

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

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- **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)

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.

(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 → $k = 22$
- Reliability: Cronbach's $\alpha = .82$

(3) Revision & psychometric testing

- addition of 13 new items → $k = 35$ 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

Study	<i>N</i>	<i>M</i>	<i>SD</i>	Cronbachs Alpha	Guttman's Lambda 6
1 Psychology	82	0.61	0.07	.65	.81
2 Psychology	139	0.62	0.07	.67	.77
3 Educational Sciences	141	0.56	0.06	.60	.70
4 Educational Sciences	100	0.54	0.06	.61	.75

(4) Associations with Information-Seeking Knowledge and Skills

Study	PIKE-P (Rosman et al., 2015)	Scholarly Search Tasks (Leichner et al., 2014)		Full-text acquisition tasks (Rosman et al., 2015)
		Outcome Score	Process Score	
1 Psychology	.51**	.43**	.52**	.42**
2 Psychology (subsample: <i>n</i> = 53)	.39**	-	-	-
3 Educational Sciences	-	-	-	-
4 Educational Sciences	.38**	-	-	-

Study Domain:

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

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

} $t(462) = 9.80, p < .001$

Study Progress:

Study	BSc: M (SD)	MSc: M (SD)	t (df)
1 Psychology	0.59 (0.06)	0.65 (0.06)	3.74** (135)
2 Psychology	0.61 (0.07)	0.66 (0.07)	3.81** (80)
3 Educational Sciences	0.55 (0.06)	0.56 (0.06)	< 1 (133)
4 Educational Sciences	0.54 (0.06)	0.55 (0.06)	< 1 (97)

(4) Associations with Academic Achievements

Study	High School GPA	University GPA	Basic psychology knowledge (Peter et al., 2015)
1 Psychology	-	-	-
2 Psychology ($n = 53$)	-.39**	-.35*	.50**
3 Educational Sciences	-.17*	-	.42**
4 Educational Sciences	-.26**	-	

Note: In the German grading system, low numbers correspond to better grades!

(4) Incremental Validity: Prediction of University GPA Over and Above Intelligence

Predictor	<i>b</i>	SE(<i>b</i>)	β	<i>t</i>
Step 1: $R^2 = .075$, $F = 1.988$, $df\ 2/49$, n.s.				
(Constant)	2.630	.499		5.272***
Raven APM	-.041	.021	-.269	-1.923*
Verbal Analogies	.022	.025	.120	.863
Step 2: $R^2 = .160$, $F = 3.051$, $df\ 3/48$, $p < .05$				
(Constant)	4.223	.867		4.869***
Raven APM	-.021	.022	-.140	-.955
Verbal Analogies	.032	.025	.174	1.271
ILT-P	-3.401	1.542	-.327	-2.206*

- **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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- American Psychological Association (APA) (2013). *APA Guidelines for the Undergraduate Psychology Major: Version 2.0*. Retrieved from <http://www.apa.org/ed/precollege/undergrad/index.aspx> (25.05.2016).
- Amthauer, R., Brocke, B., Liepmann, D. & Beauducel, A. (2001). *Intelligenz-Struktur-Test 2000 R*. Göttingen: Hogrefe.
- Association of College and Research Libraries (ACRL). (2000). *Information literacy competency standards for higher education*. Retrieved from <http://www.ala.org/acrl/standards/informationliteracycompetency>
- Association of College and Research Libraries (ACRL). (2010). *Psychology information literacy standards*. Retrieved from http://www.ala.org/acrl/standards/psych_info_lit (25.05.2016).
- Bowles-Terry, M. (2012). Library instruction and academic success: A mixed-methods assessment of a library instruction program. *Evidence Based Library and Information Practice*, 7(1), 82-95.
- Hochschulrektorenkonferenz (HRK). (2012). *EntschlieÙung der 13. Mitgliederversammlung der HRK am 20. November 2012 in Göttingen. Hochschule im digitalen Zeitalter: Informationskompetenz neu begreifen - Prozesse anders steuern*. Retrieved from http://www.hrk.de/uploads/media/Entschliessung_Informationskompetenz_20112012_01.pdf (25.05.2016).
- Grafstein, A. (2002). A discipline-based approach to information literacy. *The Journal of Academic Librarianship*, 28(4), 197–204.
- Joo, Y. J., Bong, M., & Choi, H. J. (2000). Self-efficacy for self-regulated learning, academic self-efficacy, and Internet self-efficacy in Web-based instruction. *Educational Technology Research and Development*, 48(2), 5-17.

- Leichner, N., Peter, J., Mayer, A.-K., & Krampen, G. (2013). Assessing information literacy among German psychology students. *Reference Services Review*, *41*, 660-674.
- Leichner, N., Peter, J., Mayer, A.-K., & Krampen, G. (2014). Assessing information literacy using information search tasks. *Journal of Information Literacy*, *8*(1), 3-20.
- Noe, N. W., & Bishop, B. A. (2005). Assessing Auburn University Library's tiger information literacy tutorial (TILT). *Reference Services Review*, *33*(2), 173–187. doi:10.1108/00907320510597372
- Ondrusek, A., Dent, V. F., Bonadie-Joseph, I., & Williams, C. (2005). A longitudinal study of the development and evaluation of an information literacy test. *Reference Services Review*, *33*(4), 388–417.
- Peter, J., Leichner, N., Mayer, A. K., & Krampen, G. (2015). A short test for the assessment of basic knowledge in Psychology. *Psychology Learning & Teaching*, *14*(3), 224-235 (2015)
- Raven, J.C. (1962). *Advanced Progressive Matrices Set II*. London: Lewis.
- Rosman, T., Mayer, A.-K., & Krampen, G. (2015). Measuring psychology students' information-seeking skills in a situational judgment test format: Construction and validation of the PIKE-P Test. *European Journal of Psychological Assessment*. Advance online publication. <http://dx.doi.org/10.1027/1015-5759/a000239>
- Soria, K. M., Fransen, J., & Nackerud, S. (2014). Stacks, serials, search engines, and students' success: First-year undergraduate students' library use, academic achievement, and retention. *The Journal of Academic Librarianship*, *40*(1), 84–91. doi:10.1016/j.acalib.2013.12.002