

Influences of intelligence and openness on the acquisition of information-seeking skills

A two-wave longitudinal study

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Information-seeking skills / Information literacy: Set of skills required to search for (scholarly) information in order to satisfy an information need

Research question: How strong are the influences of intelligence and personality on the development of information-seeking skills in psychology students?

- **Information-seeking requires many abilities commonly measured by intelligence tests:**
 - Analytical skills (Lenox & Walker, 1993)
 - Problem-solving skills (Brand-Gruwel, Wopereis, & Vermetten, 2005)
 - Cognitive flexibility (Stern & Neubauer, 2013)
- More search success for students with higher verbal intelligence
- Allows the development of information-seeking skills!

- **Information-seeking requires a certain amount of Openness for experience (Big Five):**
 - Especially important since many students employ “*a conservative information strategy, retaining established strategies as far as possible and completing tasks with minimum information seeking effort.*” (Warwick, Rimmer, Blandford, Gow, and Buchanan, 2009, p. 2402)
- Motivational component: Higher openness leads to more frequent and differentiated information searches.
- Allows the development of information-seeking skills!

- **Hypothesis 1: Both verbal and fluid intelligence ...**
 - correlate positively with information literacy (H1a)
 - predict the increase in information literacy in psychology freshmen over their first semester (H1b)

- **Hypothesis 2: Openness for experience ...**
 - correlates positively with information literacy (H2a)
 - predict the increase in information literacy in psychology freshmen over their first semester (H2b)

- Two-wave longitudinal field study
 - t1: beginning of first semester (baseline)
 - t2: beginning of second semester (six months later)
- $N = 126$ psychology freshmen from a large German university
- 81 % females, 19 % males
- Mean age: $M = 20.39$ years ($SD = 2.43$)

- **Information-seeking skills:** Procedural Information-Seeking Knowledge Test – Psychology Version (PIKE-P; Rosman, Mayer, & Krampen, 2015); scenario-based multiple-choice test
- **Fluid intelligence:** Raven’s Advanced Progressive Matrices (APM; Raven, Raven, & Court, 1998)
- **Verbal intelligence:** 20 verbal analogies from the IST-2000R (Liepmann, Beauducel, Brocke, & Amthauer, 2007)
- **Openness for Experience:** Big Five Personality Inventory (Costa & McCrae, 1989; German short version by Körner, Geyer, Roth, Drapeau, Schmutzer, Albani et al., 2008)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1 PIKE-P – t1	47.09	7.09	-					
2 PIKE-P – t2	49.93	6.98	.42***	-				
3 PIKE-P – t1t2 (Residualized gain)	.00	1.00	.00	.91***	-			
4 Fluid Intelligence – t1	21.13	3.65	.10	.19*	.16*	-		
5 Verbal Intelligence – t1	13.00	2.59	.20**	.30***	.24**	.24**	-	
6 Openness – t2	3.81	.76	.06	.21**	.20**	.05	.35***	-

Note. $N = 126$; PIKE-P = Procedural Information-Seeking Knowledge Test – Psychology Version; t1 = first measurement point; t2 = second measurement point; *M* = mean; *SD* = standard deviation; * $p < .05$; ** $p < .01$; *** $p < .001$.

- Both intelligence and Openness for Experience play a major role in the acquisition of information-seeking skills
- Strong verbal component of information-seeking: Corresponding relationships seem more robust!
- Other moderating variables? Need for cognitive closure? Working memory? Epistemic beliefs?
- Students require distinct amounts of support to enhance their individual information literacy

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