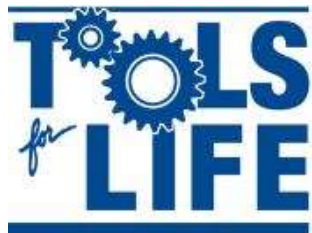


A Research Approach to AAC Solutions for Individuals with Autism



Georgia's Assistive
Technology Act Program

Ben Satterfield, Ed.D.

GA Tools for Life

www.gatfl.org

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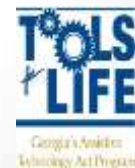
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Credits

- **CEUs** are approved for .10 clock hours and are administered through Georgia Tech Professional Education
- **CRCs** are approved for 1.0 clock hours and are administered through the Commission on Rehabilitation Counselor Certification
 - To receive your verification form, send an e-mail with the webinar title and date and type of credit request you need to Liz.Persaud@gatfl.gatech.edu



Webinar Evaluation

At the end of today's webinar, we ask
that you please take a moment to
complete our survey:

<https://www.research.net/s/TFLwebinar>



Join us for Upcoming Webinars!

Using Vizzle To Create Accessible Learning Environments

October 9, 2014

Anthony Gerke, Vizzle

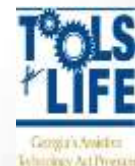
AT and Transition

October 23, 2014

Carson Cochran and Sally Kempf, GPAT

Visit www.gatfl.org for the full schedule.

Sign up on the TFL mailing list to receive our email announcements or send an email to Liz - liz.persaud@gatfl.gatech.edu



Join us for Upcoming AT Events!

GATE Seminar

Dec. 5, 2014

GA Tech Student Center, Atlanta, GA

IDEAS Conference

June 1-5, 2015

Epworth by the Sea, St. Simons Island, GA

Visit www.gatfl.org for the full schedule.

Sign up on the TFL mailing list to receive our email announcements or send an email to Liz -

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Welcome to Tools for Life

Tools for Life, Georgia's Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for persons of all ages and disabilities so they can live, learn, work and play independently and have greater freedom in communities of their choice.

Tools for Life and the TFL Network work collectively together to accomplish our mission through:

- [AT Demonstration](#)
- [AT Evaluations and Assessments](#)
- [AT Funding Options & Education](#)
- [Access to the TFL AT Lending Libraries](#)
- [AT & Durable Medical Equipment Reuse](#)
- [AT Training \(Individual\)](#)
- [AT Training \(Groups\)](#)

Please take our survey to help us gather information that will help better serve the community. The survey can be found at:

[TFL Survey](#)

2013 GATE SEMINAR

2013 Georgia Assistive Technology
in Education (GATE) Seminar
Dec 6, 2013
Atlanta, Georgia

WEBINARS

AUG
14

[The Impact of iPads Upon
Student Led IEPs](#)

AUG
29

[Support for Your AT
Consideration Process](#)

SEP
10

[Getting and Using Accessible
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What You Need to Know](#)

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TOOLS FOR LIFE APPFINDER

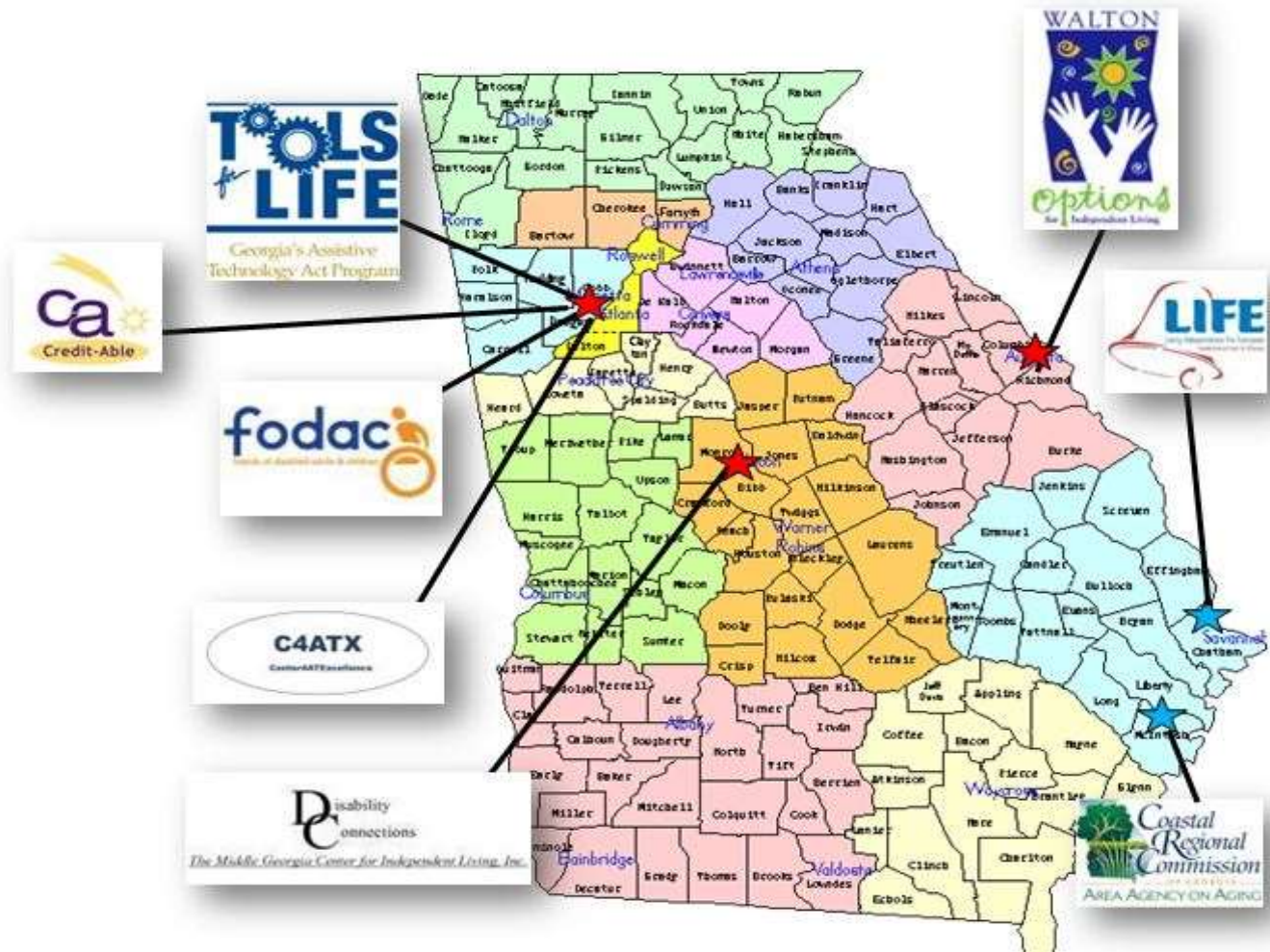


...for Living, Learning, Working, and Playing.

AT ONLINE EXCHANGE

Tools for Life Network

- AT Lending Library
- AT Evaluations & Training
- AT Demos
- Resource and Assistance
- AT Funding Assistance
- DME Reuse



Communication for Individuals with Autism



Communication and Autism

- Research findings
- Speech segmentation
- Experiential vs. syntactical approach to language
- Facilitated communication and supported typing
- Repeating words & phrases
- Pragmatics & Hyper-Literalism
- Visual Support & modeling

Expressive and Receptive Language

Receptive language is being received, how is it being processed?



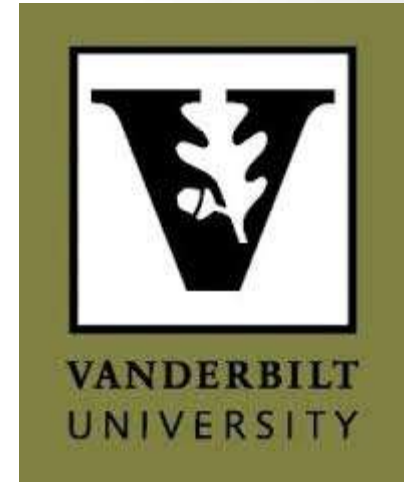
Does a lack of **Expressive language** indicate that the individual has nothing to say?



New Research

Vanderbilt University

“Children with autism have difficulty processing simultaneous input from audio and visual channels. That is, they have trouble integrating simultaneous information from their eyes and their ears,” Stephen Camarata, Ph.D.



<http://news.vanderbilt.edu/2013/04/autism-robot-helps-children/>

New Research

Vanderbilt University

“One of the classic pictures of children with autism is they have their hands over their ears. We believe that one reason for this may be that they are trying to compensate for their changes in sensory function by simply looking at one sense at a time. This may be a strategy to minimize the confusion between the senses.” Mark Wallace, Ph.D., director of the **Vanderbilt Brain Institute**.



<http://news.vanderbilt.edu/2013/04/autism-robot-helps-children/>

Legacy Research

Prizant (1983)

“Individuals with autism have trouble segmenting incoming speech into meaningful word units.”

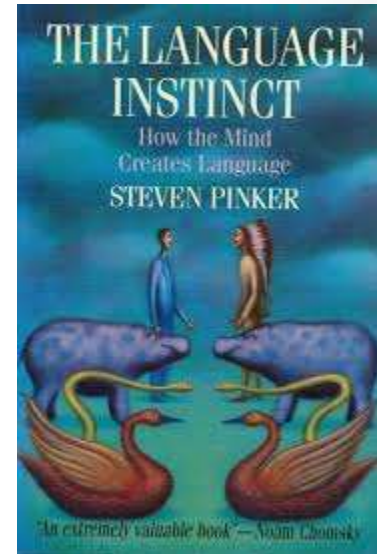


Prizant, B.M. (1983). Language and communication in autism: Toward an understanding of the "whole" of it. **Journal of Speech and Hearing Disorders** 48, 296-307.

Legacy Research

Stephen Pinker (1994)

“...one word runs into the next seamlessly; there are no little silences between spoken words the way there are white spaces between written words. We simply hallucinate word boundaries when we reach the end of a stretch of sound that matches some entry in our mental dictionary.”



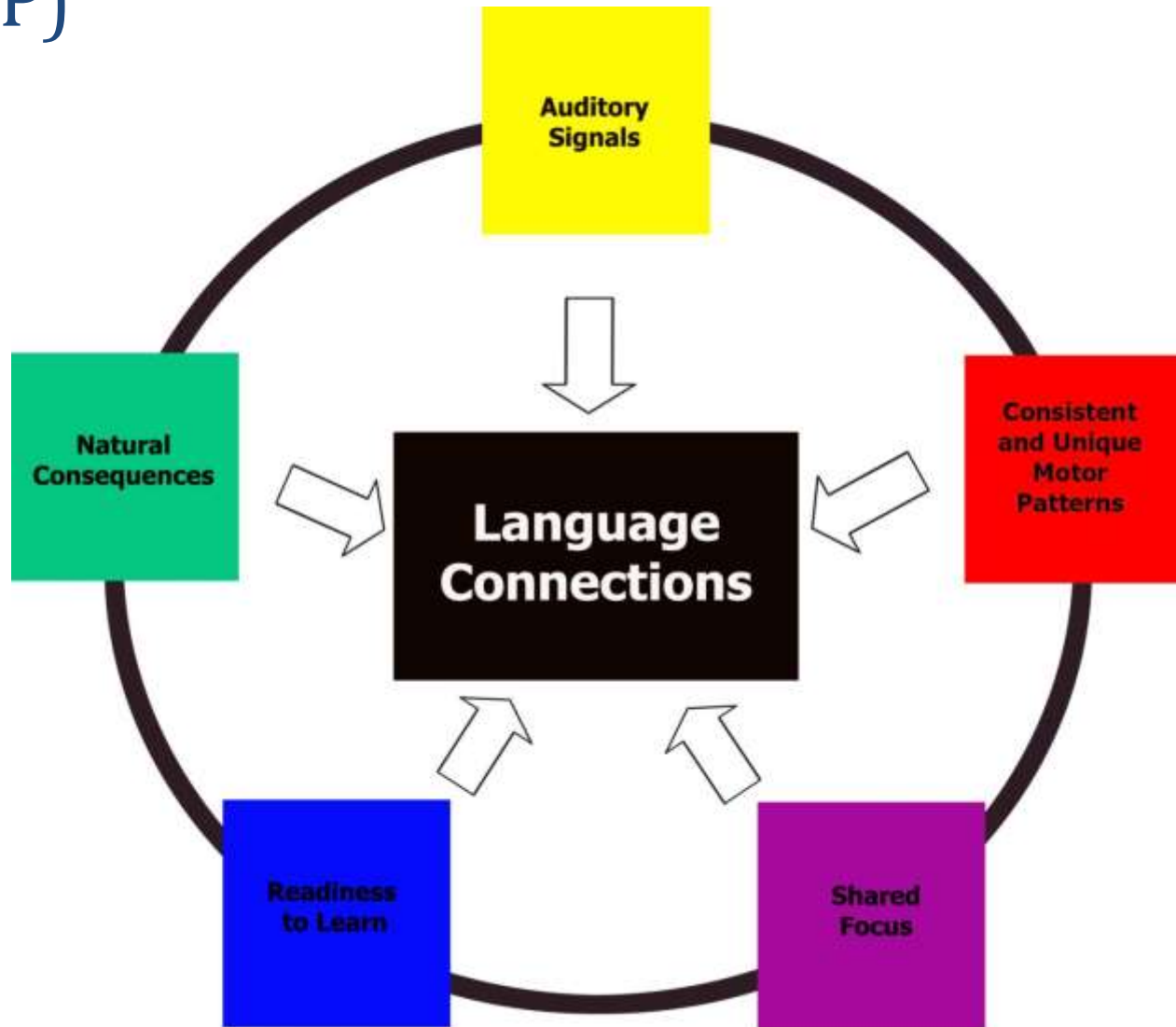
[Pinker, S.](#) (1994) *The Language Instinct: How the Mind Creates Language*. New York: HarperCollins.

LAMP

What is LAMP?

- Language Acquisition through Motor Planning (LAMP) is a therapeutic approach based on neurological and motor learning principles.
- LAMP focuses on giving the individual independent access to vocabulary on voice output AAC devices that use consistent motor plans for accessing vocabulary.
- The goal is to give individuals who are nonverbal or have limited verbal abilities a method of independently and spontaneously expressing themselves in any setting.

Language Acquisition through Motor Planning (LAMP)



LAMP

- **Readiness to learn:** The individual is in a state to receive optimal benefit from the learning experience. Their arousal level is conducive for participation and learning from an activity.
- **Joint Engagement:** The individual will follow or direct the attention of another person to an event or object in order to share interest in the event or object.
- **Consistent and Unique Motor Patterns:** The individual learns individual motor patterns for each word, similar to how those who are verbal have an individual motor pattern made with their mouth for each word spoken, allowing the non-verbal individual to develop automaticity.
- **Auditory Signals:** When the individual has accessed the device and carried out a motor pattern for a word, they will get auditory feedback of that word.
- **Natural Consequences:** The individual should have a natural consequence to the attempt to communicate. This should be visual, social and auditory. Meaning is attached to words by what occurs when they are used.

Potts, M. & Satterfield, B. (November, 2013). Studies in AAC and Autism: The Impact of LAMP as a Therapy Intervention. Retrieved from:

http://www.gatfl.gatech.edu/tflwiki/images/4/43/LAMP_Rsch_Article.pdf





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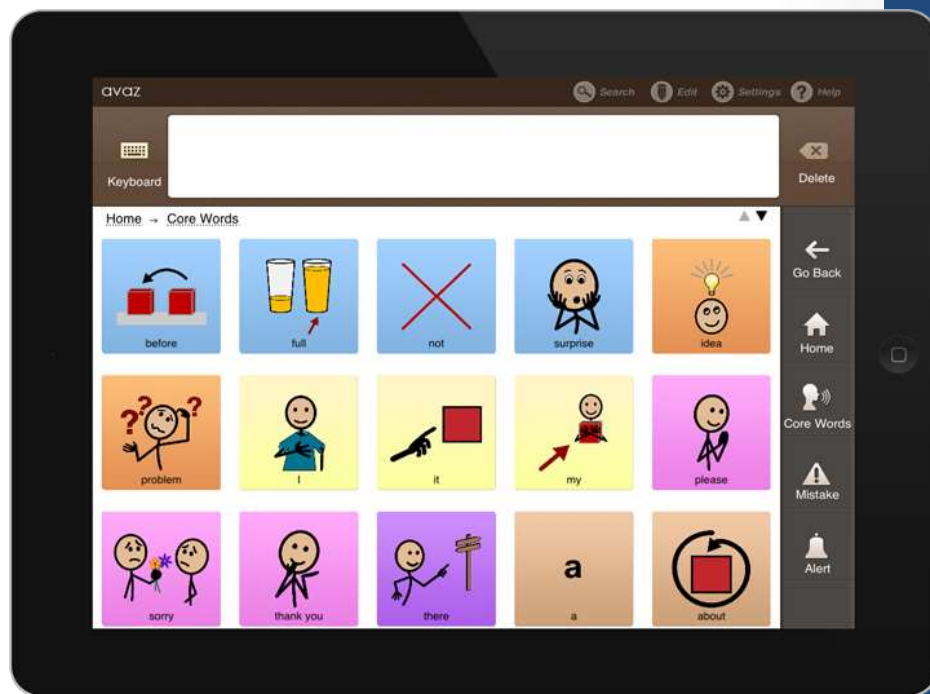
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Avaz for Autism (AAC)

- 24 location max
- SymbolStix (default)
- Scrolling possible
- Side navigation remain constant
- Intuitive editing and creating
- Keyboard with picture/word prediction
- Pro version price now \$149.99



Research: Visual Screen Displays

- “A visual screen display (VSD) is a picture, photograph, or virtual environment that depicts and represents a situation, place or experience. Individual elements such as people, actions and objects appear within the visual scene.” (Blackstone, 2004)
- VSDs enhance communication on:
 - low-tech boards
 - high-tech devices

Figure 1. Contrasting types of AAC displays

Traditional grid display

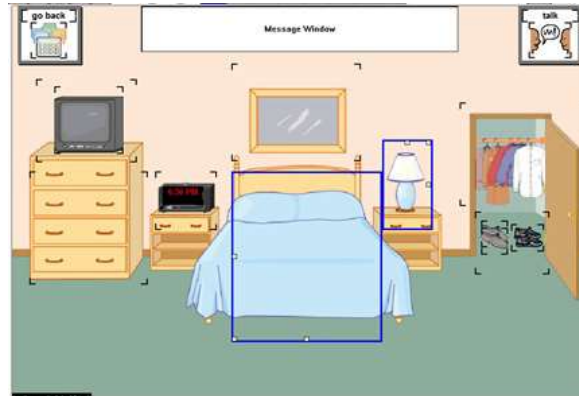
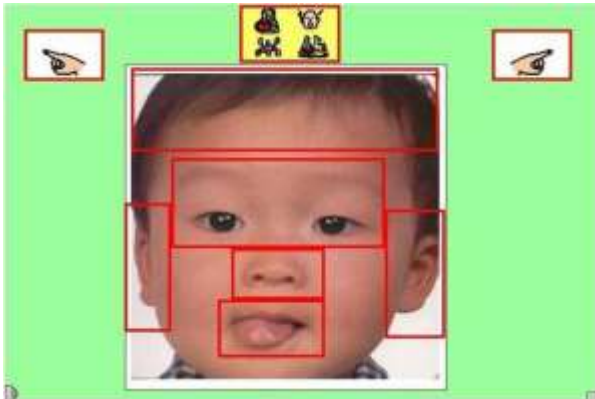


Visual scene display



Research: Visual Screen Displays

- “(VSDs) are meant primarily to address the need of beginning communicators and individuals with significant cognitive and/or linguistic limitations. These groups are unserved or underserved by current AAC technologies. “(Blackstone, 2004)
- Experiential vs. syntactical approach to language



Blackstone, Sarah, (January, 2005) What are visual scene displays? AAC-RERC: Spread the Word, Vol.1 (2). Retrieved July 17, 2014 from http://www.imakenews.com/aac-rerc/e_article000344804.cfm?x=b11,0,w

AutisMate



AutisMate



- A comprehensive communication and behavior tool, with Visual Scene Displays, choice boards and symbol-based grid AAC set. Other visual tools to support behavior and social skills are also included. It is designed for the iPad.
- Access to SymbolStix library, and easily add your own photos and videos.
- Video modeling, visual schedules, visual stories and other behavioral tools are included within the app.
- Personalization and customization is quick and easy.
- A LITE version is available to try the app out.
- Share all content via email from within the app.
- Price now \$79.99





Scene & Heard

- Scene & Heard supports communication and learning through the use of Visual Scene Displays, and is designed for iPad and iPod touch.
- SymbolStix (default)
- Make scenes using your own photos, and also access Widgit symbols.
- A free LITE version is available to try the app out.
- Record your own voice messages for scenes.
- Switch Accessible (use with switch interfaces such as Applicator, Switchbox and Switch2Scan).
- Link hotspots on page to photos and videos.
- Price now \$49.95



pin



fingers



touch

Facilitated Communication and Supported Typing

- Facilitated communication is a technique by which a “facilitator” provides physical and other supports in an attempt to assist a person with a significant communication disability to point to pictures, objects, printed letters and words, or to a keyboard.
- It is the position of the American Speech-Language-Hearing Association (ASHA) that the scientific validity and reliability of facilitated communication have not been demonstrated to date.

- ASHA Position Statement

- This method involves a communication partner who may provide emotional encouragement, communication supports and a variety of physical supports.
 - The facilitator should never move or lead the person
- Syracuse Univ. School of Ed

- See more at:

<http://www.asha.org/policy/PS199500089.htm#sthash.jeV8cVb1.dpuf>

Repeating Words or Phrases

- Brain's "language center" has difficulty coming up with language on its own
- Copies what it hears from the world around it
- Uses it in place of original words and sentences of its own
- Can interfere with learning, social interaction
- SLPs help students with HFA move to more creative, acceptable language
- Visual supports

Pragmatics

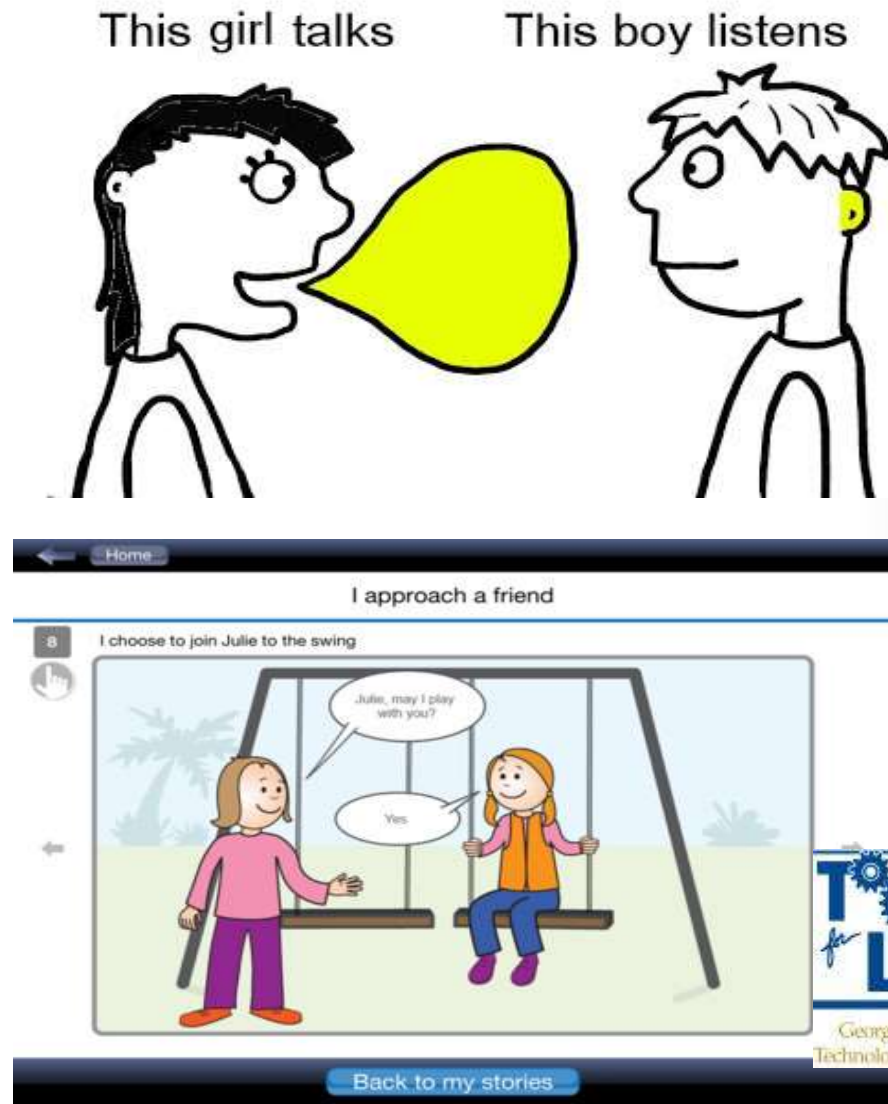
- Unable to distinguish between the central meaning of an event and the extra information that surrounds it
- More likely to focus on a minute detail of a particular picture, rather than grasp the actual meaning or story behind the picture
- Difficulty with generalization
- Need for predictability
- Support



Visual Support

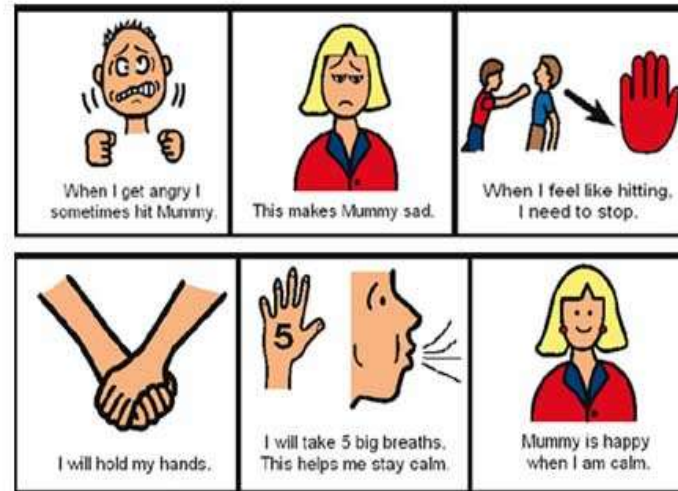
Social Stories & Scripts:

- social narratives that provide direct instruction for social situations
- providing a visual cue and desired social responses
- teach routines, help a student deal with uncertainty, introduce change in routine, or address a wide variety of interfering behaviors, including aggression, fear and obsessions.



Social Stories & Behavioral Scripts

- Social narratives that provide direct instruction for social situations
- Teach routines, help a student deal with uncertainty, introduce change in routine, or address a wide variety of interfering behaviors, including aggression, fear and obsessions.



Tools for Creating Behavioral Scripts

PC - Based

- PowerPoint
- BoardMaker (BMstudio templates)
- Classroom Suite
- DT Trainer

Web delivered

- Vizzle
- Comic Life

Apps

- Pictello



- WordToob



Hyper-Literalism



- People with autism think in black and white and therefore interpret everything literally. Ordinary people seem to love using idioms, metaphors and figurative speech, whether to aid communication or simply to make life more interesting, whereas for persons with autism they simply make no sense. (Alison George, “Mapping the language minefield for kids with autism” *New Scientist*, April, 2012)
- Literal thinking does not go away. It just means one learns, on a case by case basis, to avoid the usual traps.

Idioms

- Tool for learning idiomatic expressions
- A context for using idioms in everyday English conversation.
- 700 common idiomatic expressions
- Additional 600 idioms with meanings & explanations



EF Research

L. Erik von Hahn, & Bernadette Murphy Bentley (2013)



“Executive functioning is not the “what” of knowledge—it does not refer to what knowledge children need to clean their room, or play pirate ships. Instead, executive functioning is the “how” of knowledge. It refers to the brain functions dedicated to how a child cleans his room or plays pirate. “

“To understand why children with ASDs and other disabilities fail to complete tasks of the daily routine—or why they do not engage in play behaviors successfully—it is helpful to think about the brain functions that are dedicated to sequencing steps logically and to reaching goals.”

Von Hahn, E.. & Bentley, B.M. (2013). *Executive Functions in Children with ASDs*. Autism Consortium. Org . December 2013. Retrieved from: <http://www.autismconsortium.org/blog/detail/executive-functions-in-children-with-asds#sthash.LbdiR44j.dpuf>

Video Modeling Research

Jennifer B. Ganz, Theresa L. Earles-Vollrath & Katherine E. Cook (2011)

“Visually based interventions such as video modeling have been demonstrated to be effective with students with autism spectrum disorder. This approach has wide utility, is appropriate for use with students of a range of ages and abilities, promotes independent functioning, and can be used to address numerous learner objectives, including behavioral, self-help, communication, and social objectives..”



Ganz, J.B., Earles-Vollrath, T.L., & Cook, K.E., (2011). Video Modeling: A Visually Based Intervention for Children With Autism Spectrum Disorder. TEACHING Exceptional Children, Vol. 43, No. 6, pp. 8-19. Copyright 2011 CEC.. Retrieved from: http://www-tep.ucsd.edu/about/Courses/EDS382/General_Handouts/Autism-Video%20Modeling.pdf



WordToob



- Video Modeling made simple and fun! WordToob is designed to make learning words and new skills fun and engaging through pre-stored and customized videos.
- Pre-stored board with the 25 words most 2-year-olds know
- Pre-stored board with common emotions
- Pre-stored examples of an alphabet board and adaptive skill board
- Infinite ability to create your own boards
- Speech recognition so that the learner can practice saying words

Guest Speaker: Eren

- Eren Niederhoffer:
erenkn715@gmail.com

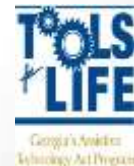


Our Question to You:
What have You Learned today?

Webinar Evaluation

Please take a moment to complete our
survey:

<https://www.research.net/s/TFLwebinar>



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Disclaimer

This presentation is produced by Tools for Life which is a result of the Assistive Technology Act of 1998, as amended in 2004. It is a program of the Georgia Institute of Technology, Enterprise Innovation Institute [EI2], Alternative Media Access Center (AMAC) and is funded by grant #H224C030009 of the Rehabilitation Services Administration (RSA), Department of Education. The contents of this presentation were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, Georgia Tech, EI2 or AMAC and you should not assume endorsement by the Federal government.