Examination of Test-Retest Reliability for the Motor Planning Maze Assessment

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Thank you for the contributions of our graduate students:

- Kate Armstead
- Rebecca Christian
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- Katie Woolard
Session Objectives

• Discuss the Motor Planning Maze Assessment (MPMA) and the Test of Ideational Praxis (TIP) as tools to measure ideomotor and ideational praxis in children

• Examine results on test-retest reliability of the MPMA and TIP

• Consider how to integrate knowledge of praxis measures in your own practice environment
Praxis in Preschoolers Research

Researching assessment of praxis in preschoolers using the MPMA and TIP

Examination of:

- Cross-sectional age norms
- Longitudinal age-related changes
  - Test-retest stability among ages
  - Inter-rater reliability
Methods

• Participants
  • Children ages 3-5
  • Local pre-schools
  • Typical motor and cognitive function; ability to understand spoken English
  • Willingness and ability to hold a wire maze during the assessment

• Assessments conducted at participants’ school in a quiet space
## Demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Hand Preference</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>36-47 mo ($n = 30$)</td>
<td>16</td>
</tr>
<tr>
<td>48-59 mo ($n = 29$)</td>
<td>18</td>
</tr>
<tr>
<td>60-72 mo ($n = 21$)</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>63 (78.8%)</td>
<td></td>
</tr>
<tr>
<td>Black or African American</td>
<td>5 (6.3%)</td>
<td></td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>1 (1.3%)</td>
<td></td>
</tr>
<tr>
<td>Arab American</td>
<td>1 (1.3%)</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>8 (10%)</td>
<td></td>
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<tr>
<td>Hispanic or Latino</td>
<td>4 (5%)</td>
<td></td>
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</tbody>
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Motor Planning Maze Assessment

- May-Benson, 2006

- Assesses motor planning ability

- Used for individuals ages 4-18

- Previously used as clinical observation; lacks normative data
Mazes
Scoring

- Time – score 0, 1 or 2 depending on time
- Errors – score 1 point for each error
  - Shaking maze
  - Swapping hands
  - Using other hand to manipulate bead
  - Uses whole arm or body instead of wrist
- Calculate total score
- High Scores indicate more dysfunction
MPMA Inter-rater Reliability

- Intraclass Correlation Coefficient (ICC)
  - Maze 1 = .90
  - Maze 2 = .98
  - Maze 3 = .96
  - MPMA Total Score = .96

- High inter-rater reliability with training
MPMA Test-Retest Reliability

- Intraclass Correlation Coefficient (ICC)
  - Maze 1 = .22
  - Maze 2 = .66
  - Maze 3 = .72
  - MPMA Total Score = .64

➤ Not a test used for repeated measures
Test of Ideational Praxis

- May-Benson, 2006
- Assesses ideational ability in children
- Using a shoe string, instructed to “Show me everything you can do with this string”
- Time allotment: 5 minutes
Reliability Analysis (TIP)

- Inter-rater reliability
  - Cronbach’s Alpha = .94
  - Extensive training and establishment of initial reliability
- Test-Retest reliability
  - Cronbach’s Alpha = .80
Implications for Practice

• MPMA
  • Quick, easy, reliable tool to measure motor planning
  • Training for reliability in scoring
  • Consider videoing screening for later scoring
  • Not useful as a repeated measure

• TIP
  • Quick, easy, reliable tool to measure ideation
  • Extensive training necessary for reliability in scoring
  • Video screening for scoring purposes
  • Could be used as a repeated measure
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