


+



Telepractice: Using Distance Technology to Connect, Communicate, & Enhance Language Learning in Children with Hearing Loss

K. Todd Houston, PhD, CCC-SLP, LSLS Cert. AVT
The University of Akron

+ **Disclaimers**


Dr. Houston is currently the author or co-author/editor of three books published by Plural Publishing:

Telepractice In Speech-Language Pathology (2014)

Assessing Listening and Spoken Language In Children with Hearing Loss (2015) – with co-author/editor, Tamala S. Bradham, PhD, CCC-A

Telepractice In Audiology (2016) – with co-author/editor Emma Rushbrooke, MA, AuD

Dr. Houston does not receive any monetary compensation from any of the manufacturers/companies of the technology discussed during this presentation.




+ **Learning Objectives**


At the end of this presentation, participants will be able to:

- Identify current distance technology that is impacting early intervention and the education of children with hearing loss;
- Discuss the role of parent coaching in telepractice; and
- Define the use of telepractice as a service delivery model for children with hearing loss and their families.

+ **Dylan & Dad...and Butterflies!**



+ **Terminology**



+ **Defining Telepractice**

- American Speech-Language-Hearing Association
 - The application of telecommunications technology at a distance by linking a clinician to client or clinician to clinician for assessment, intervention, and/or consultation.
- Telepractice is an appropriate model of service delivery for the professions of Speech-Language Pathology & Audiology.
- The quality of services delivered via telepractice must be consistent with the quality of services delivered face-to-face.

+ History of Telehealth

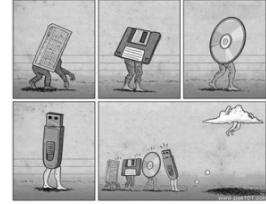


+ Evolution Leading to Revolution

5 Mb of Storage Being Loaded: 1956

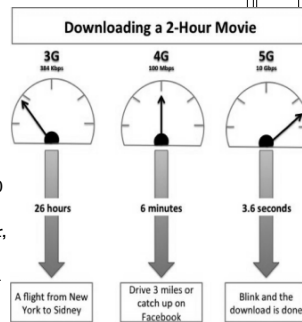


Evolution of Memory Storage

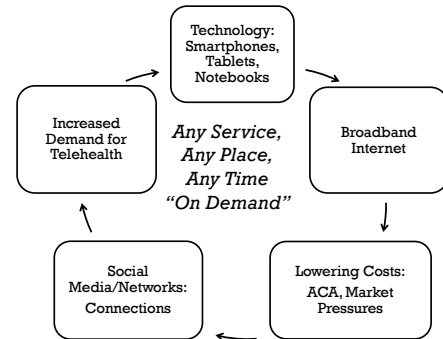


+ The times...They are a-changin'

- Virtual Reality = Immersive Computing
- Artificial Intelligence (AI) / Robotics
- 3-D Printing
- Internet of Things / Internet of Everything / Smart Homes
- 5G connections = 10K faster, 10 Gbits per second
- Everything On Demand = Uber, Lyft, etc.
- Quantified Self / Mobile Health
- Self-Driving cars



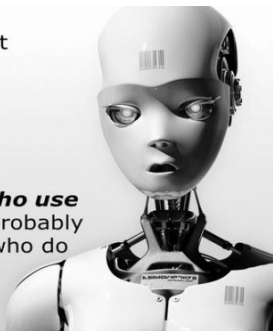
+ Convergence of Technology, Healthcare, & Education



+ Technology won't replace teachers...

...but **teachers who use technology** will probably replace teachers who do not.

...so what about early interventionists, audiologists, and speech-language pathologists?



+ Healthcare Access of the Future

According to the **American Medical Association**,
70% of doctors visits and
40% of ER visits
could be avoided through telemedicine.

Increasingly, speech-language pathologists, audiologists, and other educators are adopting models of telehealth & telepractice to serve more children with hearing loss and their families.

+ An Audiologist's Perspective

13

"Telehealth has taken many years to become an "overnight" sensation...and now we have...a convergence of telecommunications and health care finally becoming a reality."

--David Fabry, PHD

+ Telepractice & Speech-Language Pathology

14

- Around the world, SLPs are using telepractice to deliver direct and indirect services for the following areas of practice:

- Assessments
- Speech and language delays
- Articulation & phonological disorders
- Voice & fluency
- Non-verbal/AAC
- Traumatic brain injury
- Aphasia/Stroke
- Auditory-Verbal Therapy/Parent Coaching
- Adult Aural Rehabilitation
- Supervision, mentoring, & consultation

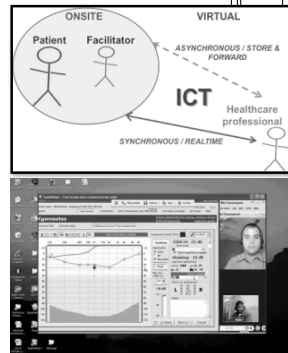


Boisvert, M. (2014)

+ Telepractice & Audiology

15

- Patient Counseling
- Hearing Screenings
- Audiological Diagnostics
- Hearing Aid Fittings
- Cochlear Implant Mapping
- Teleintervention for children & Adult Aural Rehabilitation



+

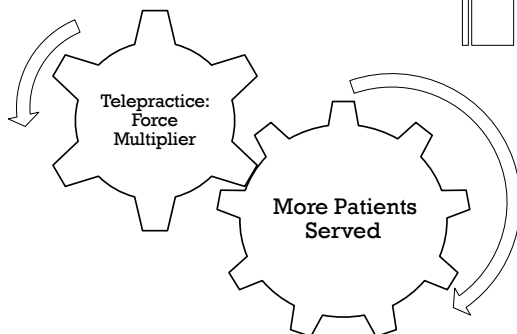
16

Telepractice is not a different service but rather a different method of service delivery.

-- Janet Brown, 2010

+ Benefits of Telepractice

17



Boisvert, M. (2014)

+ The Need for Telehealth/Telepractice

18

- Clinician/specialist shortages
- Misdistribution of providers
- Rural/urban underserved
- Travel time, cost & hardship
- Delayed treatment, intervention or rehabilitation



+ Telepractice Benefits

- Reduces barriers to access
- Reduces travel, time constraints
- Reduces overall healthcare costs
- Reduces delays in care
- Improves quality of care, collaboration, & coordination

More consistent therapy & intervention leads to improved speech, language, and learning outcomes for the children and families served.

+ The Question for the Day

With the convergence of communication technology and healthcare, how will telepractice service delivery models impact the provision speech-language intervention to children with hearing loss & their families?



+ Technology & Service Delivery Models

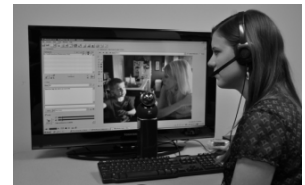
+ What is the Technology

Principal components

- Equipment (dedicated & software)
- Connectivity

Two Technology Approaches

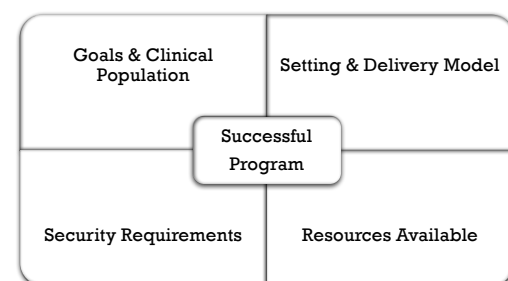
- Live Interactive
 - Audio/Video
 - mHealth
- Store and Forward
 - Audio/Video
 - mHealth



+ ASHA's Position on Equipment

- Telepractice application and desired intervention outcomes cause variances in equipment specifications.
 - Image and sound quality must be sufficient for the clinical application.
 - Important factors:
 - Network availability and reliability
 - Equipment maintenance and upgrades
 - Training of professionals and clients
- (ASHA, 2005)

+ Determining Technology & Equipment Needs



Boisvert, M. (2014)

+ Determining Technology & Equipment Needs

■ Key Questions:

- What is to be accomplished? (direct service, supervision, mentoring, etc.)
- What is the clinical population? (e.g., speech/language delay, voice, fluency, articulation/phonology, AAC)
- What is the setting of the services? (e.g., 1:1, small group, classroom based, training)
- What is the delivery model? (e.g., direct FtF, Store/Forward, hybrid)
- What are the security requirements?
- What are the resources that are available? (i.e., existing equipment, budget, IT support, administrative support, bandwidth)

Boisvert, M. (2014)



Technology: Things to Consider

- Transmission methods and speeds
- Types of technology
- Uses of technology
- Technical support
- Privacy/Security
- Funding Issues
- Applications

+ Transmission Methods

■ ISDN (Integrated Services Digital Network)

- T1-T4 lines

■ Broadband/IP (Internet Protocol)

- Mobile/Cellular
- DSL (Digital Subscriber Line)
- Cable
- Satellite

+ Bandwidth is the KEY Technological Issue

- All technology systems, regardless of cost, are effected by bandwidth
- Bandwidth is an issue in all geographical locations (urban and rural)
- Bandwidth is traffic dependent
- Traffic is dependent on time of day, weather, location
- Bandwidth is increasing dramatically nation-wide, but so is traffic (thanks, Netflix and youtube!)





+ Web-based systems

32

Basic equipment

- Hardware/software
- Camera
- Monitor
- Microphone
- Speakers

Looks like....

- Skype, facetime, etc.
- Internal or external webcam
- Computer screen/tablet
- Headset or built-in
- Headset, built-in or external

+ Web Based Systems

33

Pros

- Quick and easy to set up
- Can be accessed from any computer with internet
- Inexpensive
- May have screen sharing
- Could be portable

Cons

- Limited camera angle
- Teacher can't control the family's camera
- Relies on family's/school's internet connection
- Family must provide own IT support

+ Types of equipment

34

- Hardware/software
- Camera
- Monitor
- Microphone
- Speakers



+ Web-Based Telepractice Platforms

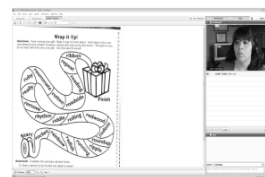
35

- | | |
|-------------------------|--------------------------|
| ■ SKYPE (Free...No!) | ■ Microsoft Office 365 |
| ■ SKYPE for Business | ■ Cisco WebEx |
| ■ Infinite Conferencing | ■ iLinc |
| ■ AdobeConnect | ■ Blackboard Collaborate |
| ■ Megameeting | ■ Zoom |
| ■ GoToMeeting | |

+ WEBEX

36

Document Sharing



Application Sharing



+ Technology Considerations

- Up-front Costs
- Ongoing Service Fees
- Bandwidth & Reliability
- Support
- Quality of Equipment (video, image size, camera pan, & zoom)
- Recording telepractice session
- Security, Firewalls
- Ease of Use

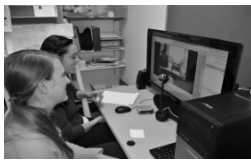


37



Telepractice & eLearning Laboratory (TeLL)

+ Telepractice & eLearning Lab (TeLL) School of Speech-Language Pathology & Audiology



- The University of Akron serves children with hearing loss and their families as well as adults with hearing loss
- Pediatric therapy focuses primarily on listening and spoken language & Auditory-Verbal Therapy
- Adult aural rehabilitation with a direct, patient-centered focus
- Training of future SLPs in telepractice service delivery models

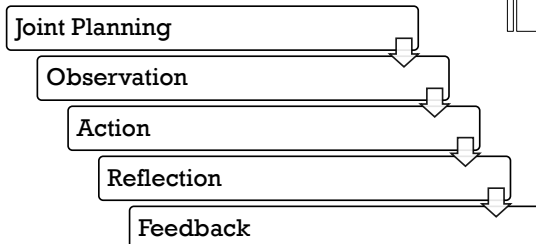
39

+ Adult Learning Theory: *Adults [Parents] like to...*

- bring knowledge, skills, attitudes
- bring experience
- like to solve problems
- like to apply what they learn to real situations
- like to have choices
- like to share in the setting learning objectives
- have variety of learning styles/preferences
- do best in an environment where they feel safe, accepted, and respected
- want and need feedback
- need to have their abilities and achievements honored

40

+ Coaching and Adult Learning Theory



Generalizing knowledge and applying to other situations

41

Sequence Of Therapy Preparation

1. Referral to clinic
2. In-person visit for full evaluation
3. Completion of home inventories
4. Technology test session
5. Lesson plans emailed at least 48 hours prior to session
6. Parent gathers materials and prepares by collaborating with clinicians by email or phone
7. Session begins



42

+

Conducting A Session

43

1. Reviewing goals and activities
 - Reviewing goals from previous week, new updates, review goals for current session, check hearing devices
2. Conducting the lesson/activity
 - Demonstration of new strategies/techniques, coaching the parent or adult, discuss integration of goals into daily home routines, strategies for improving/controlling communication opportunities (adults)
3. Debriefing
 - Allow questions from parents, discuss continuation or selection of new goals, summarize session and goals for the coming week

+

Nancy & Alex

44



+

Nancy & Alex

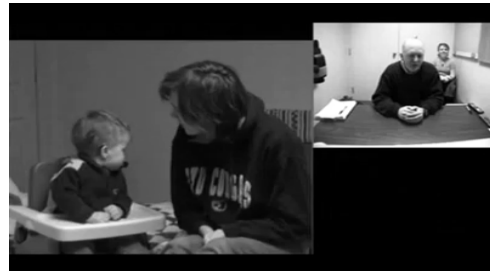
45



+

Nancy & Alex

46



+

Nancy & Alex

47



+

Alex – the Super HEAR-O

48



+ Alex...getting ready for school



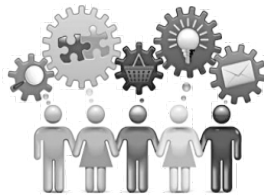
49



50

- Technology continues to evolve; professionals must do the same. New service delivery models and the technological tools to support them – *are inevitable*.
- Telepractice is a *viable solution* to meet the increased demand for listening & spoken language services for children with hearing loss & their families.
- Telepractice service delivery models will continue to expand & will be *regular fixtures* in *healthcare, early intervention services, and educational settings*.

Questions Comments Ideas



51

+ References

- Boisvert, M. (2014). "Telepractice for School Based Speech & Language Services." A paper presented at the Ohio Speech-Language-Hearing Association Annual Convention.
- Boisvert, M., Chacias, J., & Andrianopoulos, M.V. (2013). "Prerequisites to implementing telehealth in schools: The role of needs assessment." Paper presented at the 2013 Convention of the American Speech-Language-Hearing Association, Chicago, IL.
- Boisvert, M., Hall, N., Andrianopoulos, M., & Chacias, J. (2012). The multi-faceted implementation of telepractice to service individuals with autism. *International Journal of Telerehabilitation*, 4(2).
- Eastmond, N. (1994). Assessing needs, developing instruction, and evaluating results in distance education. *Distance education: Strategies and tools*, 87-106.
- Grogan-Johnson, S. (2012). Providing School-Based Speech-Language Therapy Services by Telepractice: A Brief Tutorial. *Perspectives on Telepractice*, 2(1), 42-48.

52

+ References

- Jennett, P., Yeo, M., Pauls, M., & Graham, J. (2003). Organizational readiness for telemedicine: implications for success and failure. *Journal of Telemedicine and Telecare*, 9(suppl 2), 27-30.
- Juenger, J. M. (2009). Telepractice in the Schools. *The ASHA Leader*, 14(12), 20-21.
- Lemke, H. U., & Berliner, L. F. (2008). *U.S. Patent Application 12/213,979*.
- Martin (2011). TeleHealth Resource Center.
- McCawley, P. (2009.). Methods for Conducting an Educational Needs Assessment. University of Idaho Extension.
- Polovoy, C. (2008). Audiology telepractice overcomes inaccessibility. *ASHA Leader*, 13, 20-2.

53

+ References

- Schmidt, H. A. The National Strategy for Trusted Identities in Cyberspace and Your Privacy, April 26, 2011. White House blog post.
- Tucker, Segal, & Hyler (2001). Psychiatric telemedicine for rural New York. *Journal of Psychiatric Practice*, 7(4), 279-281.
- Tucker, J. K. (2012a). Perspectives of Speech-Language Pathologists on the Use of Telepractice in Schools: Quantitative Survey Results. *International Journal of Telerehabilitation*. 4(2).
- Tucker, J.K. (2012b). Perspectives of Speech-Language Pathologists on the Use of Telepractice in Schools: The Qualitative View. *International Journal of Telerehabilitation*. 4(2).

54

+ Resources

55

- American Telemedicine Association
 - www.americantelemed.org
- American Speech-Language-Hearing Association
 - www.asha.org/telepractice
 - SIG 18: Telepractice
- BroadbandUSA
 - <http://www2.ntia.doc.gov/iowa>
- Check with your professional organization for additional white papers, position statements, & preferred practices

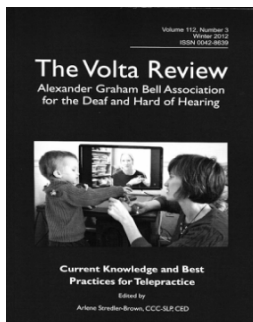
+ Resources

56

- National Center for Hearing Assessment and Management (NCHAM). A Practical Guide to the Use of Tele-Intervention in Providing Listening and Spoken Language Services to Infants and Toddlers Who are Deaf or Hard of Hearing. Available from: <http://www.infanthearing.org/ti-guide/index.html>
- American Telemedicine Association's *A Blueprint for Telerehabilitation Guideline*. Available from: [http://www.americantelemed.org/files/public/standards/ATA%20Telerehab%20Guidelines%20v1%20\(2\).pdf](http://www.americantelemed.org/files/public/standards/ATA%20Telerehab%20Guidelines%20v1%20(2).pdf)
- Center for Telehealth and E-Health Law (Ctel): <http://www.telehealthlawcenter.org/>
- International Journal of Telerehabilitation: <http://telerehab.pitt.edu/ojs/index.php/telerehab>
- Journal of Telemedicine and Telecare: <http://jtt.rsmjournals.com/>

+ Telepractice & Listening & Spoken Language

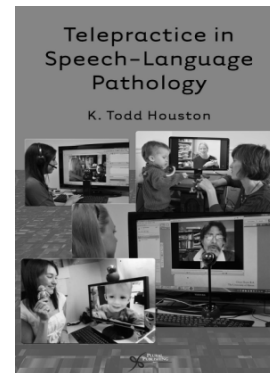
57



Monograph
available from the
Alexander Graham
Bell Association for
the Deaf & Hard of
Hearing

+ Telepractice in Speech-Language Pathology

58

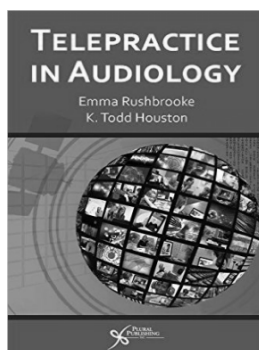


Available from Plural
Publishing:
www.pluralpublishing.com

Published: 2014

+ Telepractice in Audiology

59



Available from Plural
Publishing
www.pluralpublishing.com

Published 2016

+ Assistance Is Available! Federally Designated Telehealth Resource Centers

60



+

61

Thank You for Listening!

**K. Todd Houston, PhD, CCC-SLP,
LSLS Cert. AVT**

Email:	houston@uakron.edu
Office:	(330) 972-6141
Facebook:	K Todd Houston
Twitter:	ktoddhouston
LinkedIn:	www.linkedin.com/in/toddhouston
LinkedIn Groups:	6 Sound-Off Telepractice In Speech-Language Pathology Telepractice In Audiology