

Using Technology to Meet Speech and Language Needs

Matt Smith, M.S., CCC-SLP

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About the Presenter



Matthew is a Licensed Speech-Language Pathologist who has been working with Speech, Language and Educational Associates since 2001. He graduated with a baccalaureate of science degree in the area of Speech and Language Pathology from the Richard Stockton College of New Jersey. He went on to complete his Master's degree in Speech and Language Pathology from Nova Southeastern University in Fort Lauderdale, Florida. The areas of specialty that Matthew focuses on include: Children with speech and language disorders related to childhood language disorders; auditory processing, Autism and related disabilities.

Matthew enjoys working with children to remediate their difficulties with communication and improve their lives. Matthew currently serves as the Clinical Director for Speech, Language and Educational Associates in Culver City and received the ACE award for continuing education in 2007.

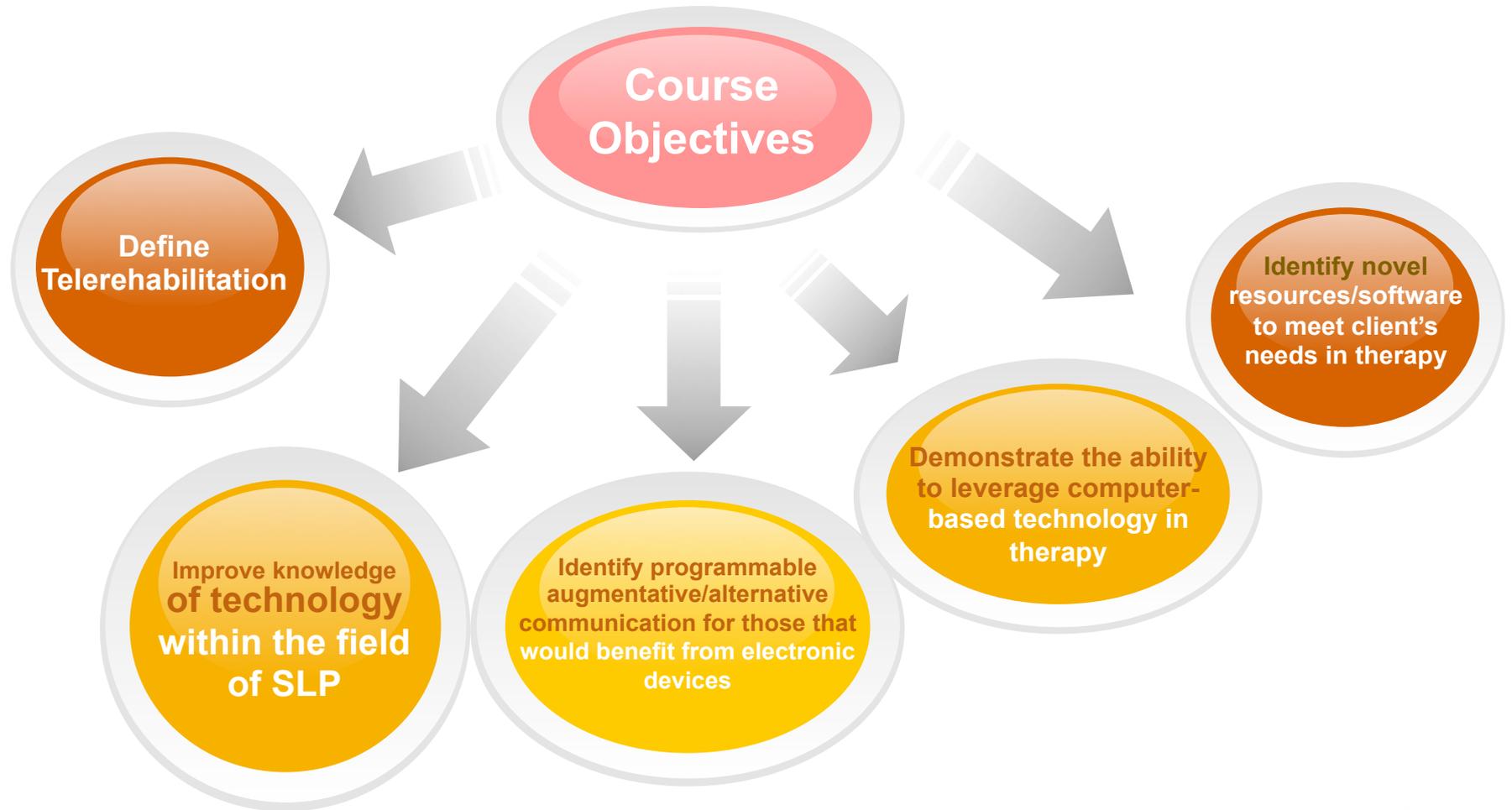


Course Description

Computers, iPhones, iPads, iPods, electronic games and augmentative communication devices have mushroomed in the field of Speech-Language Pathology. This course will review the efficacy of using these updated models in therapy and will introduce the audience to a multitude of new programs. This practical presentation is at the intermediate level and will enhance participant's ability to use technology in effectively meeting client's needs within the therapy setting. The presentation will also incorporate lecture with handouts in addition to audience participation and hands-on demonstrations.



Learning Outcomes



Topics



Telerehabilitation:

Overview

Introduction

- ✓ Families, therapists and teachers need to support unique learning styles and abilities
- ✓ Everyone needs more exposure to state-of-the art tool
- ✓ Computers are powerful tools for SLPs
- ✓ Whirlwind tour- this is only the beginning
- ✓ Show of hands, who uses technology in their therapy sessions?
- ✓ Facebook, Twitter, YouTube have all become a part of mainstream society

PURPOSE: This session will help you use the Internet to locate and create therapy materials. Topics will include interactive sites, reproducibles, therapy ideas and activities for specific disorders, generators and templates, and software programs. This session will also demonstrate ways of connecting with the world through the internet, including how to find the most reliable information for our clients and their families and evidence-based resources relevant in the day-to-day work as a speech-language pathologist or audiologist.



Telerehabilitation:

What is Telerehabilitation?

Definition

- ✓Telerehabilitation is the delivery of rehabilitation services over telecommunication and the internet.
- ✓Most types of services fall into two categories:
 - Clinical assessment (the patient's functional abilities in his or her environment)
 - Clinical therapy
- ✓Telerehabilitation can deliver therapy to people who cannot travel to a clinic because the patient has a disability or because of travel time.
- ✓Telerehabilitation also allows experts in rehabilitation to engage in a clinical consultation at a distance.



Telerehabilitation:

Effectiveness of Computer-Based Therapy

Research Evidence

✓ Early applications to assess and treat acquired adult speech and language disorders involved the use of the telephone to treat patients with aphasia and motor speech disorders (**Vaughan, 1976, Wertz, et al., 1987**)

✓ Use of a computer controlled video laserdisc over the telephone and a closed-circuit television system to assess speech and language disorders a satellite-based videoconferencing system to assess patients in rural areas (**Duffy, Werven & Aronson, 1997**)

✓ Recent applications have involved the use of sophisticated Internet-based videoconferencing systems with dedicated software which enable the assessment of language disorders (**Georgeadis, Brennan, Barker, & Baron, 2004, Brennan, Georgeadis, Baron & Barker, 2004**) and the assessment and treatment of motor speech disorders (**Hill, Theodoros, Russell, Cahill, Ward, Clark, 2006; Theodoros, Constantinescu, Russell, Ward, Wilson & Wootton, in press**) following brain impairment and Parkinson's disease. Collectively, these studies have indicated positive treatment outcomes, while assessment and diagnoses have been found to be comparable to face-to-face evaluations.



Telerehabilitation: Effectiveness of Computer-Based Therapy

Research Evidence

In 2001, O. Bracy, a neuropsychologist, introduced the first web-based, rich internet application, for the telerehabilitation presentation of cognitive rehabilitation therapy. His system would provide the subscriber clinician with an economical means of treating their own patients over the internet. Secondly, the system then provides, directly to the patient, the therapy prescription set up and controlled by the member clinician. All applications and response data are transported via the internet in real time. The patient can login to do their therapy from home, the library or anywhere they have access to an internet computer and display of images in real-time with only a three to five second delay. **In 2006, O Bracy's** system formed the basis of a new system designed as a cognitive skills enhancement program for school children. Individual children or whole classrooms can participate in this program over the internet.



Telerehabilitation:

Effectiveness of Computer-Based Therapy

Research Evidence

✓ Stuttering has been adapted to a telerehabilitation environment with notable success. Two Australian studies (**Harrison, Wilson & Onslow, 1999;** **Wilson, Onslow & Lincoln, 2004**) involving the distance delivery of the Lidcombe Program to children who stutter have utilized the telephone in conjunction with offline video recordings to successfully treat several children. Overall, the parents and children responded positively to the program delivered at a distant.

✓ Using a high speed videoconferencing system link, **Sicotte, Lehoux, Fortier-Blanc and Leblanc (2003)** assessed and treated six children and adolescents with a positive reduction in the frequency of dysfluency that was maintained six months later. In addition, a videoconferencing platform has been used successfully to provide follow-up treatment to an adult who had previously received intensive therapy (**Kully, 2000**).



Telerehabilitation:

Effectiveness of Computer-Based Therapy

Research Evidence

✓Voice therapy across a variety of types of voice disorders has been shown to be effectively delivered via a telerehabilitation application (**Mashima et al., 2003**) using PC based videoconferencing and speech analysis software compared 23 patients treated online with 28 persons treated face-to-face. The authors reported positive post treatment results with no significant difference in measures between the traditional and videoconferencing group, suggesting that the majority of traditional voice therapy techniques can be applied to distance treatment.

✓“In some circumstances, outcomes may be enhanced through telepractice. For culturally and linguistically diverse clients, telepractice affords a greater opportunity for bilingual clinicians or providers with interpreters to reach non-English speaking clients or geographically isolated populations (e.g., Native American reservations)”



Telerehabilitation:

Benefits and Why

Flexibility

- ✓ Flexible work schedule
- ✓ Encourages independent practice
- ✓ Cost-effective (travel, commute, expenses)
- ✓ Bad weather? No Problem
- ✓ Services accessible globally

Effectiveness

- ✓ Facilitates remediation
- ✓ Enriches teaching
- ✓ Focuses on the goals
- ✓ Provides structure for reaching those goals
- ✓ Motivates children and lengthens attention span
- ✓ Some people are shy and this means of therapy can help people overcome their shyness
- ✓ Active participant in the learning process
- ✓ Promotes language/verbal interaction



Telerehabilitation:

Benefits and Why

Creativity

- ✓ State of the art delivery model
- ✓ Makes practicing more fun using interactive interface
- ✓ Engaging – Use of bright colors, humor and interesting characters keeps client motivated
- ✓ Students who are “gifted with learning disabilities” often fall through the cracks at school
- ✓ Students need to be more challenged in their gifted areas. Disabilities may mask their strengths.
- ✓ Kids deserve to be exposed to technology to improve and compensate for areas of weakness

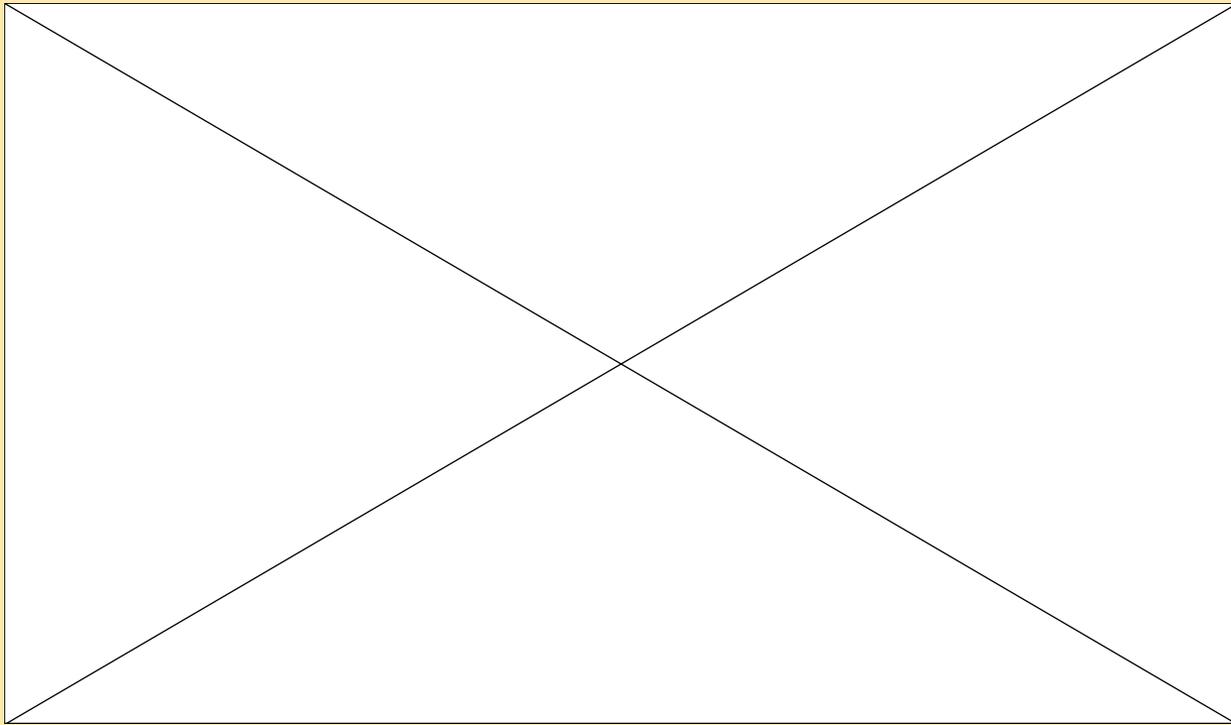
Practicality

- ✓ Receiving services in the natural environment
- ✓ Treatment can take a more functional focus by including family/caregivers and the client's real life situations
- ✓ Offers immediate and nonjudgmental feedback
- ✓ Health risks minimized from catching germs



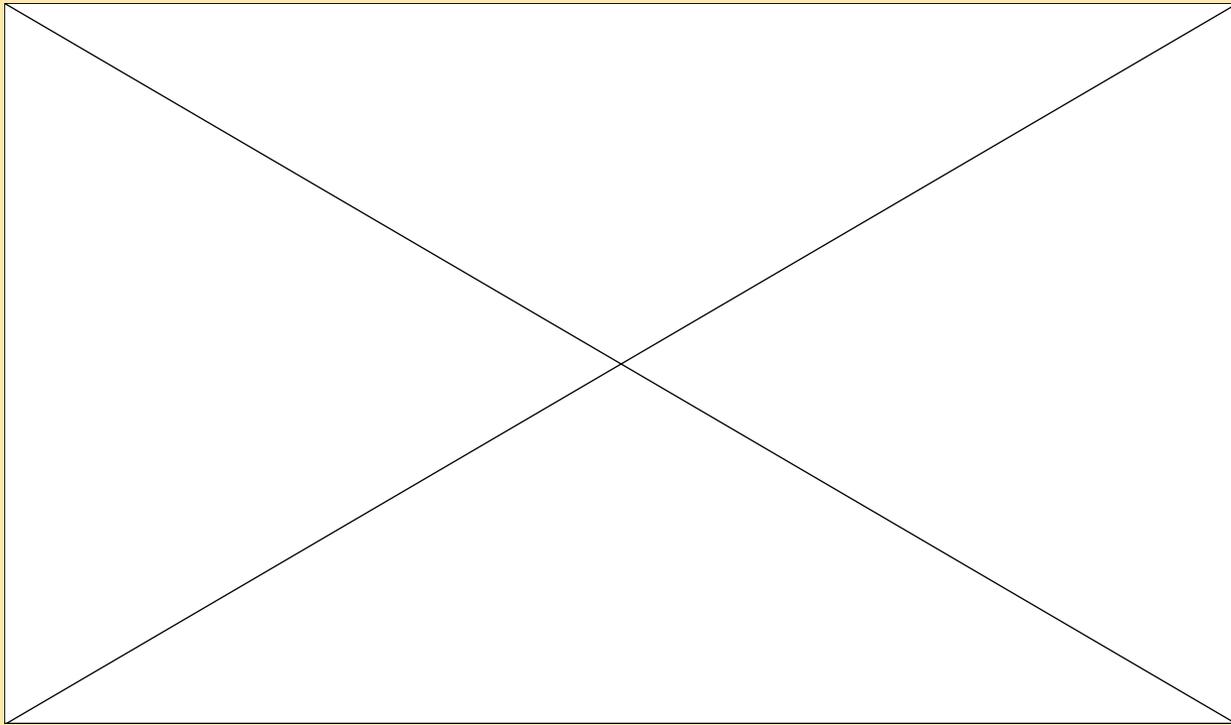
Telerehabilitation:

Videoconferencing Telespeech (Part 1 of 2)



Telerehabilitation:

Videoconferencing Telespeech (Part 2 of 2)



Telerehabilitation:

The big question?

Where would I
conduct my
therapy sessions?



**You are in
Control**

- ✓ Hospital to hospital
- ✓ Hospital to health care facility or clinician's office
- ✓ Health care facility to client's home
- ✓ Health care facility to school
- ✓ School to client's home
- ✓ Clinician's office to client's home



Telerehabilitation: Challenges and Hurdles

Financial Challenges

- ✓ **Lack of funds** for start-up
- ✓ Very **restrictive** over reimbursement
- ✓ **Few insurers** until further research development supports Telerehabilitation is just as effective as clinical contacts
 - e.g. Blue Cross/Blue Shield of North Dakota, Maine



Telerehabilitation: Challenges and Hurdles

Technical Challenges

- ✓ **Tech support** is limited
- ✓ **Network connection speed** impacts overall quality of video and audio clarity
- ✓ **Secure transmission** during telepractice may be obtained through the use of encryption, secure connection via virtual private network (VPN), and firewalls
- ✓ Will need someone to help if there are **connectivity problems**



Telerehabilitation: Challenges and Hurdles

- ✓ Still must adhere to **ASHA's Code of Ethics**
- ✓ **Research is limited** to support effectiveness of Telerehabilitation
- ✓ **Licensure restrictions** including the need to obtain multiple state licenses to practice across state lines
- ✓ Ethical issues including protecting and preserving patients' **privacy and confidentiality** and complying with HIPAA regulations
- ✓ **Legal issues** including risk management (e.g., ensuring clinical and technical competency; obtaining informed consent; using assistants and caregivers in providing services)

**Regulatory
Challenges**



Telerehabilitation: Challenges and Hurdles

Enforcement Challenges

- ✓ No hands on cues (high 5s); (**tactile reinforcement**)
- ✓ **Eye contact**
- ✓ Telepractice is not appropriate in all circumstances, and a **variety of factors** need to be considered



Telerehabilitation: Challenges and Hurdles

Environmental Challenges

- ✓ **Comfort and privacy** of clients during telepractice
- ✓ Room location, design, lighting, and furniture should **optimize and minimize** ambient noise and visual distractions
- ✓ **Optimal positioning** of the client and test and therapy materials, and for placement of the video monitor and camera



Interactive Games and Online Resources:

Useful links and hands-on opportunities



<http://www.mnsu.edu/comdis/kuster2/spttherapy.html>

(This is a very comprehensive listing for SLPs. This is just one section of Judith Kuster's [Net Connections for Communication Disorders and Sciences](http://www.communicationdisorders.com) (www.communicationdisorders.com). The internet is FULL of materials that can be adapted to speech-language therapy. All of the URLs listed below were current when this was fully updated and reorganized January 2010. Additional URLs continue to be added, and changes are URLs have been made as I have discovered them, as reflected by the date at the bottom of the page. Be aware that URLs change and disappear and other sites are available and will become available. These sites are provided simply as good example.



<http://www.speech-language-therapy.com/slp-eureka.htm>

(The SLP "Start Page" began in 1998 as a private reference page that enabled quick access to regularly visited sites, especially while web-weaving.)



Interactive Games and Online Resources:

AAC – What is it?

Definition

✓ **Augmentative and Alternative Communication (AAC)** is a set of strategies and methods to assist people who are unable to meet their communication needs through speech or writing. AAC strategies may include low-tech options (such as letter boards or communication books) or high technology devices that produce speech. These devices can be customized to meet the individual's communication needs at home, at school, at work, and in the community.

✓ Aided-using an electronic or non-electronic device to transmit or receive a message.



Interactive Games and Online Resources:

AAC – Low Tech

Low Tech

- ✓ Words, letters, phrases etc. (e.g., communication book)
 - Does not use batteries
 - Picture symbols (Boardmaker, Mayer Johnson)

- ✓ Switches-more complex communication needs (medically fragile clients)
 - Single message devices (BIGmack)
 - Switch activated spinner (All-Turn-It-Spinner, Ablenet)
 - Battery device adapter for battery-operated toys (Ablenet)



Interactive Games and Online Resources:

AAC – High Tech

High Tech

✓Electronic devices that permit the storage and retrieval of messages, with most allowing the user to communicate with others using speech output.

✓VOCA-Voice Output
Communication Aids

- Synthesized-artificial production of human speech
- Digitized-recorded natural speech (Tango, Dynavox)

✓Alphabet Board

✓PECS

✓System not a device

✓Access - pointing, maneuvering a joystick, head mouse, optical head pointer, light pointer, infrared pointer, switch access scanning, or by Morse code. (QUEENIE)

✓Dedicated vs. Non-Dedicated

✓Static (Go Talk) vs. Dynamic (Dynavox)

✓Determining what communication system that the client can use to best access their environment

✓Keep multicultural aspects in mind (e.g., colors, symbols)



Interactive Games and Online Resources:

Test of Aided Symbol and Performance (TASP)

TASP

- ✓Needs to be a candidate
- ✓Cognition
- ✓Is the device appropriate for this client?
- ✓We want the communication to be positive, meaningful and purposeful
- ✓Look at all aspects look at the client gestalt/holistic picture
- ✓Speed to access vocabulary-access to broad vocabulary for spontaneous unpredicted messages
- ✓Match client with a device that will meet current and future needs

- ✓Can these clients move efficiently from one page to the next?
- ✓Do they have the fine motor ability to do so?
- ✓It becomes even more complicated when children with complex multiple, physical and sensory challenges juggle additional motor coordination, sensory processing, communication, language and cognition required
- ✓Whether it is high tech or low tech AAC, we need to work together as a team to determine what would be the perfect system for a client to communicate.
- ✓iPod/iPad applications-available on itunes.com Apple did not know what they stumbled upon



Interactive Games and Online Resources:

Useful links and hands-on opportunities



<http://aacintervention.com/teacher.html>

Augmentative/Alternative Communication Intervention

Products & Presentations by Dr. Caroline Musselwhite & Julie Maro



<http://www.mayer-johnson.com/default.aspx>

Mayer-Johnson's mission is to enhance learning and human expression for individuals with special needs through symbol-based products, training and services.



<http://www.prentrom.com>

Prentke Romich Company (PRC) is a member of a consortium of companies that are pioneers in the field of assistive technology and augmentative communication.



Interactive Games and Online Resources:

Useful links and hands-on opportunities



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

Saltillo Corporation is dedicated to making personal communication possible to individuals who are unable to use their natural voice.



<http://www.minspeak.com>

Minspeak is a way of representing language in a communication device. Minspeak is an effective and efficient language representation method that promotes independent communication.



Interactive Games and Online Resources:

Useful links and hands-on opportunities



<http://www.silver-kite.com>

Dedicated to helping those with disabilities soar independently featuring only those adaptive living and assistive technology solutions



<http://www.vantatenhove.com/index.html>

Gail M. Van Tatenhove is Certified Speech-Language Pathologist specializing in augmentative and alternative communication

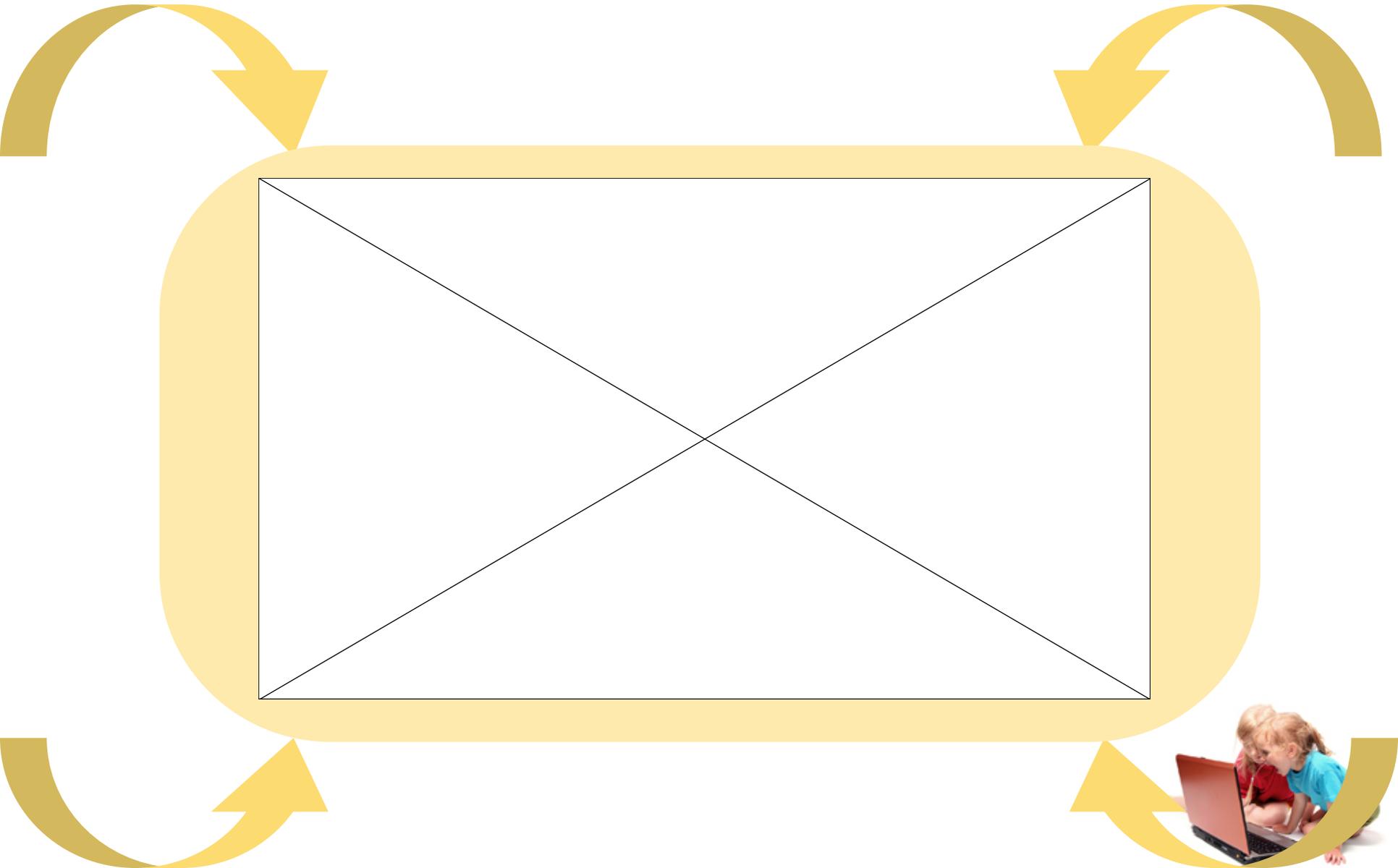


http://www.speakingofspeech.com/IEP_Goal_Bank.html#Aud_Processing

This IEP GOAL BANK is the place where you can "deposit" your own IEP goals/objectives and "withdraw" the goals/objectives contributed by others. Few things cause more angst in our profession than writing IEP goals/objectives! One way to simplify the process is to use the template below. If all sections of this template are filled in, then your goal/objective is measurable.

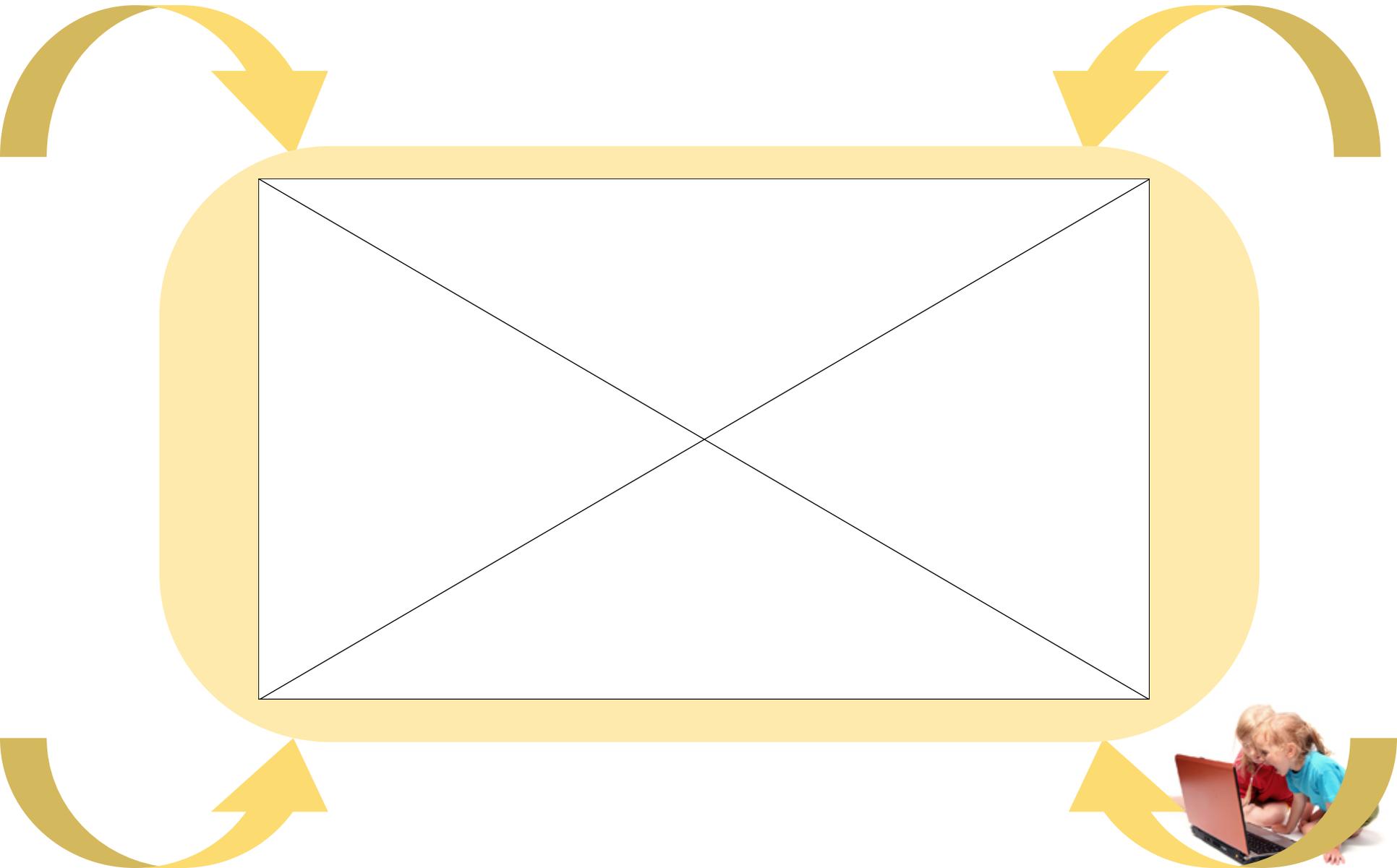


Interactive Games and Online Resources: The Language Stealers

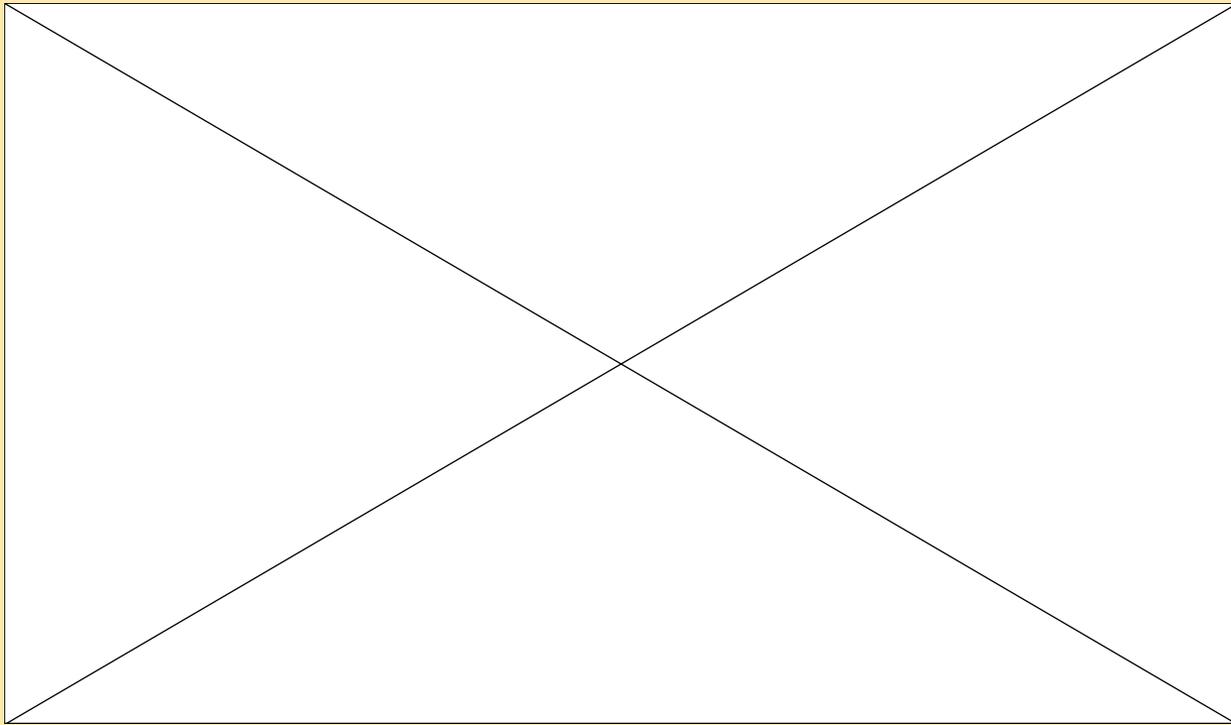


Interactive Games and Online Resources:

The Conversation: iPad Gives Voice to the Autistic

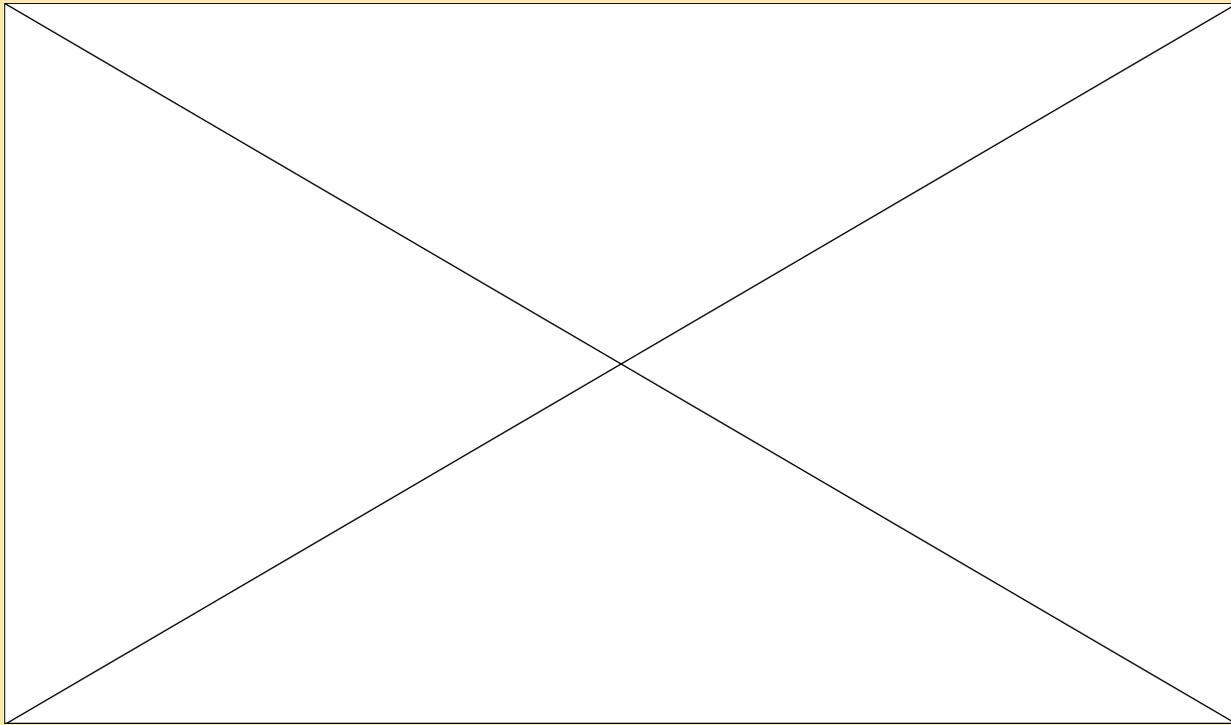


Interactive Games and Online Resources: Funding Communication Aids (AAC)



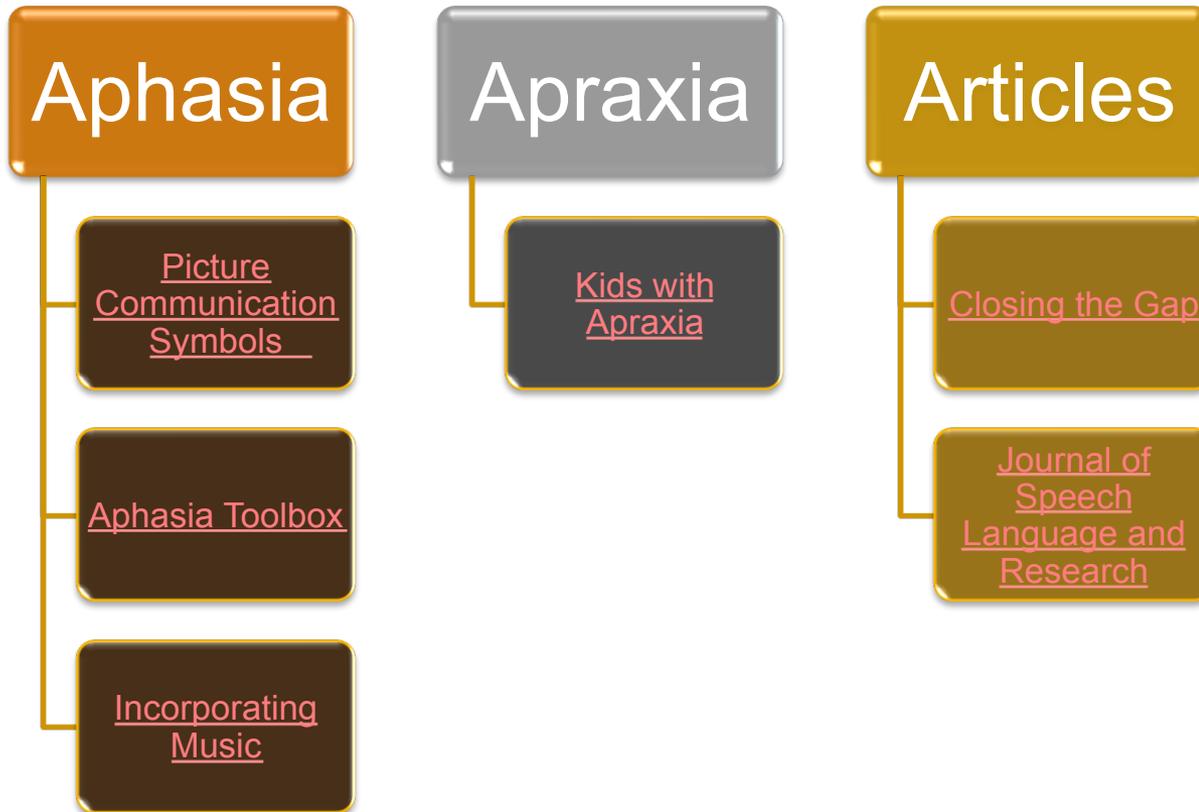
Interactive Games and Online Resources:

1 Minute MyTalk overview



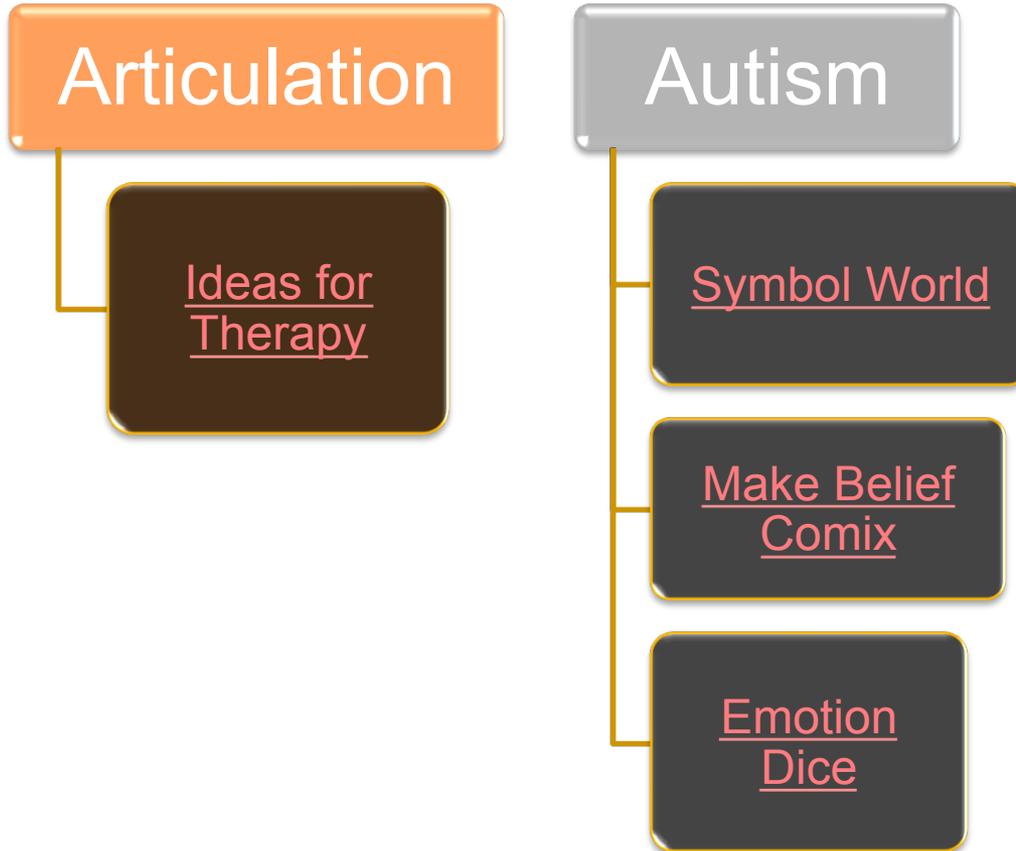
Interactive Games and Online Resources:

Alphabetical Listings



Interactive Games and Online Resources:

Alphabetical Listings



Interactive Games and Online Resources:

Alphabetical Listings

Community and National Resources

[Alzheimer's Association](#)

[American Disability Association](#)

[Assistive Technology](#)

[Autism Speaks](#)

[California Children's Services](#)

[Council for Exceptional Children \(CEC\)](#)

[Learning Disabilities Association of America](#)



Interactive Games and Online Resources:

Alphabetical Listings

Community and National Resources

[National Aphasia Association](#)

[National Stroke Association](#)

[Playgroups](#)

[State of California Department of Developmental Services](#)

[Stuttering Foundation of America](#)

[Support Groups](#)



Interactive Games and Online Resources:

Alphabetical Listings

Community and National Resources

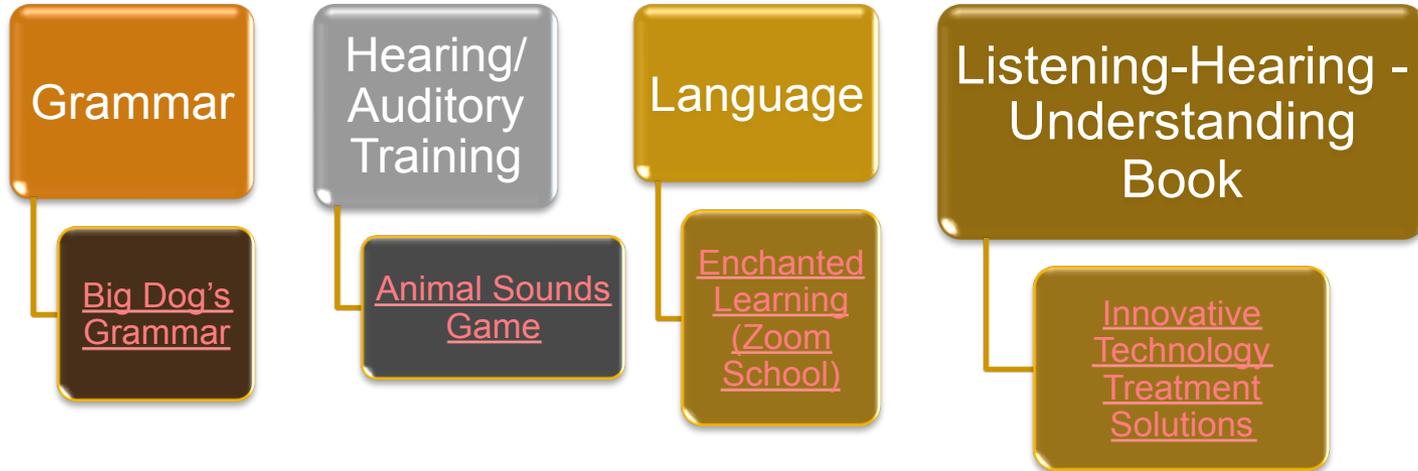
Fluency

- [Speech Easy](#)
- [Stuttering Center of West Pennsylvania](#)
- [Just for Kids \(Who Stutter\)](#)
- [Stuttering Help \(Video Clip\)](#)



Interactive Games and Online Resources:

Alphabetical Listings



Interactive Games and Online Resources:

Alphabetical Listings

Literacy/Writing

- [Cosmeo online homework help service](#)
- [Earobics \(educational games\)](#)
- [eBooks \(Kindle\)](#)
- [FunBrain](#)
- [Highlight Kids](#)
- [National Geographic](#)
- [Starfall](#)
- [Time for Kids](#)
- [Silly Books \(video\)](#)
- [Storyline Online \(video\)](#)
- [Starfall \(video\)](#)
- [Animated Literacy](#)



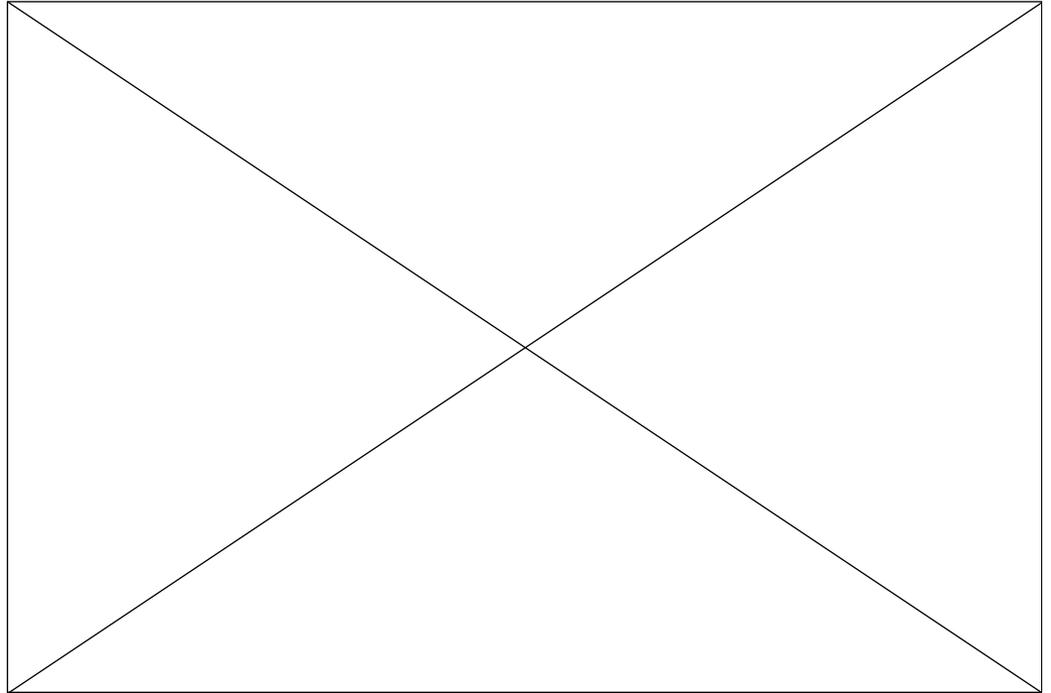
Interactive Games and Online Resources:

Alphabetical Listings



Movie Websites

- **Cars**
- Legend of the Gaurdians
- Madagascar
- Megamind
- Kung Fu Panda
- Shrek
- Toy Story 3
- Up



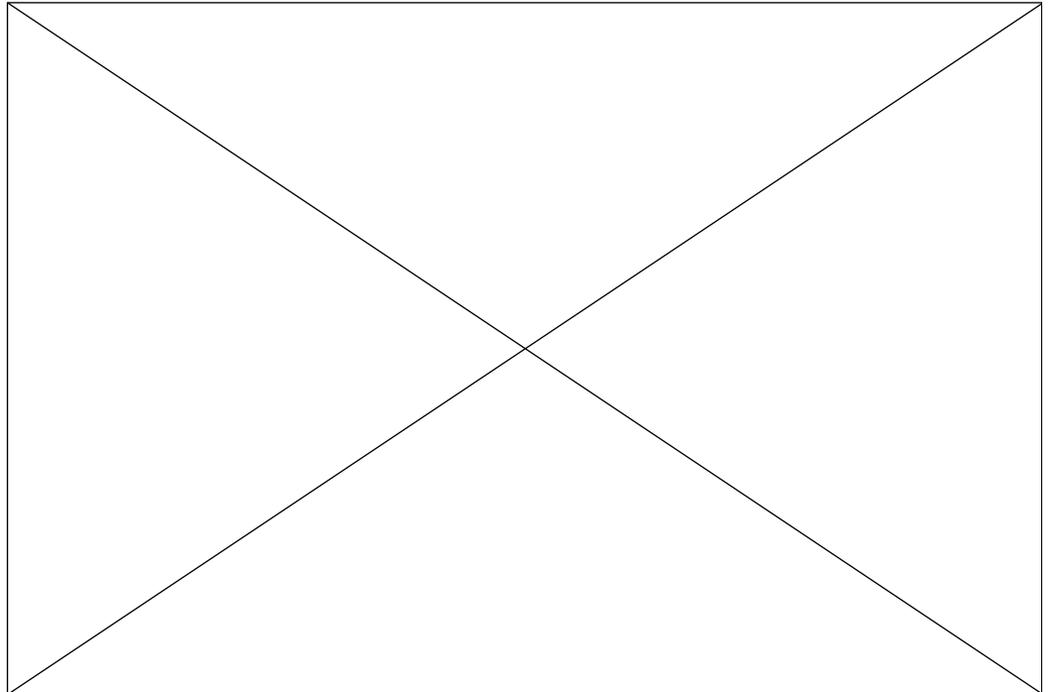
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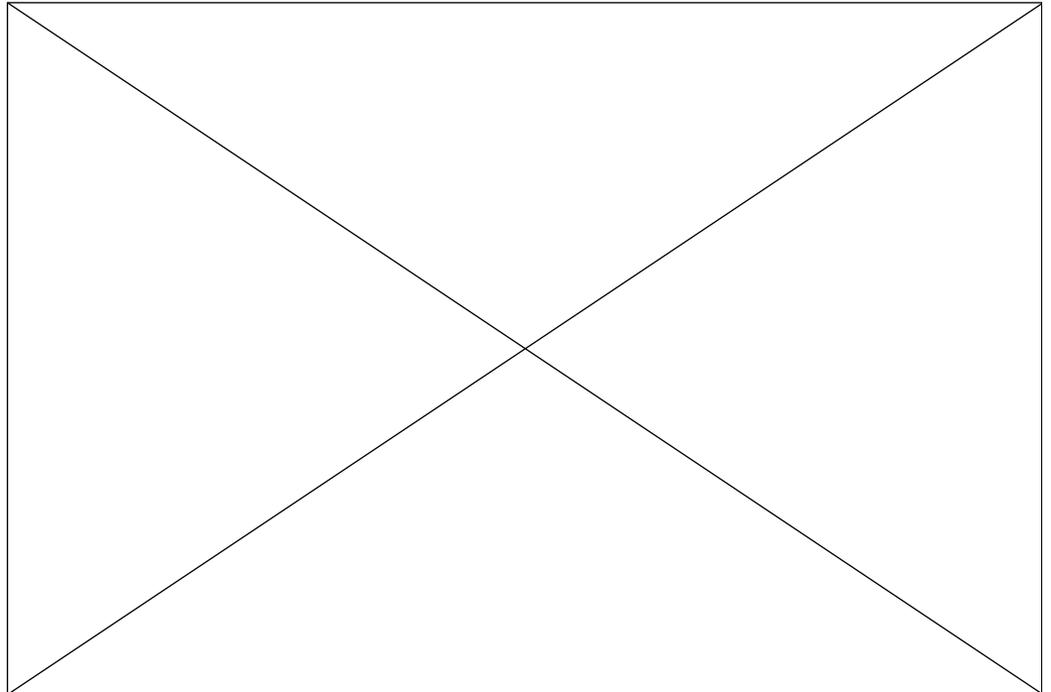
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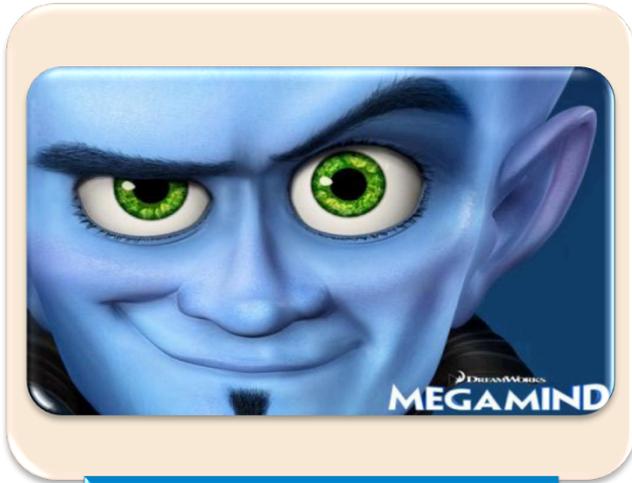
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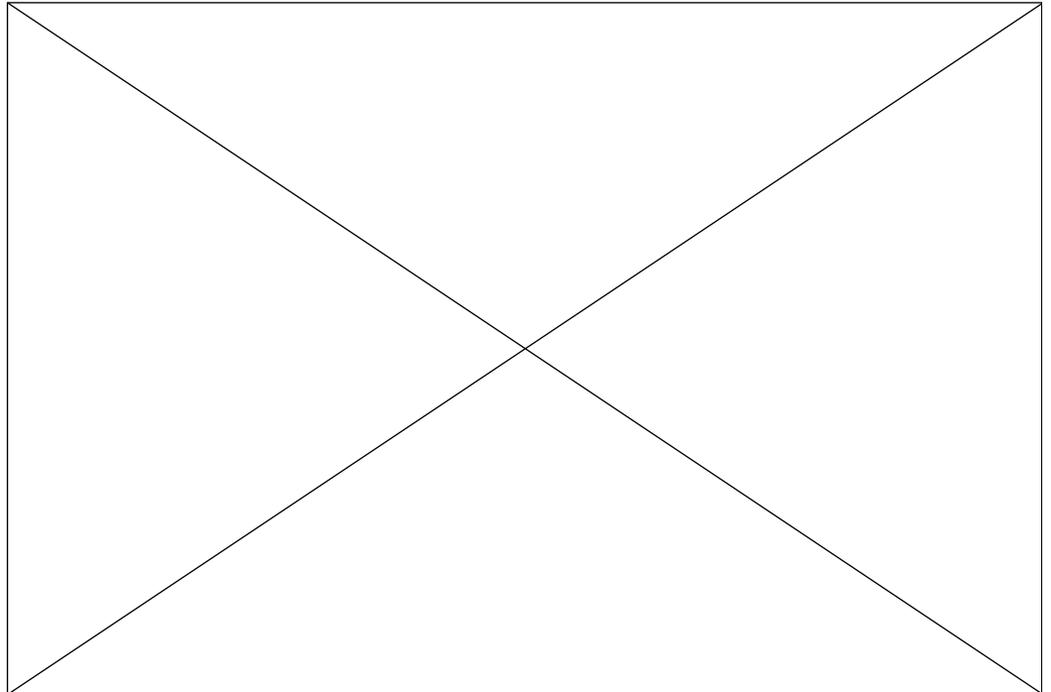
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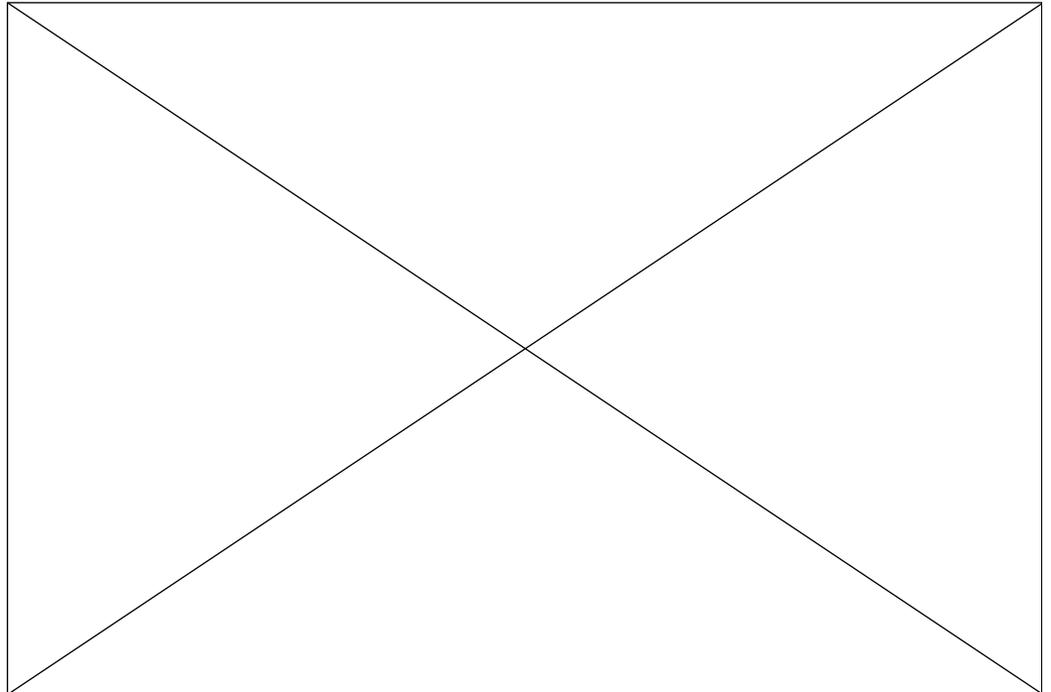
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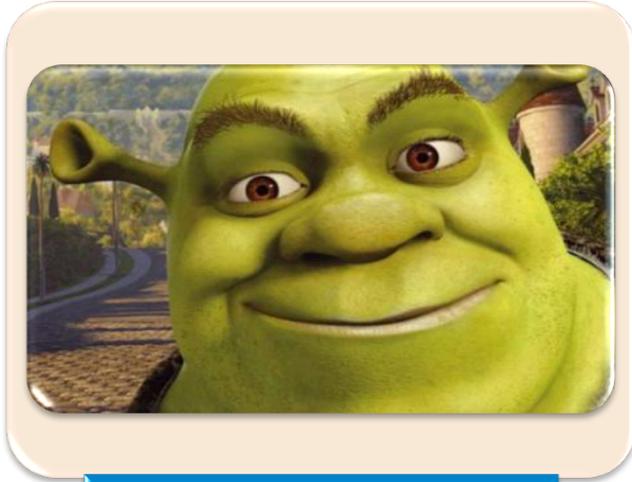
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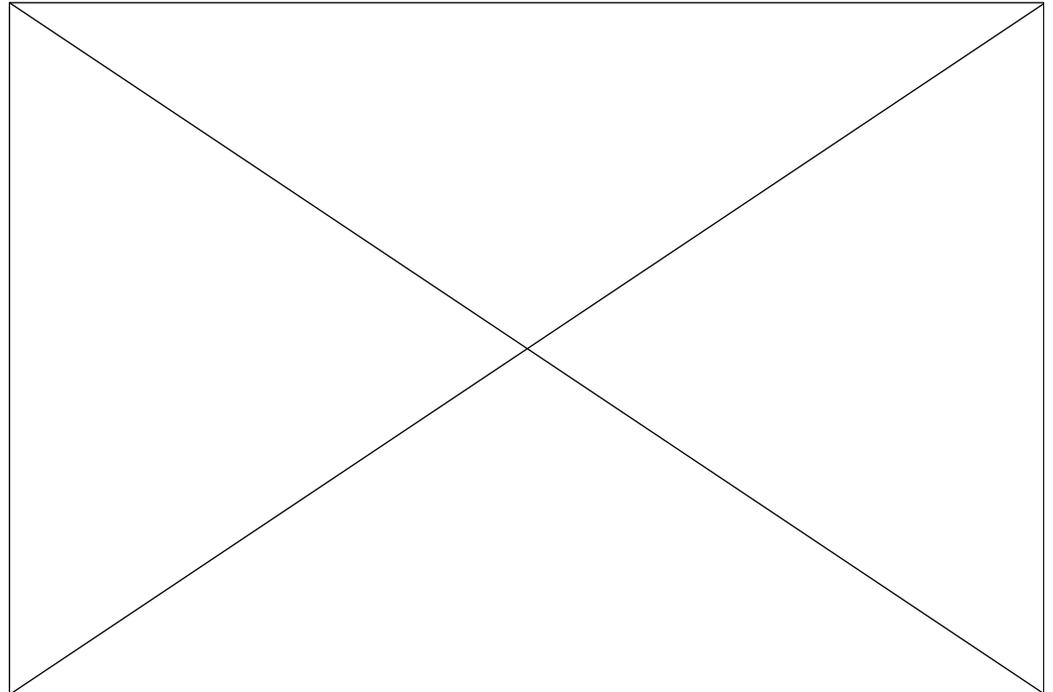
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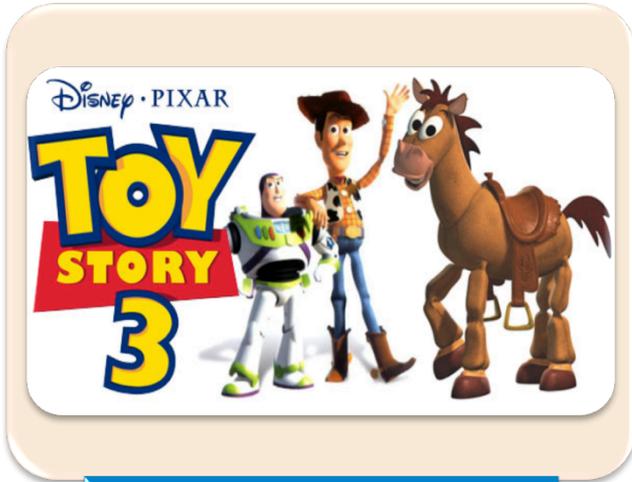
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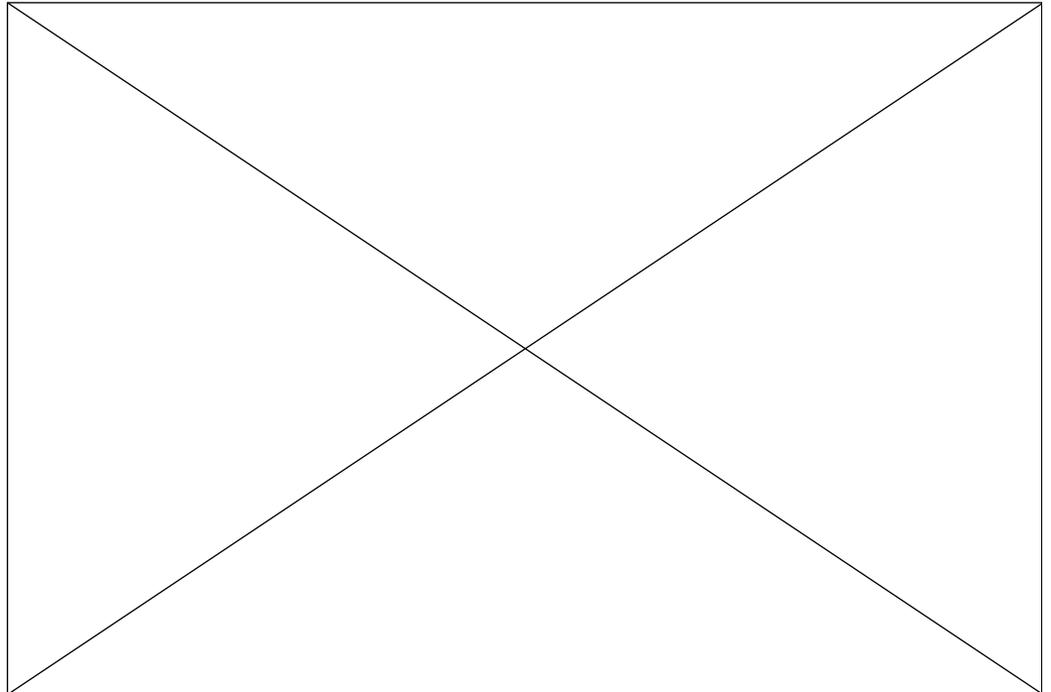
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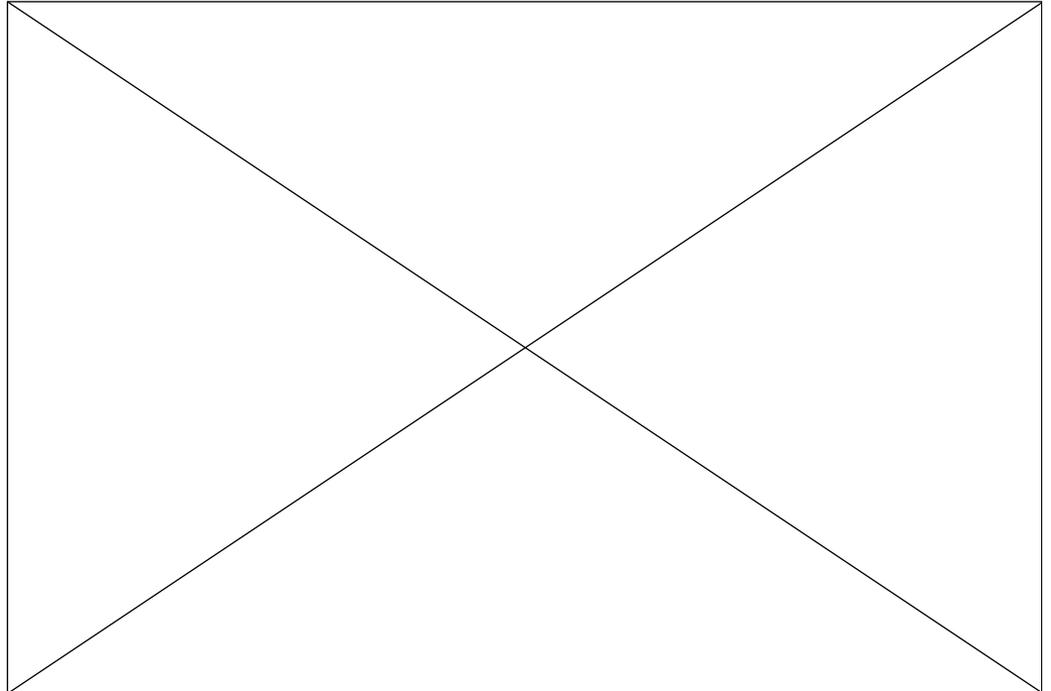
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Interactive Games and Online Resources:

Alphabetical Listings

Oral Motor

- [Talk Tools Therapy](#)
- [Speech Therapy on Video](#)
- [Sammy Speakwell's Oral Motor Exercises](#)
- [The Elephant Song - Cool Tunes for Kids by Eric Herman](#)

Organization/Time Management

- [Remember the Milk](#)
- [Graphic Organizers](#)
- [Learning Page](#) (*You can join this site free of charge and download tons of reproducible worksheets for calendar concepts, alphabet, senses, numbers, time, money, etc. There is also a nice collection of clipart and vocabulary books to download*)

Phonology

- [Phonology and Articulation Resources](#)



Interactive Games and Online Resources:

Alphabetical Listings

Preschool

- [Nickelodeon Junior](#)
- [Sesame Street \(Official Site\)](#)
- [Sesame Street \(Video\)](#)
- [Cullen's ABC](#)
- [Starfall's ABC](#)

Social Skills

- [do2Learn](#)
- [Socialskillbuilder.com](#)

Spelling

- [Puzzle Maker](#)
- [Spelling City](#)

Studying

- [Study Stack](#)



Interactive Games and Online Resources:

Alphabetical Listings

Toys / Manipulatives

- [Toys R Us](#)
- [Target](#)
- [Lake Shore Learning](#)
- [Amazon](#)
- [Overstock](#)
- [Educational Toys Mart](#)

Vocabulary

- [Word Central](#)

Voice/Music

- [Music and Speech Therapy Session](#)
- [Story of Thumper](#)
- [Web Therapy](#)
- [Loudness Scale](#)



Interactive Games and Online Resources:

Other recommended sites for Children

1-language.com

barbie.com

brainsurge.com

disney.com

[eduplace.com/
tales/](http://eduplace.com/tales/)

funbrain.com

funschool.com

[gamesforthebrain.
com](http://gamesforthebrain.com)

hasbro.com

hbofamily.com

[languagegames.o
rg](http://languagegames.org)

nickjr.com

nick.com

pbskids.org

playskool.com

quia.com

sesamestreet.org

starwars.com

[strawberryshortca
ke.com](http://strawberryshortcake.com)

tamatown.com

[thomasandfriends
.com](http://thomasandfriends.com)

vocabulary.com

thewiggles.com

yahoo.com/kids

peanuts.com



Interactive Games and Online Resources:

Other recommended sites for Older Age Groups

[brain pop](#)

[braintrain.com](#)

[dictionaries.cambridge.org](#)

[earobics.com](#)

[Fitbrains.com](#)

[games.com](#)

[Happyneuron.com](#)

[Lumosity.com](#)

[Mind360.com](#)

[pogo.com](#)

[popgames.com](#)

[quia.com](#)



Interactive Games and Online Resources: Software and Webinars

Dr. Richard Katz, a well known researcher in the Speech/ Language Pathology field, published a study in **1997** confirming the effectiveness (efficacy) of computer software for treating language-based deficits, specifically aphasia. He graphed the outcomes data and made several conclusions in favor of computerized therapy.

WAB is an instrument for assessing the language function of adults, able to determine the presence, degree, and type of aphasia. Quick look at overall functioning.

Aphasia Quotient from the Western Aphasia Battery = summary score that indicates overall severity of language impairment.



Interactive Games and Online Resources: Software and Webinars

1. Computer Reading Treatment -

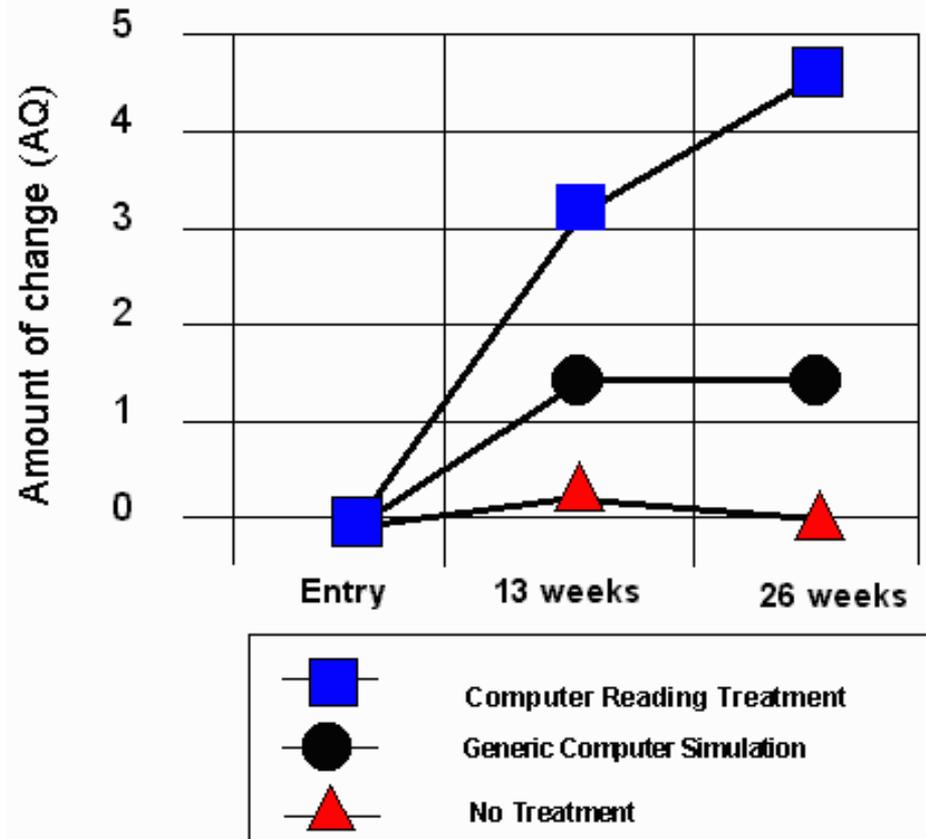
Each patient received 3 hours per week of therapy (for 26 weeks) using software specifically designed for language therapy (for a total of 78 hours of computer therapy). APHASIA-TUTOR SOFTWARE

2. Generic Computer Simulation software (such as video games, etc.) not designed specifically for language therapy.

3. No Treatment - The patient received no treatment.

Conclusions:

Computer reading treatment requires only minimal assistance from a clinician. Improvement on the computer reading tasks generalizes to improvement in language performance.

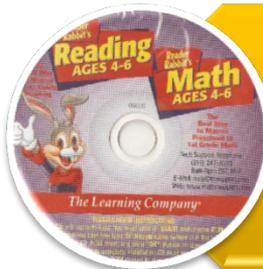


Interactive Games and Online Resources: Software and Webinars

Specialized software for all ages provides audiovisual exercises to help clients in the clinic, school and/or home.



Bungalow Software - Therapist-designed speech-therapy software providing unlimited, independent speech & language practice (for home or clinic) using proven therapeutic techniques for faster rehabilitation.



Reader Rabbit - Learning activities that build key skills like alphabet, math awareness and phonics, while nurturing all-important early learning confidence.



Interactive Games and Online Resources: Software and Webinars



[JumpStart](#) - JumpStart is an award-winning adventure-based 3D virtual world that is super-personalized, wildly imaginative and really fun, but don't let that fool you - it also teaches math, reading, and critical thinking skills so kids get a real jump start in life.



[Inspiration Software](#) - Teach and reinforce writing and critical thinking skills, engage students with collaborative learning and extend learning time and facilitate student-teacher interaction.



[Brain Spa](#) - Maximize your memory, improve your perception abilities, power up your language aptitude, and fine tune your logical thinking skills! Develop and improve four key skills including memory, perception, logic and language with eight entertaining games.



Interactive Games and Online Resources: Software and Webinars



Interactive Games and Online Resources: Software and Webinars



Interactive Games and Online Resources: Software and Webinars

Testing/Publishers Mailing List

- brookespublishing.com/store/communication.htm
- amazon.com
- cengagesites.com/academic/health.cfm?site=4450&SecID=1117
- textbooks.com
- ittsguides.com/index.html
- half.com



Interactive Games and Online Resources: Software and Webinars

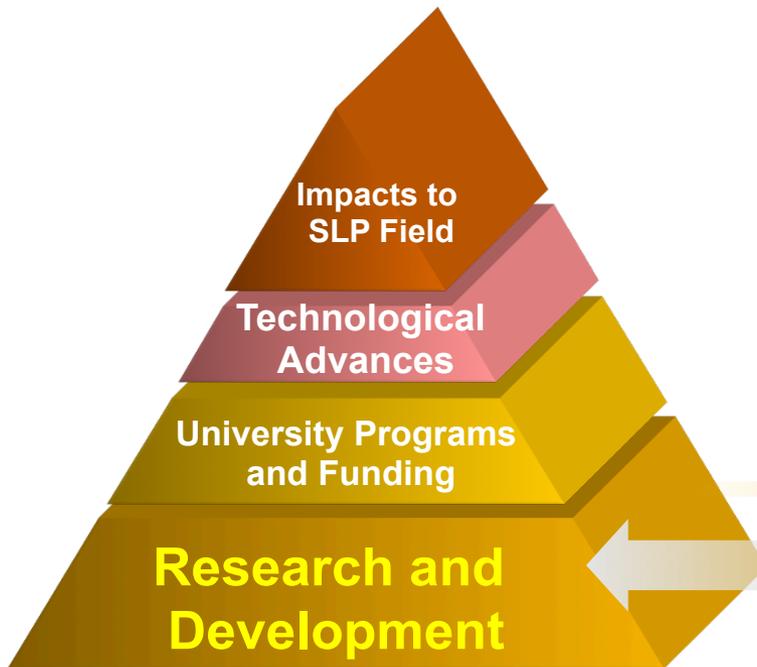
Webinars

- CEUs (speechpathology.com, superduperinc.com, linguisystems.com)
- Graduate Programs online (CSUN, Nova)
- AAC
- intellitools.com/about/pressroom/WebEx_Demos.aspx
- ittsguides.wordpress.com
- closingthegap.com/store/webinars
- handholdadaptive.com/webinars.html
- tech4learning.com/videos (video)
- superduper.acrobat.com/p70937945/?launcher=false&fcsContent=true&pbMode=normal



Conclusion

What's Next?



- ✓ Develop rehabilitation
 - National Institute on Disability
 - Rehabilitation Research
 - Department of Education
 - Veteran's Administration
 - Department of Defense
- ✓ More virtual practices and case studies
- ✓ Develop strategies
- ✓ Start slowly - build gradually

Increased R&D to support and develop telerehabilitation



Conclusion

What's Next?



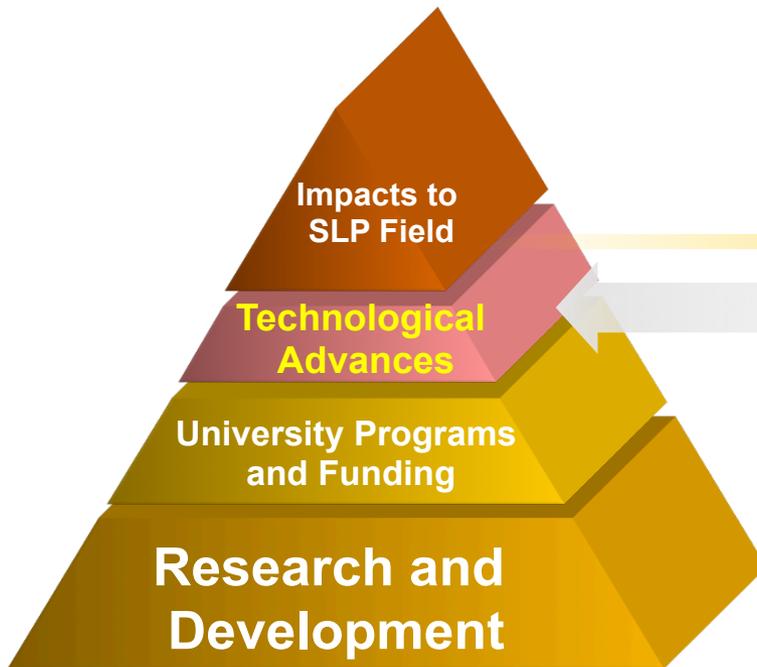
- ✓ Integrate Technology classes
- ✓ More Tele-clinics at Universities
- ✓ More Medicaid funded pilot programs
 - connect practitioners in rural areas
- ✓ Grant proposals to ASHA

Consider integrating a Technology Classes into SLP Curriculum



Conclusion

What's Next?



- ✓ Individuals with physical, communication and cognitive limitations will benefit
- ✓ Someone who is learning to live with a new disability can compensate for his or her limitations
- ✓ More teleaudiology
- ✓ Touchscreen Software

Technology can open new worlds for individuals

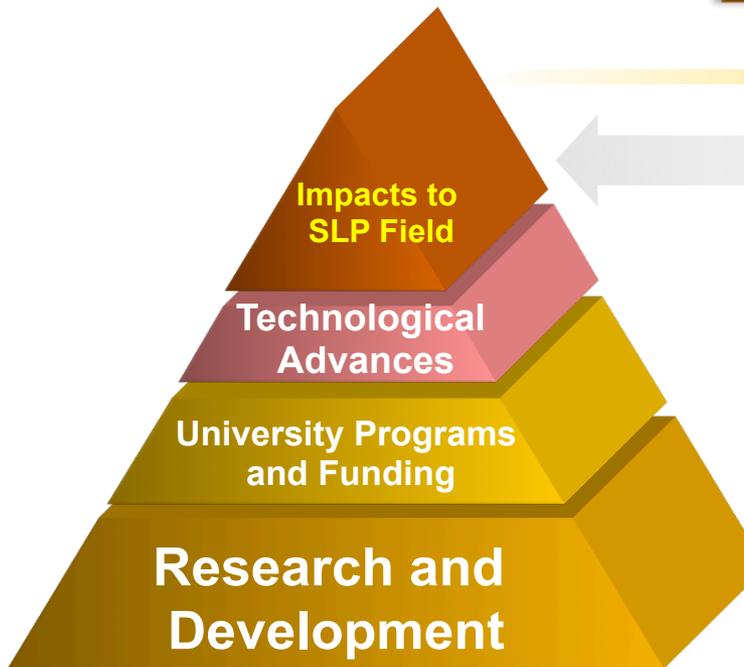


Conclusion

What's Next?

*SURVEY - <http://www.d.umn.edu/~kbrorso1/telesurvey.htm>

No computerized therapy can (or should) replace a speech therapist



Technology can potentially revolutionize the SLP Profession

- ✓ SLPs are part of medical community
- ✓ With new advancements emerging everyday, the future is looking bright
- ✓ ASHA should initialize a Special Interest Division
 - Perspectives on Technology
- ✓ Expect to see further rapid expansion of computer



Conclusion

...The End



Thank You!

Matt Smith, M.S., CCC-SLP

(818) 788-1003

matt@speechassociates.com

www.speechassociates.com



Appendix I:

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Appendix II:

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