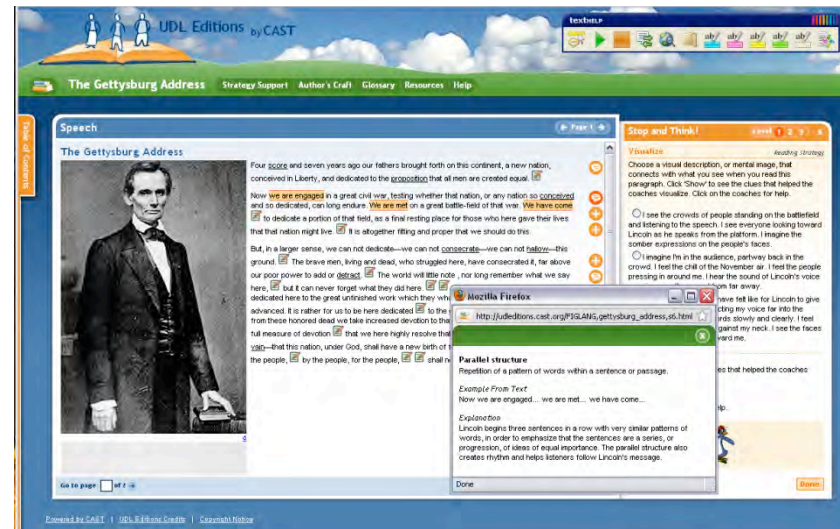
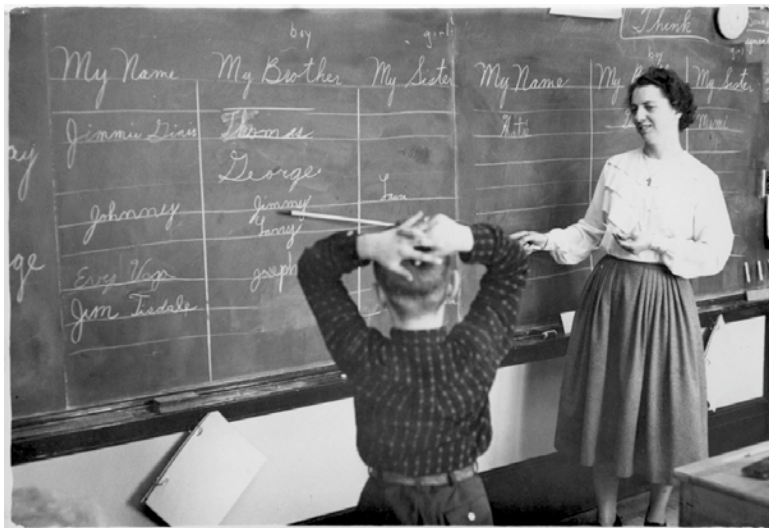
Work

Universal Access

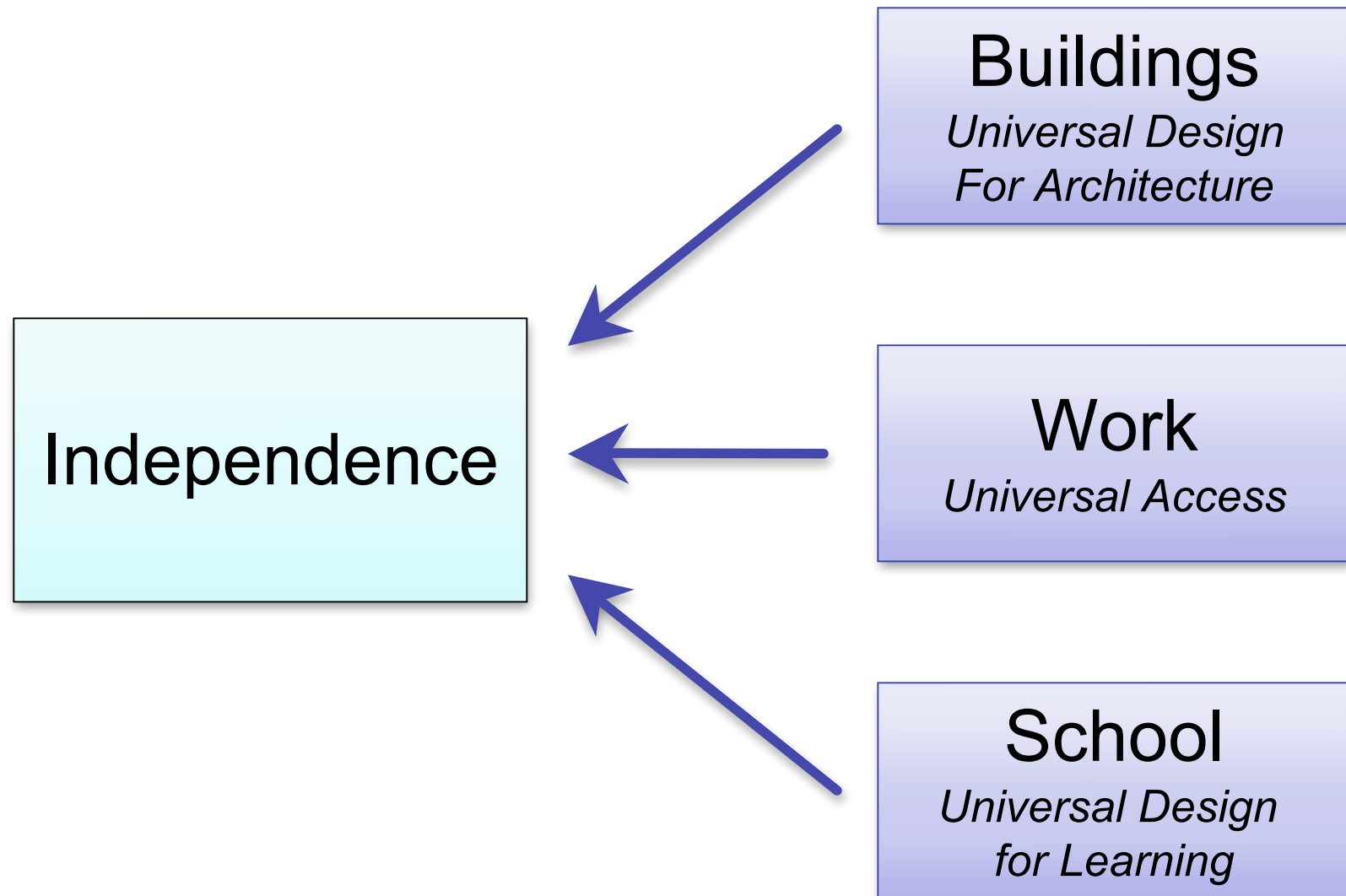


School

Universal Design for Learning



Design to engage students at all levels



Zits

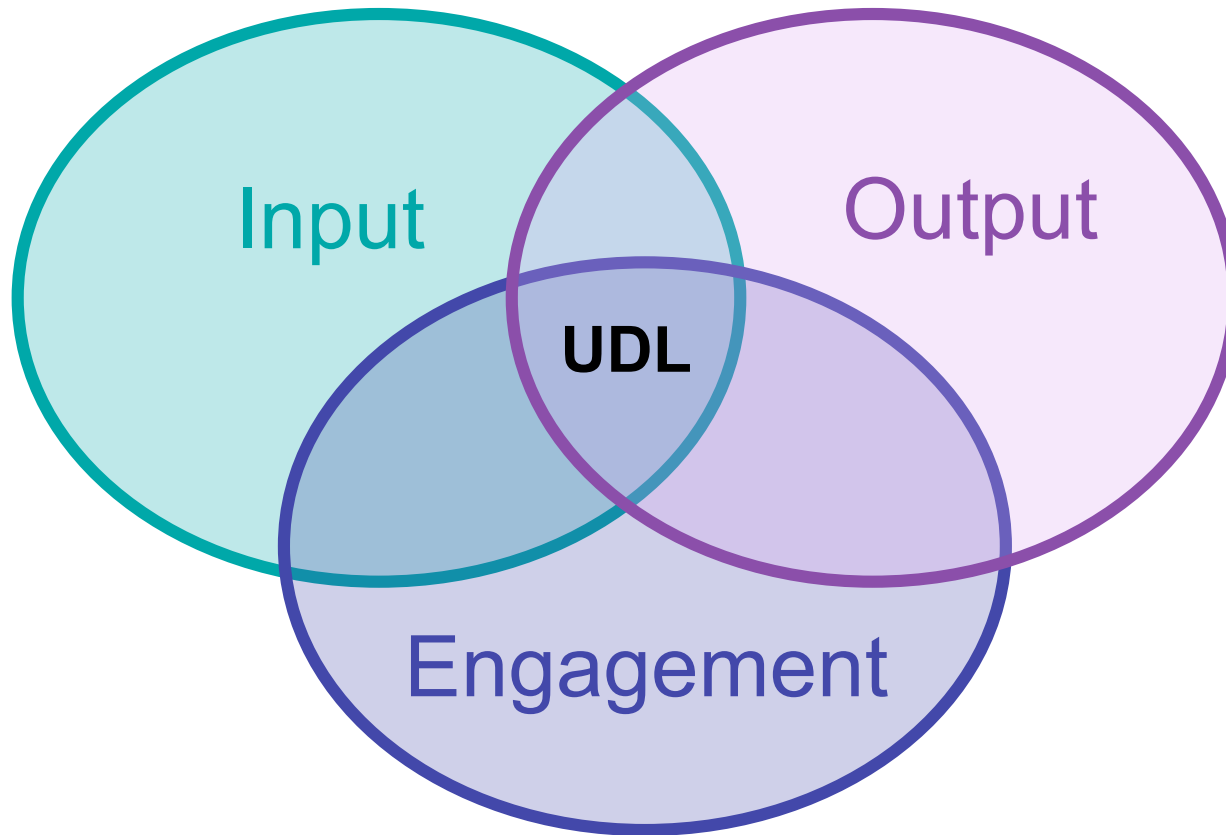
BY JERRY SCOTT AND JIM BORGMAN

Nov. 6, 2010



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Learning Networks



All working simultaneously.

<http://www.cast.org/publications/UDLguidelines/version1.html>

Connecting Brain Research and Universal Design for Learning (UDL)



The **WHAT** of Learning

The **HOW** of Learning

The **WHY** of Learning

Recognition Network

Student: Making Connections, Long Term Memory, Ideas

Teacher: Uses Multiple and Flexible Means of **Presenting** what is to be Learned

INPUT

Expression/Strategic Network

Student: Planning, Regulating and Executing Action for Output

Teacher: Allows Multiple and Flexible Means of **Demonstrating** what was Learned

OUTPUT

Affective Network

Student: Connecting Emotionally, Providing Purpose

Teacher: Uses Multiple and Flexible Means of **Engaging** the learner in what is to be Learned

ENGAGEMENT

Recognition: Input

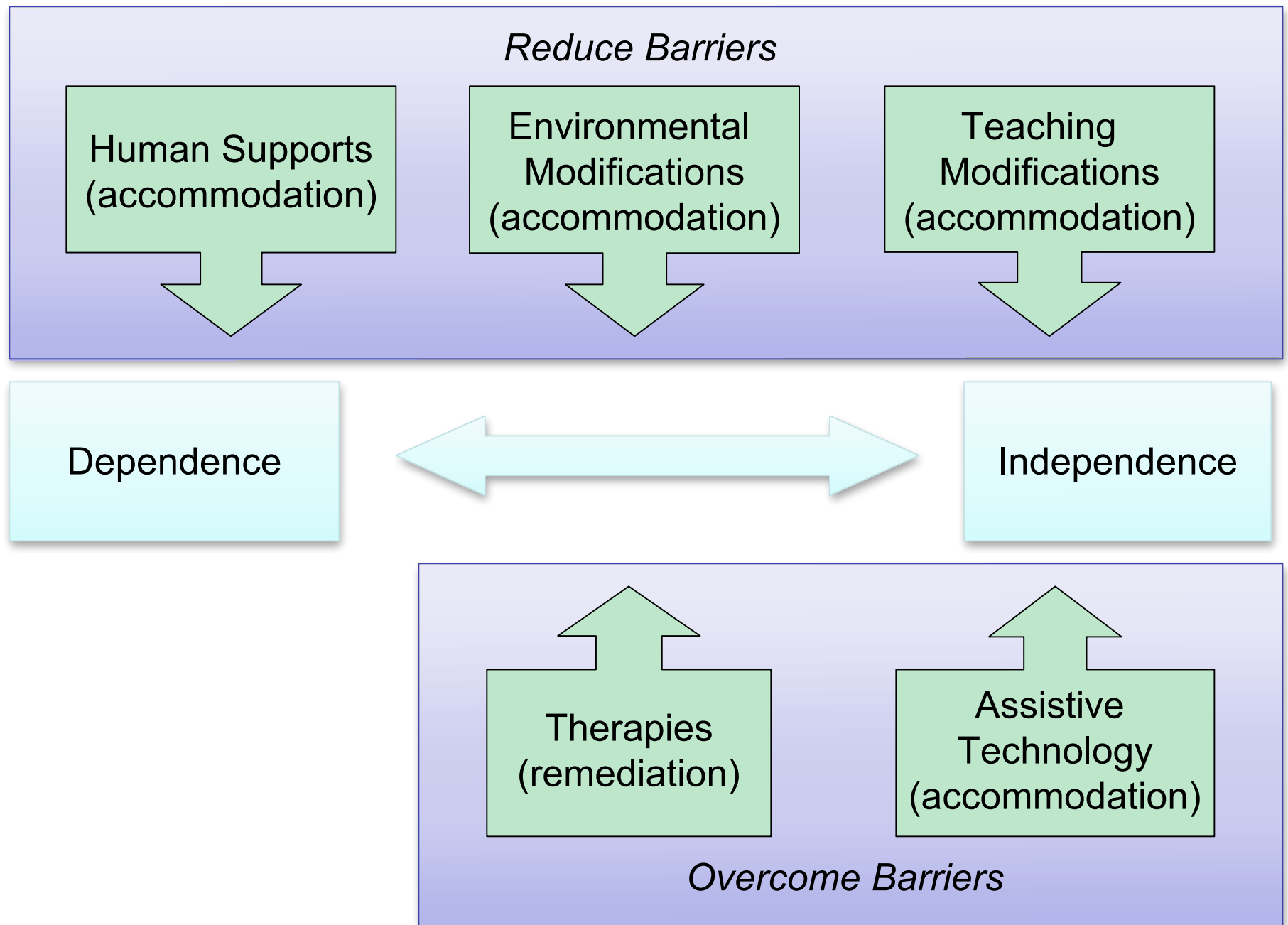
Different modes of perception
Different ways to present language
Different ways to present concepts

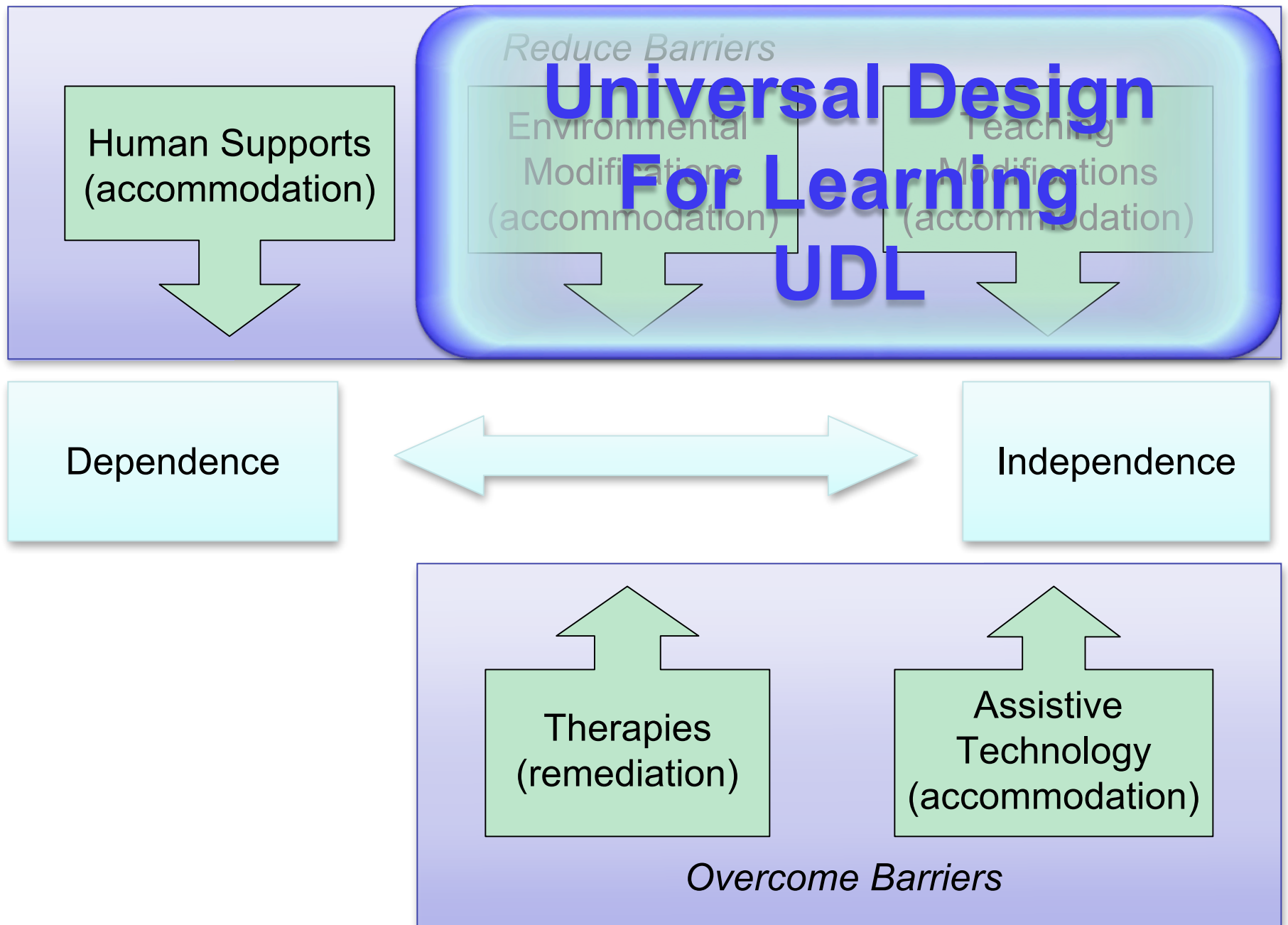
Expression: Output

Provide organizational support
Allow different modes of expression
Encourage physical action

Engagement

Create interest
Sustain effort & persistence
Help with self-regulation





Presentation Overview

- What is Universal Design?
- How does technology work with UDL?
- Advocating for assistive technology
- An overview of the technologies

- UDL is about *best teaching practices* for the inclusive classroom
- Assistive technology *enables greater individualization*, which can help a child with disabilities to function in an inclusive classroom
- Technology can *make it easier* for a teacher to implement universal design

Presentation Overview

- What is Universal Design?
- How does technology work with UDL?
- **Advocating for assistive technology**
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Accommodations and the Law



Rehabilitation Act (1973; 1998)

Section 504 (1973): Prohibits exclusion of individuals with disabilities in programs and activities receiving Federal financial assistance.

Section 508: Prohibits federal agencies from procuring, developing, maintaining, or using electronic and information technology that is inaccessible to people with disabilities.

Americans with Disabilities Act (1990)

Prohibits discrimination on the basis of disability.



Individuals with Disabilities Education Act of 1997

Ensures a free appropriate public education to all children with disabilities.

Which technology can help my child?

- Request “an assistive technology evaluation” in writing and/or during an IEP meeting.
- Contact the Maryland Assistive Technology Network (<http://www.matnonline.com/>)
- Contact the the Maryland Assistive Technology Co-operative (<http://www.matcoop.org/>)

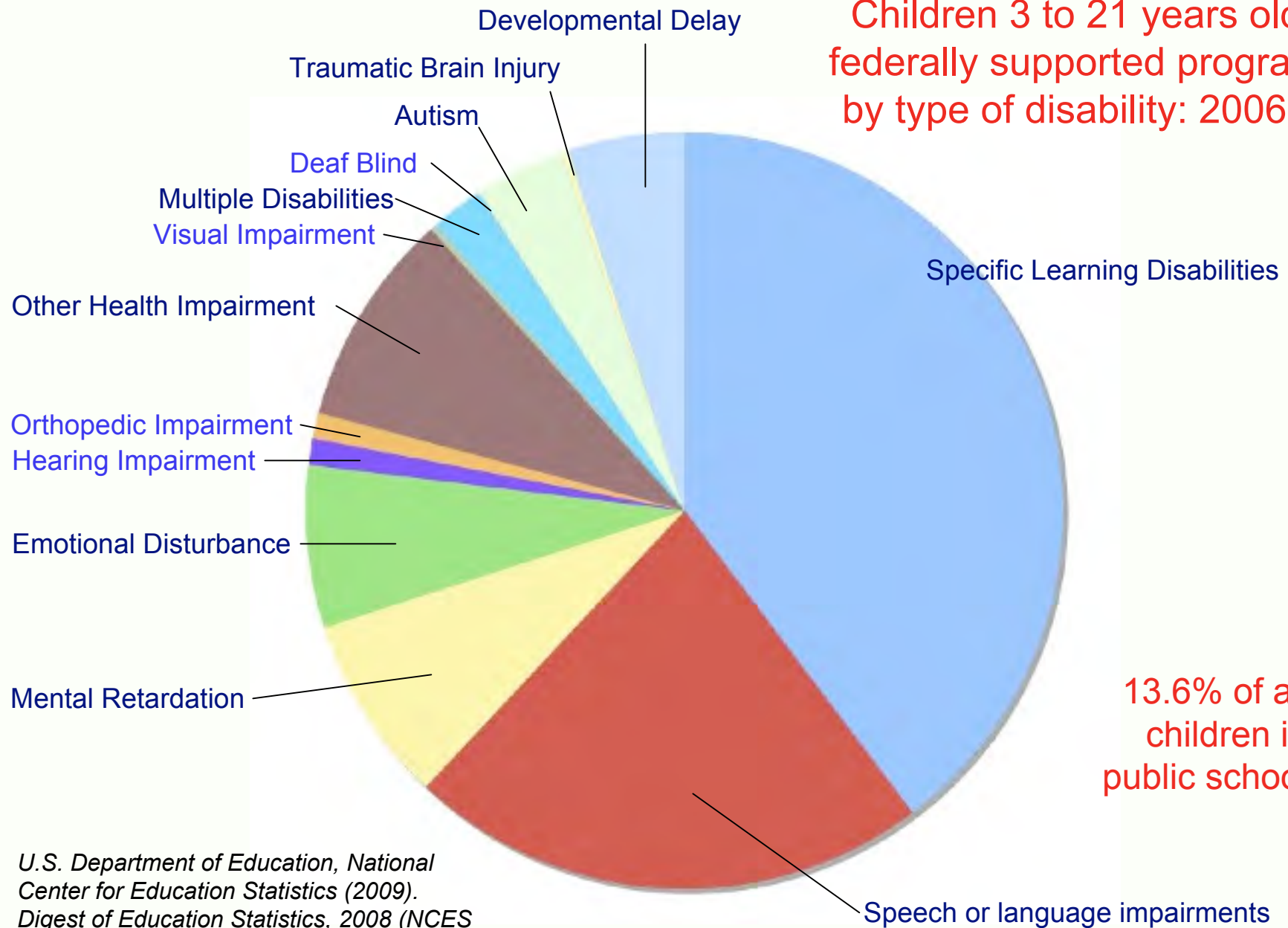
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Types of Disabilities

- Hearing impairments
- Visual impairments
- Orthopedic impairments
- Specific learning disabilities
- Speech or language impairments
- Other Health impaired (ADHD, Diabetes)
- Emotional Disturbance
- Autism
- Developmental Delay

Children 3 to 21 years old in
federally supported programs
by type of disability: 2006-07



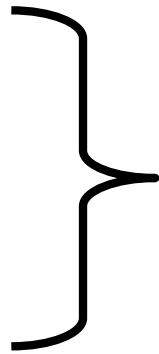
13.6% of all
children in
public school

U.S. Department of Education, National
Center for Education Statistics (2009).
Digest of Education Statistics, 2008 (NCES
2009-020), Chapter 2.

Specific Learning Disabilities

Disorder in one or more of the basic psychological processes involved in understanding or using spoken or written language resulting from an imperfect ability to:

- listen,
- speak,
- read,
- write,
- spell,
- think,
- do mathematical calculations.

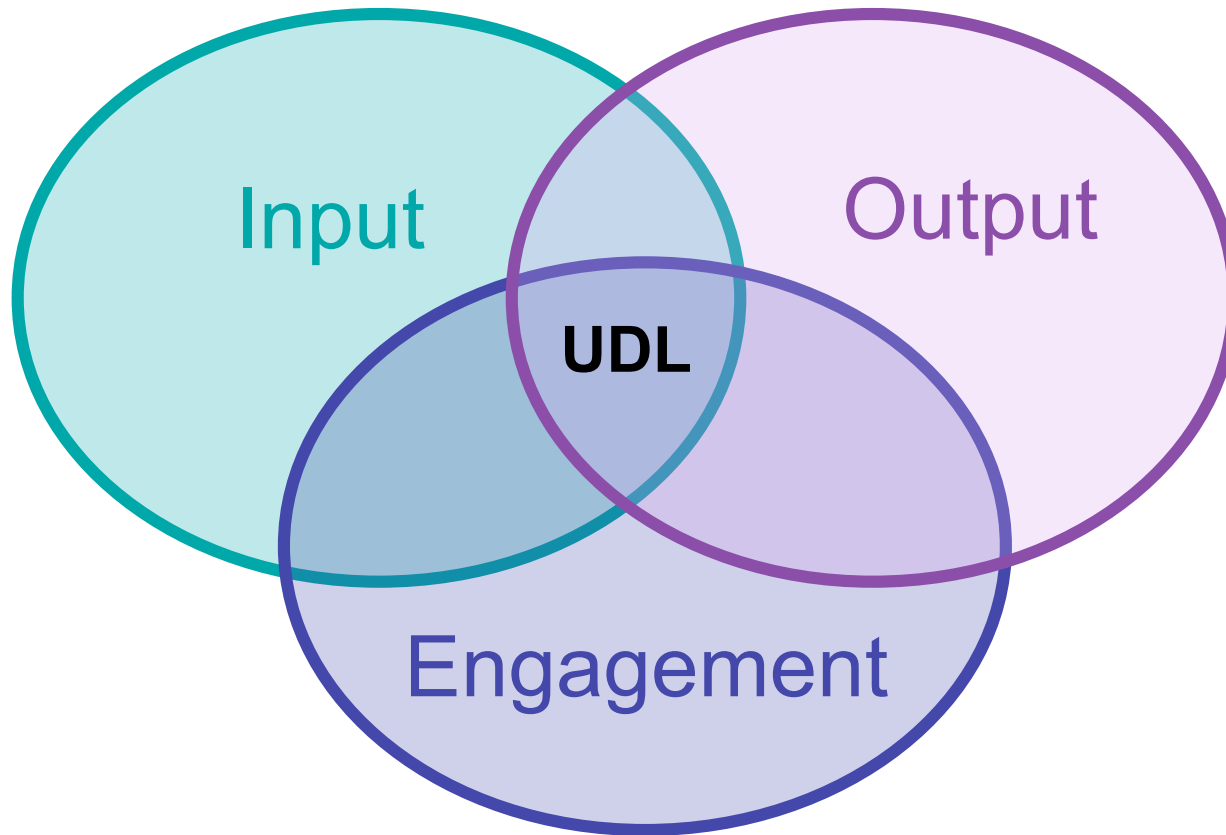


Language Based

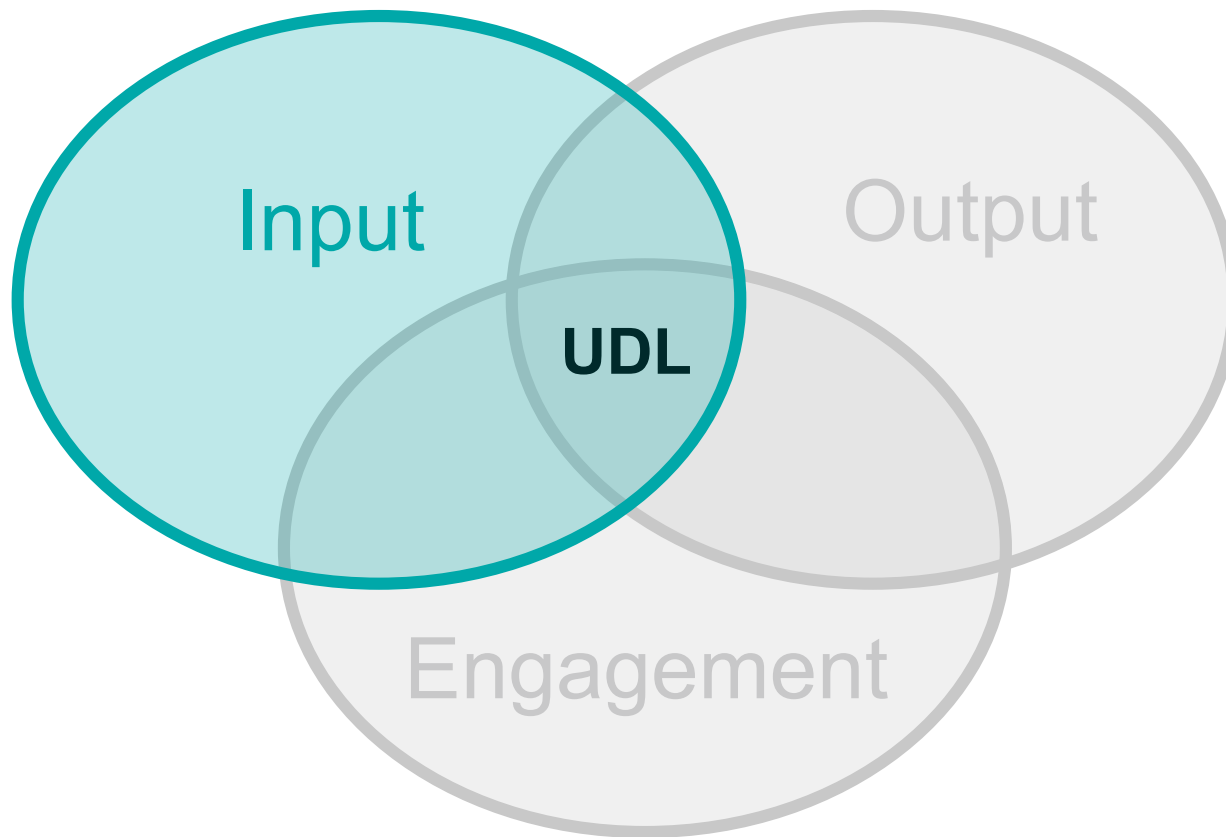
May be language or executive function based

May be visual, language or exec. function based

Learning Networks

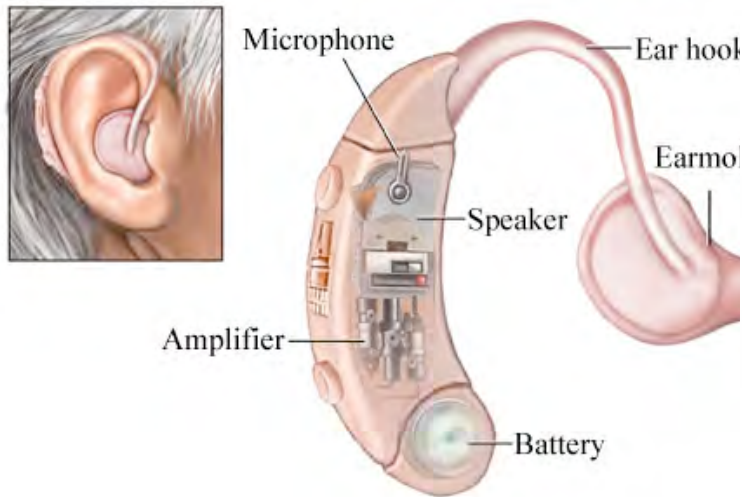


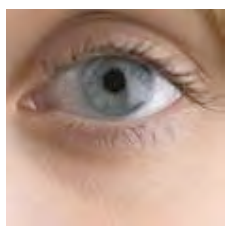
Input Learning Network



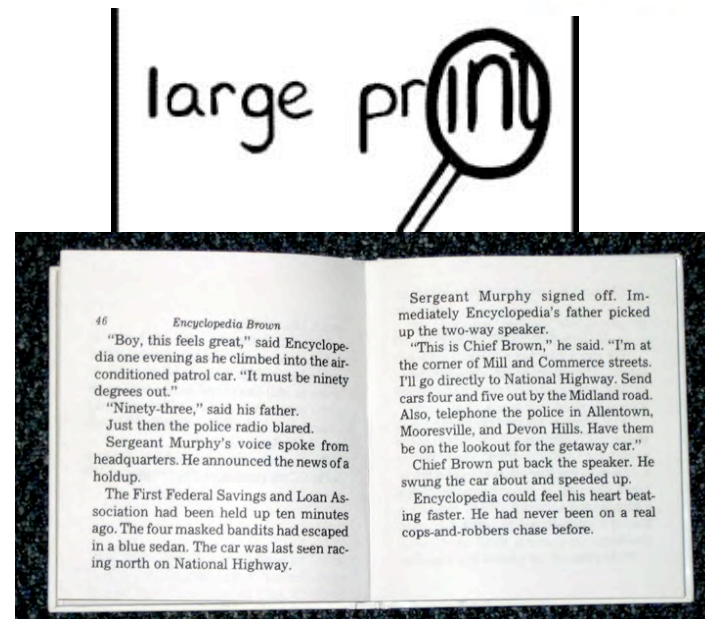


Technology for People with Hearing Impairments





Technology for People with Vision Impairments





Dragon NaturallySpeaking

THE BRAILLE ALPHABET																									
⠁	⠃	⠉	⠇	⠑	⠓	⠕	⠙	⠓	⠕	⠙	⠓	⠕	⠙	⠓	⠕	⠙	⠓	⠕	⠙	⠓	⠕	⠙	⠓	⠕	⠙
a	b	c	d	e	f	g	h	i	j	k	l	m													
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NUMBERS																									
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#	0	1	2	3	4	5	6	7	8	9															





Listening

(receptive language deficits
auditory processing disorder)



Reading

(Dyslexia: low phonemic awareness)

Phonemic Awareness:

Phoneme blending and segmenting
Manipulation of phonemes:
add, delete and substitute



Work on **Fluency**

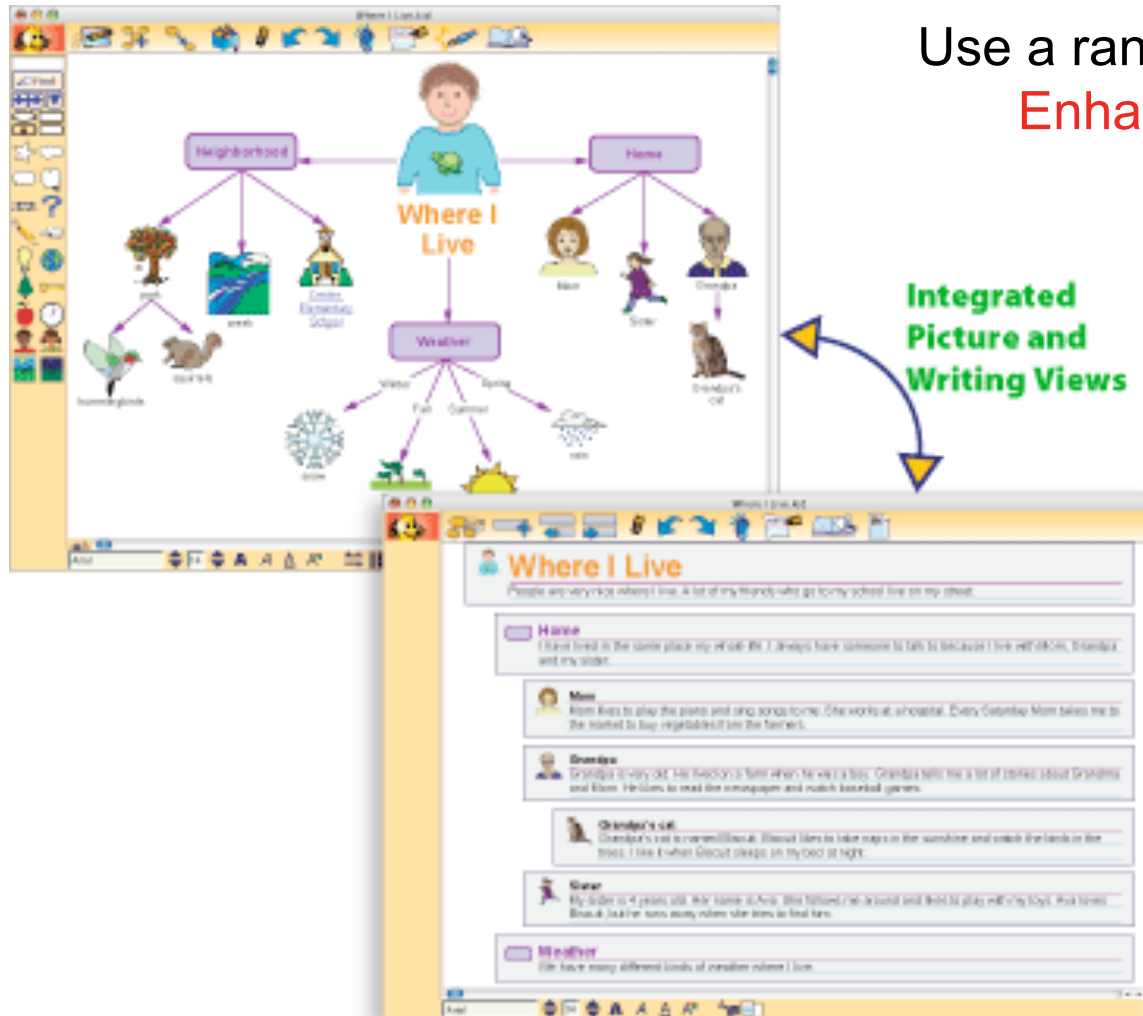


Reading

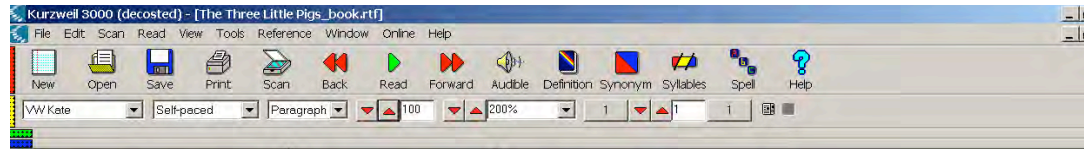
(Dyslexia: comprehension)

Use a range of **Comprehension Enhancing** techniques:

Summarizing,
Question and Answer,
Graphic Organization,
Note Taking



Reading Software



"Not by the hair of my chinny chin chin" said the pigs.

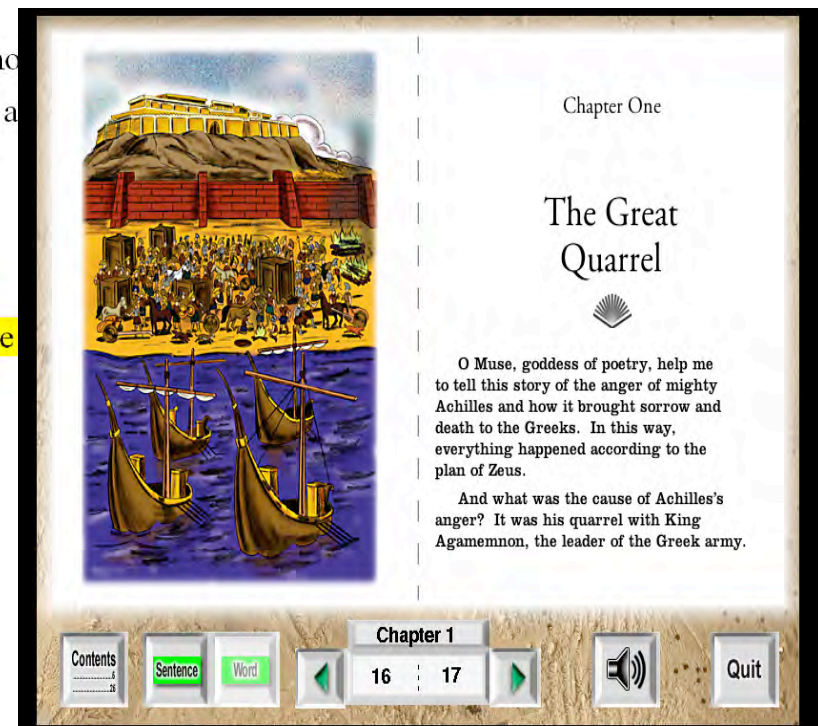
Well, the wolf huffed and puffed but he could not blow down that brick ho

But the wolf was a sly old wolf and he climbed up on the roof to look for a way into the brick house.



The little pig saw the wolf climb up on the roof and lit a roaring fire in the fireplace and placed on it a large kettle of water.

<http://www.kurzweiledu.com/>



http://www.donjohnston.com/products/start_to_finish/

Reading/Language Technologies

Accommodation



Audible books--online
See bookshare.com etc.



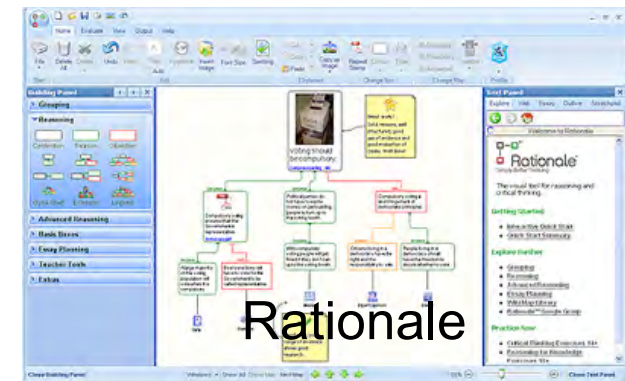
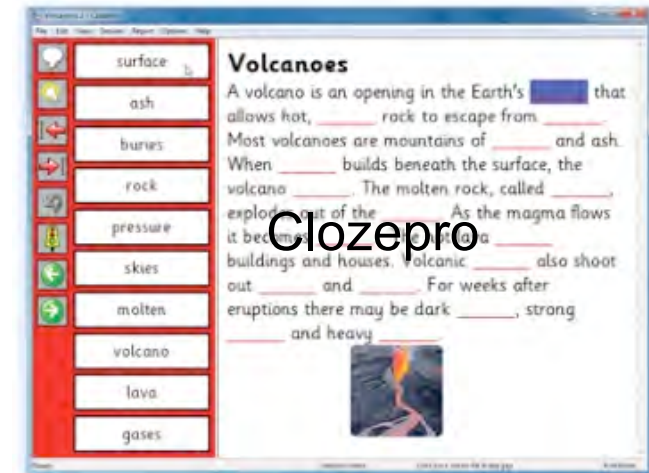
Highlighters/markers & tape



E-Books





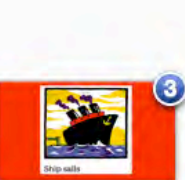












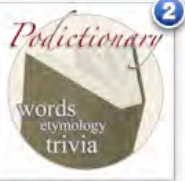



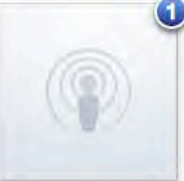
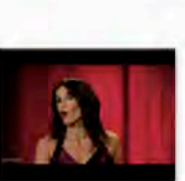
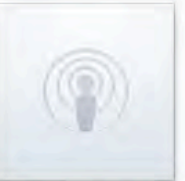


Remediation

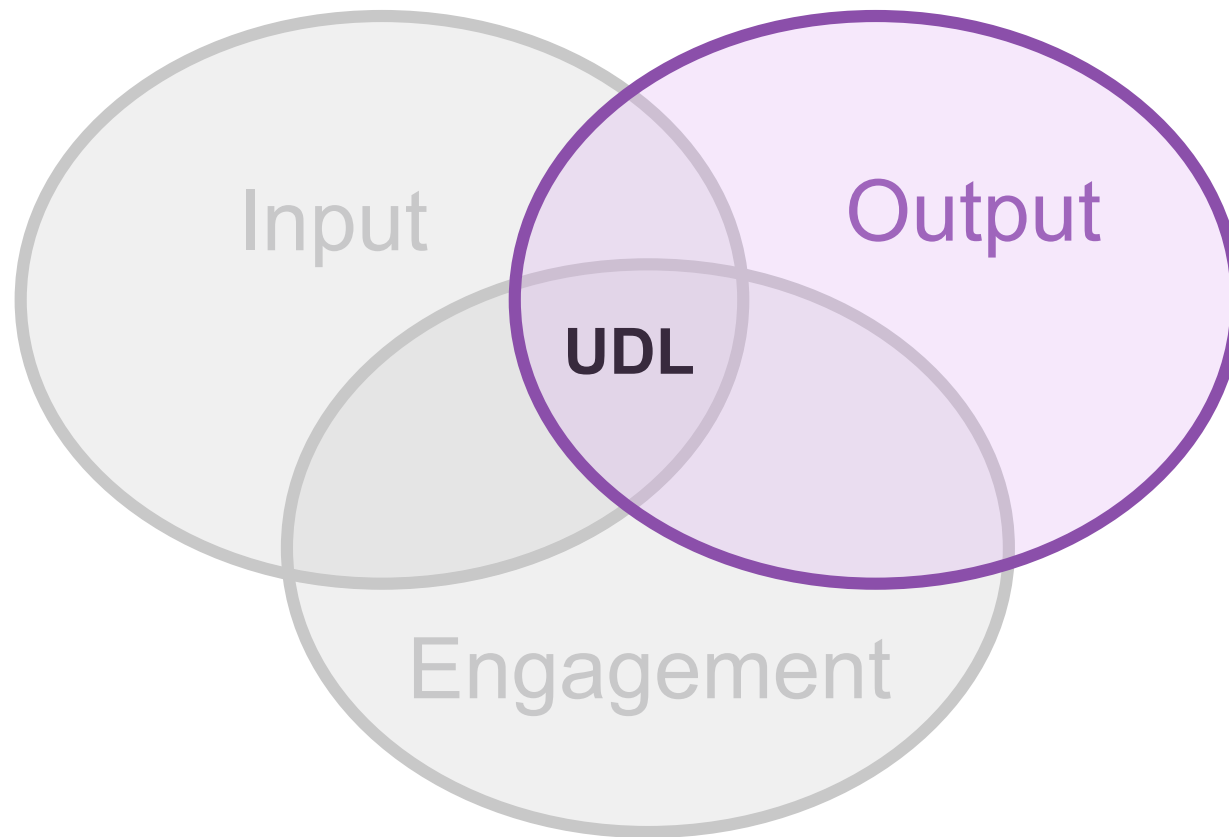


Podcasts

Accommodation

 <p>Mac App Guide (iPod vi... 9 Episodes</p>	 <p>THE MAN WHO WOUL... 1 Episode</p>	 <p>Mandarin Chinese Less... 1 Episode</p>	 <p>The Many Adventures o... 1 Episode</p>	 <p>MobiStories, Digital Pic... 7 Episodes</p>	 <p>The Moth Podcast 3 Episodes</p>
 <p>New Yorker: Comment 14 Episodes</p>	 <p>Nickjr: Dora (VIDEO)</p>	 <p>NOVA PBS 12 Episodes</p>	 <p>NOVA scienceNOW 6 Episodes</p>	 <p>NPR Programs: Talk of ... 2 Episodes</p>	 <p>NPR Series: Darwin: Th... 2 Episodes</p>
 <p>NPR: Books Podcast 2 Episodes</p>	 <p>NPR: Fresh Air Podcast 4 Episodes</p>	 <p>NPR: Most E-Mailed St... 5 Episodes</p>	 <p>Pinky Dinky Doo Seaso... 2 Episodes</p>	 <p>PODCAST - Grüße aus ... 1 Episode</p>	 <p>podictionary - for word ... 2 Episodes</p>
 <p>PRI: Selected Shorts P...</p>	 <p>Ravenwood - A free au...</p>	 <p>Raz-Kids Books and So...</p>	 <p>Remember The Magic ...</p>	 <p>Rotten Tomatoes Show</p>	 <p>Share the Earth . This I...</p>

Output Learning Network





Technology for People with Motor Impairments



Dragon NaturallySpeaking

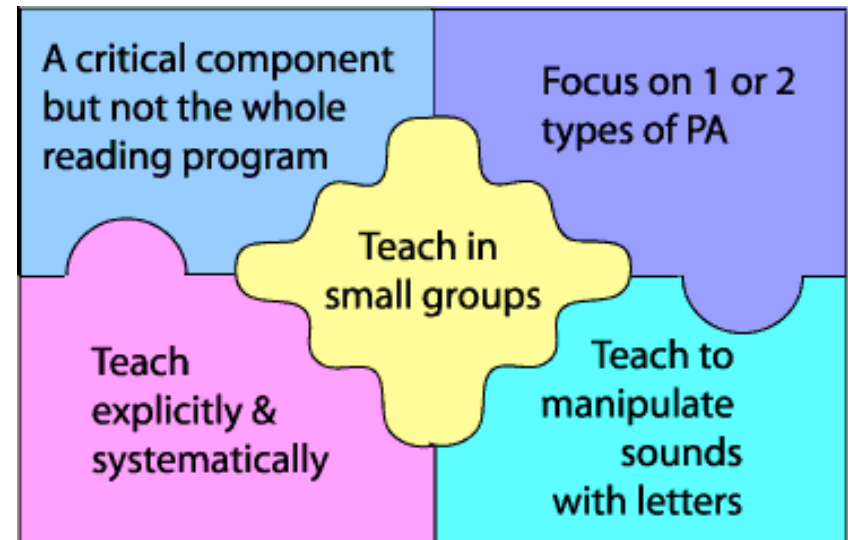


Spelling

(Dyslexia and Phonemic Awareness (PA) impairment)



Turning letters into sound

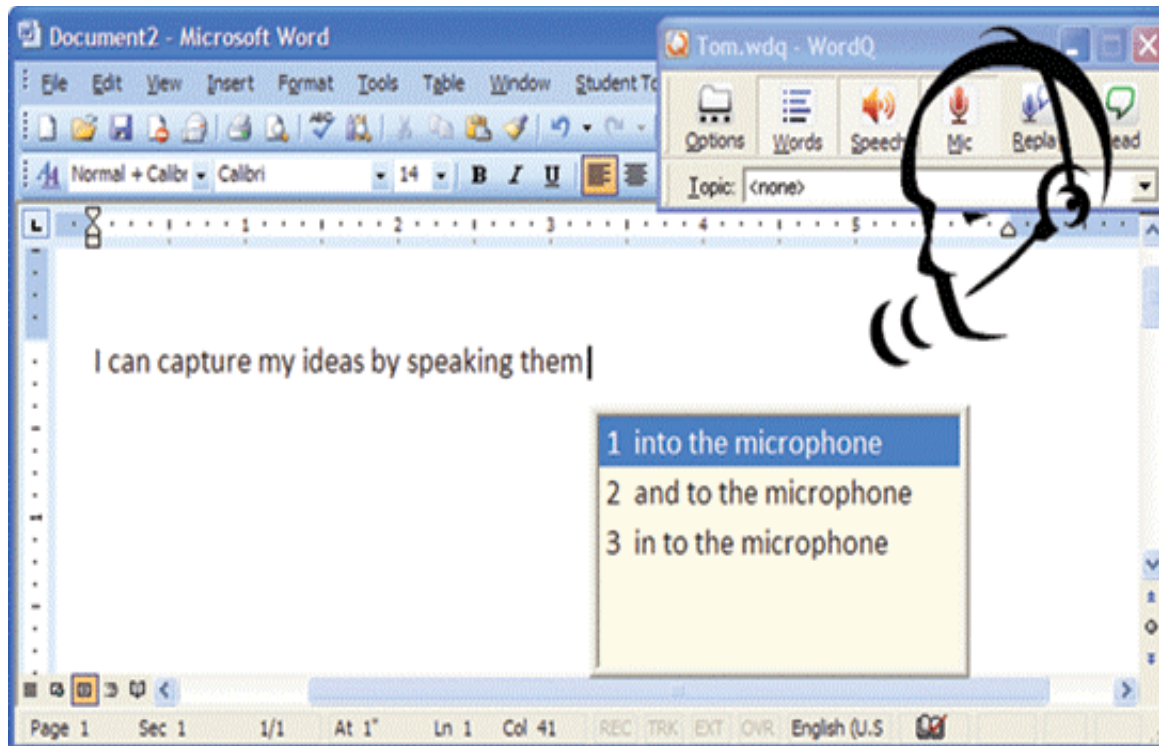




Writing

(dysgraphia, executive function impairment)

Remediation and Accommodation



Writing With Symbols

Word Q and Speak Q by Intellisoft



Writing

(dysgraphia, executive function impairment)

Accommodations



Assistive Keyboard with
Word Prediction,
and writing features



Digital Recorder



PAWS, Portable Assistive
Writing System



Microphone



Pencil Grips



Speaking

(expressive language deficit, apraxia)



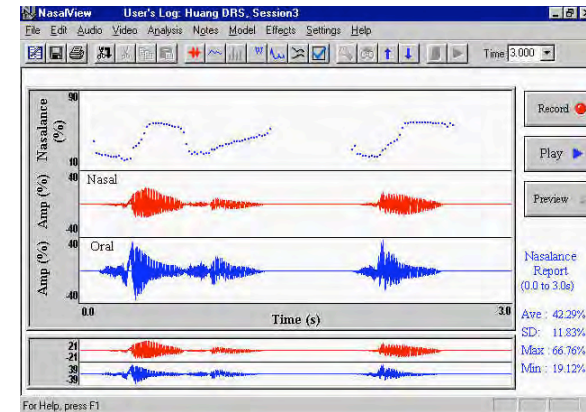
stop	p	[pa]	b	[ba]
	t	[ta]	d	[da]
	k	[ka]	g	[ga]
nasal	m	[ma]	n	[na]
	ŋ	[ŋa]		
fricative	f	[fa]	v	[va]
	θ	[θa]	ð	[ða]
	s	[sa]	z	[za]
semi vowel	h	[ha]	ʃ	[ʃa]
affricate	w	[wa]	y	[ya]
	r	[ra]	l	[la]
	tʃ	[tʃa]	dʒ	[dʒa]

[p]

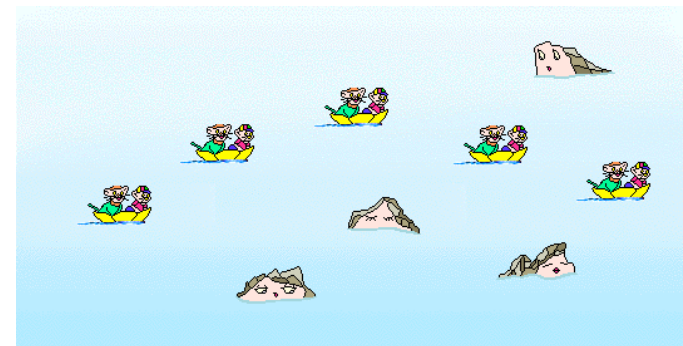
Vowel

Consonant

Dr. Speech's vocal visual feedback



As loudness increases,
fireman climbs higher



Pitch skill development
by navigating boats



Speaking

(expressive language deficit, apraxia)



Accelaglove

DynaVox lets you pre-program your own favorite phrases



Text-to-speech applications read your text aloud



Chatbox 'speaks' common phrases

Podcasting

Accommodation



To make a podcast you need to record to an audio file. Use freeware like Audacity. Then all you need is a podcast host (like PodBean) and an RSS feed.

Tools to Aid Thinking and Writing

Drag and click to the correct box.

**FAIRY TALE:
The Three Little Pigs**

+

Who are the main characters in the story?

The Setting: When and where does the story take place?

WRITE: What is the IMPORTANT MESSAGE the author wants you to learn?

WRITE: What are some GOOD things that happen in the story?

WRITE: What are some BAD things that happen in the story?

Picture View
Students create maps, diagrams and webs.

Math View
Students use visual math tools to understand essential math concepts.

Writing View
Students expand their ideas into written expression.

In writing view, pictures are converted into hierarchical outline

Thinking

(or Executive Function deficits)

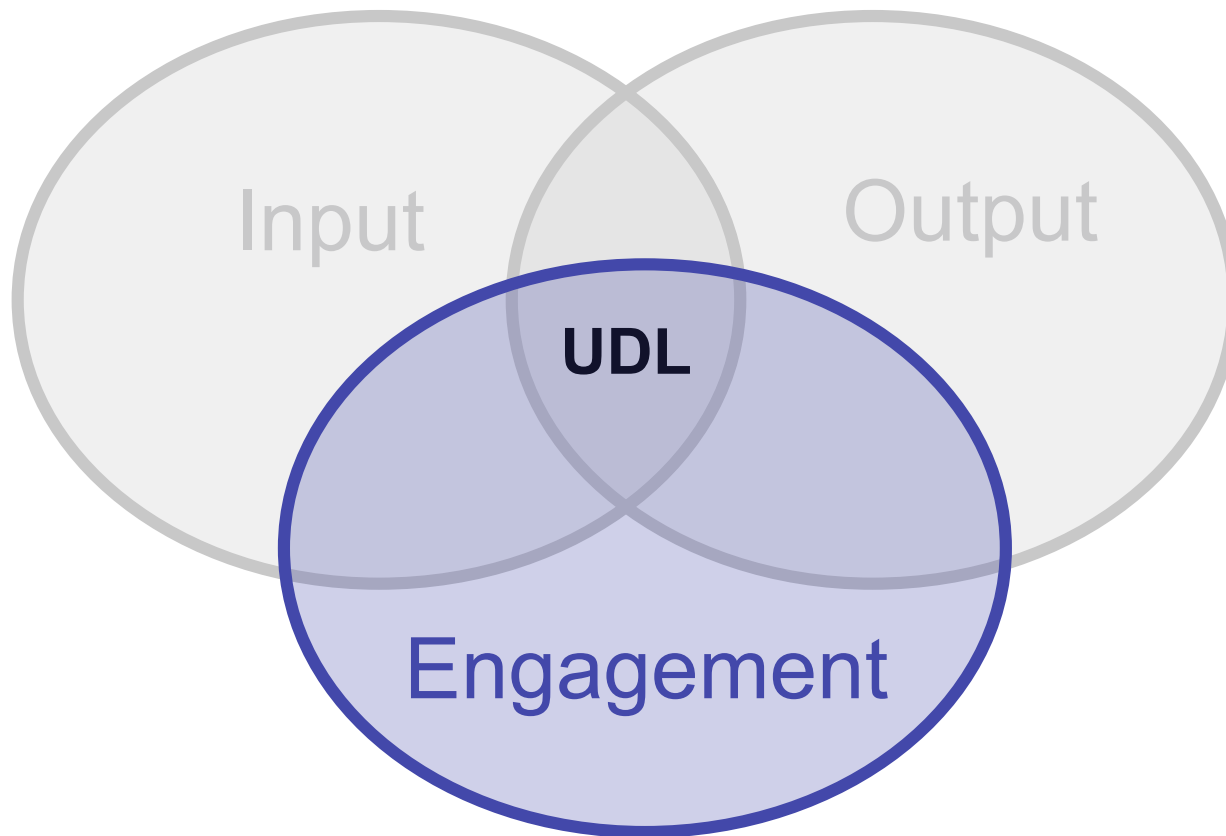


My Room		
Toys		
Clothes		
Laundry		
Books		
Games		
Shoes		

Thinking: Remembering



Engagement Learning Network



Sensory Issues

SymTrend®
Electronic diaries and graphic tools for health care and special education

Home | News | Privacy | Terms of Use | About Us | FAQs | Contact Us

Member name:
Password:
[Forgot your password?](#) [Login](#)

Use SymTrend For:

- ADHD >>
- Anxiety >>
- Asperger Syndrome >>
- Autism >>
- Cancer >>
- Depression & Bipolar >>
- Women's Health >>
- Other >>

Record along with a coach, teacher, or friend to contrast your perceptions with others, as feedback about what to do. Watch yourself reach your goals.

"I controlled myself ____ of the time."

Chart Feedback

4 Most All
3 Much
2 Some
1 A Little
0 Y. Little/None

☒ Coach
☐ Student

Sign Up Now

Personal Subscriptions>>
Clinician/Educator Subscriptions>>

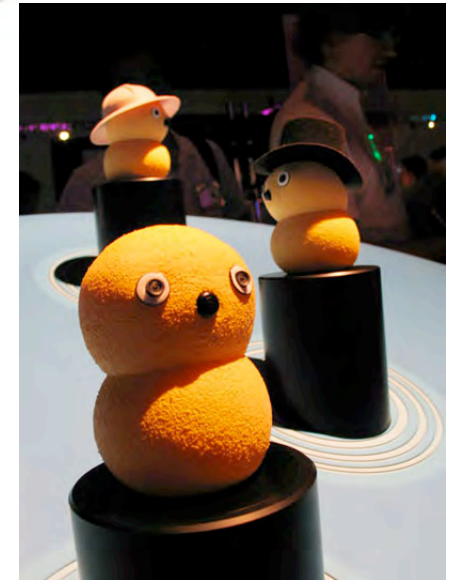
Find out about: Mobile Data Collection

[read more>>](#)



Social Toys and Games

Secret Agent Society



Keepon

[illegible]



UDL Websites

- National UDL Center
<http://www.udlcenter.org>
- Guidelines
<http://www.udlcenter.org/aboutudl/udlguidelines>
- National UDL Task Force
[http:// www.udl4allstudents.com](http://www.udl4allstudents.com)
- Center for Applied Special Technology (CAST)
<http://www.cast.org>
- Maryland Assistive Technology Network - UDL Toolkits
<http://matnonline.pbworks.com/UDL+Toolkits>

The Person: Skills to Consider for Technology/AAC or UDL Accommodations



Receptive Language/Cognition/Attention	
Visual with audio	Highlighters
Mapping/ webbing	Text to Speech
Accelaglove	Notes in text
Videos-Tenmarks, Khan	Cloze pro

Visual Modifications	
Tactile/Braille	Sensors/Cane
Seeing eye dog	Audio books
Zoom Magnif.ic.	Screen Readers
Talking clocks/alarms	Color, contrast Font size



Communication	
Dynavox	Board Book-PCS
Chatbox	Text/icon to speech
Voicethread	Iprompts app
Speech to text	Word prediction



Hearing Impairment	
TTYTTD device	Amplification or earplugs
Hearing Aid	Cochlear implants
Visual and or vibrating alert	Noise Canceling Headphones.
Audio loop, FM	Closed Captions



Fine Motor Impairment	
Pencil grips	Speech to text
Digital Recorder	PAWS
Podcasting	Microphone
Aud obj. in Word	Voice Recogn.

Gross Motor Impairment	
Wheelchair	Velcro
Cane	Lift Chairs/etc
Splints/supports	Voice syn.th.
Vehicle access	Curb cuts

Access Impairment/ Select	
Headpointer Joystick	Eye gaze
Switch	Morse code
Keyguard	Scan switches
Automatic doors, lowcounters, sinks	Trackball/ mouse
Bench for shower	Extension grabber



The Person: Skills to Consider for Technology/AAC or UDL Remediation



Receptive Language/Cognition/Attention	
Mind Maps-Kidspiration	Kurzweil
Schmoop/Sparknotes	Text to Speech
Cloze Pro	Laureate SW
Kinesthetic math : Woodin or Zecher	Math Science Websites/interactives



Communication	
Writing /Mapping	Wordq/SpeakQ
Dr. Speech	Speech to Text
Word prediction	Speech apps
Baldi -lip reading	Animationish



More Study/Organization Therapy	
Goal setting	Quizlet/flashcards
Zacbrowser	Google Calendar
Email alarms	Ipod/iPad apps
Online Clocks	Stickies



Auditory Processing and Reading Impairment	
Earobics	Fastforward
Vis./Verbalizing	Orton Gillingham
Johnston ReadWrite Gold	Intel reader
Fablevision: Vocab	Bookshare/librivox



UDL and AT websites/downloads
http://www.udlcenter.org , http:// www.udl4allstudents.com
http://matnonline.pbworks.com/UDL+Toolkits
http://udltoolkit.wikispaces.com , http://bit.ly/autismtech
http://www.paec.org/fdlrstech/handouts.htm



Engagement: Social and Sensory	
Secret Agent social game	Sensory Toys
Symtrend	Squeeze vest
iprompts	Vizzzle(monarch tech)
Isocial (missouri)	Wrong planet.net

