Assessment in the Digital Age: What is Appropriate Clinical Practice?

Adam Scheller, Ph.D.

Disclosure

• Financial disclosures:
  – Dr. Adam Scheller is employed by Pearson Clinical Assessment, publisher of the CELF-5, PPVT-2, EVT-2, PLS-5, GFTA-2, and Q-interactive. No other language assessments or systems will be presented in this session.

• Non-financial disclosure:
  – There are no non-financial relationships to disclose.

Learner Outcomes

After the completion of the webinar, attendees will be able to:

1. Describe the results of at least one research study conducted with assessments delivered digitally.
2. Name at least one advantage to administering an assessment on a computer or tablet vs. on paper.
3. Name at least one disadvantage to administering an assessment on a computer or tablet vs. on paper.
4. Name at least two factors that influence test results delivered via telepractice that are different from a face-to-face assessment delivered on a computer.

History of Technology in Speech and Language

• Sound Level Meters
  – Voice
• Audiometers
  – Hearing
• Delayed Auditory Feedback Device
  – Stuttering
• Augmentative Devices
  – Non-verbal Communication
  – 1950s: systems for people who lost the ability to speak following surgical procedures

• What about for assessment?

Practice Implications for Digital Assessment

• ASHA Scope of Practice
• General Ethical Principles

Adopting Technology

• The first commercially available computer was released in 1951.
  – By 2010, about 77% of households had a computer.
• In 2010, Apple announces the first iPad and starts the tablet PC race.
  – By 2012, 30% of internet users access the internet from a tablet PC.
  – By 2011, over 10% of households have a tablet PC

Wearable tech?
ASHA Scope of Practice (2007)

- Speech-language pathology is dynamic and continuously developing
- Provide additional professional services necessary for the well-being of the individual(s) they are serving.
- Ethical and legal obligation to determine whether if they can and should perform such services.

Scope of Practice: Clinical Services

- Speech-language pathologists provide clinical services that include the following:
  - prevention and pre-referral
  - screening
  - assessment/evaluation
  - consultation
  - diagnosis
  - treatment, intervention, management
  - counseling
  - collaboration
  - documentation
  - referral

Scope of Practice: Clinical Services (cont.)

- Examples of SLP clinical services related to digital assessment include:
  - “using data to guide clinical decision making…”
  - “making service delivery decisions…”
  - “documenting provision of services…”
  - “providing intervention and support services…” (ASHA, 2007)

Assessment via Telepractice

- Specific issues in the delivery of assessment via telepractice include, but are not limited to:
  1. The age and characteristics of the examinee
  2. The skill, experience, and training level(s) of the examiner
  3. The assessment task format(s)
  4. Appropriate modifications of tasks delivered in a telepractice setting (CELF CFD)
  5. The data supporting or not supporting the valid and reliable modification of any use of norm-referenced scores validated on a paper administration in a telepractice environment
  6. The nature of equivalency among paper-based, digital, and telepractice assessment processes
  7. The legal requirements of any use of published test content in a telepractice context

Some Findings Related to Telepractice Assessment

1. Audio/connectivity issues
2. Assessment online was very similar to in-person assessment
3. Stimulus books online is good, but it can be challenging to open the instructions separately
4. Using the computer seems to help students focus and stay motivated
5. Kids need to have good mouse use skills to point
6. Inability to see the child’s mouth

Ethical/Legal Considerations

- Exposing students to new and different technologies will help children adapt to technology.
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**HIPAA Security Rule**

- Electronic records, like paper records, should be created and maintained in a way that is designed to protect their security, integrity, confidentiality, and appropriate access, as well as their compliance with applicable legal and ethical requirements.

**Ethics and Records (ASHA, 2013)**

- "ASHA members have a responsibility not only for monitoring their own conversations, securing of records, and sharing of client information..."
- "Appropriate steps must be taken to ensure the confidentiality and protection of electronic and computerized client records and information..."

**Benefits of Digital Assessment**

- Portability and less materials
- Access tests quickly
- Customize batteries
- Flexibility
- Focus on client/student
- Time savings and increase accuracy

**Considerations...disadvantages?**

- Cost structure is different.
- Digital Security
- Are we measuring the same constructs?
- How do results look for kids with disabilities?
- Digital snafus
- Any others?

**Psychometric Studies**

- Take Into Consideration That Digital Admin May Affect Test Scores...
  1. Examinee interaction with the tablet.
  2. Examiner interaction with the tablet, especially during response capture and scoring.
  3. Q-interactive system scoring the examinee’s touch responses accurately.
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Development and Design
Two primary steps in current development process

1. Design tests in a way that minimizes digital effects
   - Group tests based on common features
   - Identify how particular features might impact raw scores
   - Develop interfaces for each ‘group’ that minimize those impacts

2. Conduct studies to establish raw score equivalency between paper and digital versions
   - Verify that goals in Step 1 are being realized
   - Allow for use of pre-existing norms, as well as reliability and validity information

Equivalency Studies
Process

- Develop efficient study designs
- Set a standard for equivalence:
  - Effect size < .20
- Extensive training of examiners
- Video recording of data collection
- Investigations of any observed format effects

WAIS-IV & WISC-IV

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<th>Interactive</th>
<th>Difference</th>
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</tr>
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Note: N is the number of scorings, lower and SD are based on the distribution of oral-administration scores.

CELF-5 Equivalence Study: Method

- Four CELF-5 tests were identified for study
  - Linguistic Concepts
  - Recalling Sentences
  - Following Directions
  - Formulated Sentences
CELF-5 Equivalence Study: Method

1. Test-retest design.
2. Every examinee will take the same sequence of subtests.
3. 20 demographically-matched pairs of examinees.
4. Video-recorded to analyze nonequivalence.
5. Video camera will keep rolling for a total of 15 min. between the two administrations.
6. Examiner training.
7. No examinee may participate in more than one of the two studies.

Other S/L Tests

- PPVT:
  - Didn’t/won’t have an equivalency study

- GFTA-2:
  - Will not have an equivalency study either

What is Q-global?

1. Web-based system that consolidates content and functionality from: Q-Local™, PsychCorp Center, and ASSIST™.
2. On-screen administration of assessments
   - Assessments that do not require interaction between the clinician and client.
3. Scoring and reporting capabilities
   - A complete set of options for scoring, interpreting, and reporting assessment results.

Digital Assessment Options

Q-interactive
Digital platform for individually-administered tests

ASSESS:
Application that lets an examiner administer a test via two tablets connected by Bluetooth.

CENTRAL:
Browser-based function for generating client profiles, building test batteries, creating assessment sessions, and sharing results.
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Q-interactive: Components of Assess

Practitioner

Client

Central: Custom Batteries at Your Fingertips

Q-interactive™
Assessment, evolved.

Assess: Instant scores!

Features of Q-interactive

- Familiarity / consistency built-in to overall design
- Administration Guidance
- Alert messages
- Timer
- Easy-to-use event buttons
- Observational notes / audio recording
- Automated exposure time and scoring on many subtests

What Materials/Equipment will I need? Do I need Web Access?

Materials/Equipment needed

Traditional Print Edition

Printed Manuals and Forms

Web Access needed?

No

What Materials/Equipment will I need? Do I need Web Access?

Materials/Equipment needed

CD-ROM

CD-ROM, Computer with CD-ROM player

Web Access needed?

No
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What Materials/Equipment will I need? Do I need Web Access?

- Flash Drive Kit
  - Flash drive, computer or tablet with USB port
  - Materials/Equipment needed
  - Web Access needed?
  - No

*not available for Surface RT

What Materials/Equipment will I need? Do I need Web Access?

- Q-global²
  - Computer, iPad, or tablet with or without USB port, printed record forms
  - Materials/Equipment needed
  - Web Access needed?
  - Yes

What Materials/Equipment will I need? Do I need Web Access?

- Q-interactive²
  - Two iPads: (some paper forms required)
  - Materials/Equipment needed
  - Web Access needed?
  - Yes to download tests
    - No to administer/score tests

Decision Making for CELF-5:
If you use a desktop/laptop computer with USB port

- USB-accessible Administration
  - unlimited use
  - no web access needed
  - accessible on any device with a USB port

*not available for Surface RT

Decision Making for CELF-5:
If you access to iPads and the web...

- Option 1 (One iPad)
  - Web-based administration, scoring & reporting
    - unlimited use of digital manuals and stimulus books
    - no need to carry the flash drive with you
    - automated scoring (pay-per-use or subscription)
    - accessible on any computer or tablet (including iPad)

- Option 2 (Two iPads)
  - Web-based administration & scoring
    - flexible, guided administration including automatic start point, basal, and ceiling notifications
    - real-time capture of examinee’s responses (including audio recordings)
    - real-time, accurate scoring

CELF-5 Q-interactive
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Decision Making for PPVT-4 & EVT-2:
If you use a desk/laptop computer with USB, do you have internet access?

- Yes
- No

Web-based administration, scoring, & reporting

- Administer
  1. Run PPVT-4 online or
  2. EVT-2 by web-based digital
     Stimulus Book (and paper
     Record Form).

- Score and report
  1. Automatically for PPVT from
     the online administration or
  2. Enter item scores or raw scores
     from PPVT-4 or
     EVT-2 paper Record Forms.

Digital Stimulus Books(s)

Form A Stimulus Books on a flash drive (per printed Record Forms)

Decision Making for PPVT-4 & EVT-2:
If you have access to iPads

- Option 1 (Renter two iPads)
- Option 2 (Renter one iPad)

Web-based administration & scoring

- Administer
  Digital test stimuli and
  Record Forms

- Score
  Automated scoring

Score and report
- Score online, entering either item
  scores or raw scores from paper
  Record Forms

PPVT-4 Q-global

Decision Making for GFTA-2:
If you use a desk/laptop computer with a USB port

USB-accessible Administration

- Purchase
  2. Paper GFTA-2 Record Forms
  3. Flash drive that includes the Digital Stimulus Book

- Administer
  GFTA-2 by inserting the flash drive in the USB port. Place the Administration Directions on the
  flash drive. Open the Digital Stimulus Book to
  make the GFTA-2 program accessible in the PDF.
  Record the client’s responses on a paper
  GFTA-2 Record Form.

- Score and report
  Enter item scores or raw scores from GFTA-2 paper
  Record Forms to generate a report.
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Decision Making for GFTA-2:
If you have access to 2 iPads

Web-based Administration & Scoring

Purchase

• Annual license

Administrator

GFTA-2 on two iPads—one for the examiner to see the test material and one for you to capture the candidate’s response.

Scores

Administer scoring includes viewer display scores for Sounds in Words and other scores for Sounds in Sentences when you complete testing. Your child error analysis of each phoneme (items scored, phoneme transcription, and transcription accuracy) automatically in Q-Central when you complete testing.

Item-Level Report

Error Analysis – GFTA-2

Decision Making for the PLS-5:
If you use a desk/laptop computer with a USB port

How to chose...how to chose?

• What tech do you have?
• Do you have internet access?
• Are you doing telepractice?
• Do you need portability?
• Do you need something to just score/report assessments, or are you looking for something more integrated?

Thanks for watching!!!

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