Main research questions

1. Do test scores reflect administration type?
2. Does test time reflect administration type?
3. Was test performance affected by testing format order or other variables?

Background

Telehabilitation and Speech-Language Pathology:

Telehabilitation is the assessment and treatment from a health practitioner or therapist, through an electronic medium, to a patient/client in another geographical area. Many health professions, including those in Speech-Language Pathology, are utilizing this method of treatment and therapy because of mutual benefits for practitioner and patient alike; including: reaching rural clients, and clients being able to seek specialized consultation and therapy for rare cases.

The Peabody Picture Vocabulary Test- Fourth Edition:

The PPVT-4 is a receptive vocabulary assessment used in the field of Speech-Language Pathology and other fields to assess receptive language throughout the lifespan. Traditional administration requires an SLP (or other professional) to be physically present while administering. This requirement is not cost effective and reduces the number of clients an SLP may be able to assess.

Purpose:

The purpose of this study was to determine if a web-based version of a commonly used and standardized assessment tool, such as the PPVT-4, could be administered through a web-based medium for school-aged children.

Method

Participants

- 34 typically developing children
  - English as primary language
  - Home access to computer & internet
  - No learning disabilities by parent report
- Age: M=9;6 (SD=2.2, range:4;10-12;10)
- 57% male; 43% female
- 90% white (29/34 reported race)
- SES: 76% Mother with BA or higher;
- 34% from rural and urban cities in Eastern Wash.

Materials

- Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4) test forms A and B.
- Laptop computer with internet access
- Web-based version of PPVT-4
  - Mastered recordings of audio stimuli with
  - trained female voice
  - PPVT panel images presented (JPEG at 96 dpi) with
  - mouse-selectable areas
  - Custom web interface and database design (HTML5, PHP, SQL) for
  - Speed, reliability, and automation
  - Familiarization, start item, test administration,
  - Scoring, demographics conducted in interface
  - Additional demographic and user details collected, including
  - RT, item analysis, etc.

Procedure

- Administration order was randomized by test version (A
  - B) and administration type (computer, paper).

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<thead>
<tr>
<th>Form</th>
<th>Computer</th>
<th>Paper</th>
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<tbody>
<tr>
<td>A</td>
<td>Computer A</td>
<td>Paper A</td>
</tr>
<tr>
<td>B</td>
<td>Computer B</td>
<td>Paper B</td>
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- Both administration types (paper, internet) followed
  - Testing guidelines recommended by PPVT manual.
- Test-retest 30 minutes to one week for each child.
- Scoring and timing manually computed for paper
  - Versions; automatically computed and securely stored for computer version.

- Pooled 110   (11)
- Paper 109   (11)
- Computer 111  (12)
- Raw scores 157  (26)
- Raw scores 155  (27)

Table 1. Descriptive statistics for observed values of dependent measures.

Results

1. There was a significant correlation between traditional-paper and
   web-based standard scores (and raw scores).

Conclusions

Findings suggest that web-based implementation of a standardized
- test, such as the PPVT-4, may be reliably used in research, clinical,
- And educational settings. Implementation of web-based assessments
  using an interface in a telehabilitation setting, may:

1. Reduce overall costs of test administration
2. Improve the assessment quality to target groups
3. Increase the accessibility to the test for those in need.

Future directions

1. Continue to establish baseline relationship between
   traditional and telehealth tests (i.e., collect more data).

2. Extend testing to disordered and at-risk populations and
   explore efficacy of telehealth assessment with non-typical
   populations.

3. Explore fine detail of response patterns, including item-
   analysis and decision processes related to test performance.

For references and extended discussion, see also:
