Developing and Validating a Domain-Specific Information Literacy Test for Psychology (ILT-P)

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(1) Background: Information Literacy

- **Definition:** set of knowledge and skills necessary to recognize an information need and to locate, evaluate, and use information adequately (ACRL, 2000)
  - essential for dealing with the demands of studying (HRK, 2012)
  - prerequisite for self-regulated learning (Joo et al., 2000)
  - major learning goal for psychology students (APA, 2013)

- **Findings:** participation in information literacy education leads to
  - better academic grades (Bowles-Terry, 2012)
  - lower drop-out rates (Soria, Fransen, & Nackerud, 2014)

- **Differentiation:** general vs. domain-specific/contextualized information literacy (e.g., Grafstein, 2002)
**Aim:** Assessment of declarative knowledge referring to searching, accessing and evaluating scholarly psychology information

(1) **Development of an item pool** based on:

- existing information literacy tests (Noe & Bishop, 2005; Ondrusek et al., 2005)
- Psychology Information Literacy Standards 2/3 (ACRL, 2010):
  
  “An information literate psychology student is able to ...
  
  • ... access information effectively and efficiently *(Standard 2)*
  • ... evaluate information *(Standard 3)*”

→ **Pilot version:**

- 35 forced-choice items with 3 options each (0-3 correct)
**Sample Items**

**Standard 2: Search & access information**

*Which option is most effective when resources (e.g., a book) are not available at your local library?*

- Contacting libraries in nearby cities, eventually going there.
- Use interlibrary loan.  
- There is no alternative except to buy the resource.

**Standard 3: Evaluate information**

*Which statement is true? The Journal Impact Factor (JIF) indicates ...*

- how often articles published in this journal have been cited by other authors during a certain period of time.
- how many libraries have subscribed to the journal.
- the relevance ascribed to this journal by a group of experts.
(2) Construction

(1) Development of an item pool based on ...
• existing information literacy tests (Noe & Bishop, 2005; Ondrusek et al., 2005)
• contents of Standards 2 and 3 (ACRL, 2010)
→ Pilot version: 35 items with 3 options each (0-3 correct)

(2) Pilot study
• $N = 64$ psychology students (1st year to PhD students)
• paper & pencil-test
• item analyses & exploratory factor analyses $\rightarrow k = 22$
• Reliability: Cronbach’s $\alpha = .82$

(3) Revision & psychometric testing
• addition of 13 new items $\rightarrow k = 35$ items
• online implementation
• 4 empirical studies
• **Study 1: Psychology (N = 82)**
  *Study progress:* $n = 55$ BSc, $n = 27$ MSc
  *Demographics:* 18 to 32 years ($M = 22.34$, $SD = 2.97$), 91.5 % female

• **Study 2: Psychology (N = 139)**
  *Study progress:* $n = 98$ BSc, $n = 39$ MSc, $n = 2$ missing
  *Demographics:* 18 to 33 years ($M = 22.60$, $SD = 2.70$), 87.1 % female

• **Study 3: Educational Sciences (N = 141)**
  *Study progress:* $n = 116$ BSc, $n = 23$ MSc, $n = 2$ missing
  *Demographics:* 19 to 43 years ($M = 22.54$, $SD = 3.42$), 79.4 % female

• **Study 4: Educational Sciences (N = 100)**
  *Study progress:* $n = 83$ BSc, $n = 16$ MSc, $n = 1$ missing
  *Demographics:* 18 to 44 years ($M = 22.16$, $SD = 3.62$), 81 % female
### (3) Empirical Testing: Descriptive Statistics and Reliability

<table>
<thead>
<tr>
<th>Study</th>
<th>Discipline</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Cronbachs Alpha</th>
<th>Guttman Lambda 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Psychology</td>
<td>82</td>
<td>0.61</td>
<td>0.07</td>
<td>0.65</td>
<td>0.81</td>
</tr>
<tr>
<td>2</td>
<td>Psychology</td>
<td>139</td>
<td>0.62</td>
<td>0.07</td>
<td>0.67</td>
<td>0.77</td>
</tr>
<tr>
<td>3</td>
<td>Educational Sciences</td>
<td>141</td>
<td>0.56</td>
<td>0.06</td>
<td>0.60</td>
<td>0.70</td>
</tr>
<tr>
<td>4</td>
<td>Educational Sciences</td>
<td>100</td>
<td>0.54</td>
<td>0.06</td>
<td>0.61</td>
<td>0.75</td>
</tr>
</tbody>
</table>
(4) Associations with Information-Seeking Knowledge and Skills

<table>
<thead>
<tr>
<th>Study</th>
<th>PIKE-P</th>
<th>Scholarly Search Tasks</th>
<th>Full-text acquisition tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Rosman et al., 2015)</td>
<td>(Leichner et al., 2014)</td>
<td>(Rosman et al., 2015)</td>
</tr>
<tr>
<td></td>
<td>Outcome Score</td>
<td>Process Score</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Psychology</td>
<td>.51**</td>
<td>.43**</td>
</tr>
<tr>
<td>2</td>
<td>Psychology</td>
<td>.39**</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(subsample: n = 53)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Educational Sciences</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Educational Sciences</td>
<td>.38**</td>
<td>-</td>
</tr>
</tbody>
</table>
(4) Associations with Psychology Information Searching Expertise

Study Domain:
Psychology (Study 1 & 2): $M = 0.62$ ($SD = 0.07$)

Educational Sciences (Study 3 & 4): $M = 0.55$ ($SD = 0.08$)

Study Progress:

<table>
<thead>
<tr>
<th>Study</th>
<th>BSc: $M$ ($SD$)</th>
<th>MSc: $M$ ($SD$)</th>
<th>$t$ ($df$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Psychology</td>
<td>0.59 ($0.06$)</td>
<td>0.65 ($0.06$)</td>
</tr>
<tr>
<td>2</td>
<td>Psychology</td>
<td>0.61 ($0.07$)</td>
<td>0.66 ($0.07$)</td>
</tr>
<tr>
<td>3</td>
<td>Educational Sciences</td>
<td>0.55 ($0.06$)</td>
<td>0.56 ($0.06$)</td>
</tr>
<tr>
<td>4</td>
<td>Educational Sciences</td>
<td>0.54 ($0.06$)</td>
<td>0.55 ($0.06$)</td>
</tr>
</tbody>
</table>
## (4) Associations with Academic Achievements

<table>
<thead>
<tr>
<th>Study</th>
<th>High School GPA</th>
<th>University GPA</th>
<th>Basic psychology knowledge (Peter et al., 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Psychology</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2  Psychology (n = 53)</td>
<td>-.39**</td>
<td>-.35*</td>
<td>.50**</td>
</tr>
<tr>
<td>3  Educational Sciences</td>
<td>-.17*</td>
<td>-</td>
<td>.42**</td>
</tr>
<tr>
<td>4  Educational Sciences</td>
<td>-.26**</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

*Note: In the German grading system, low numbers correspond to better grades!"
(4) Incremental Validity: Prediction of University GPA Over and Above Intelligence

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$b$</th>
<th>SE($b$)</th>
<th>$\beta$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1: $R^2 = .075$, $F = 1.988$, $df$ 2/49, n.s.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>2.630</td>
<td>.499</td>
<td></td>
<td>5.272***</td>
</tr>
<tr>
<td>Raven APM</td>
<td>-.041</td>
<td>.021</td>
<td>-.269</td>
<td>-1.923*</td>
</tr>
<tr>
<td>Verbal Analogies</td>
<td>.022</td>
<td>.025</td>
<td>.120</td>
<td>.863</td>
</tr>
</tbody>
</table>

**Step 2: $R^2 = .160$, $F = 3.051$, $df$ 3/48, $p < .05$**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$b$</th>
<th>SE($b$)</th>
<th>$\beta$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>4.223</td>
<td>.867</td>
<td></td>
<td>4.869***</td>
</tr>
<tr>
<td>Raven APM</td>
<td>-.021</td>
<td>.022</td>
<td>-.140</td>
<td>-.955</td>
</tr>
<tr>
<td>Verbal Analogies</td>
<td>.032</td>
<td>.025</td>
<td>.174</td>
<td>1.271</td>
</tr>
<tr>
<td><strong>ILT-P</strong></td>
<td>-3.401</td>
<td>1.542</td>
<td>-.327</td>
<td>-2.206*</td>
</tr>
</tbody>
</table>

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Conclusions

• The ILT-P
  • is a reliable, valid and potentially useful assessment tool for research on scholarly information literacy in the field of psychology
  • needs to be continuously reviewed to ensure that its contents is still up to date
  • may be used as a basis for the development of tests for other domains of studying
Thank you!

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References (contd.)


