

Development of a Self-Efficacy Scale for Information Searching Behavior (SES-IB-16)

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- *“all learning activities undertaken throughout life, with the aim of improving knowledge, skills, and competence within a personal, civic, social, and/or employment-related perspective”* (European Commission, 2001, p. 9):
 - formal / nonformal learning in educational contexts
 - informal learning
- requires (e.g., Schober et al., 2013)
 - **knowledge and skills** associated with self-regulated learning and effective knowledge management
 - **motivation** to acquire knowledge and skills throughout the life span

- *“to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.”*
(Association of College & Research Libraries ACRL, 2000, p. 2)
 - *„... **basis for lifelong learning.** It is common to all disciplines, to all learning environments, and to all levels of education. ... It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning.”* (ACRL, 2000, p. 2)
- essential for initiating and performing effective and efficient information searches

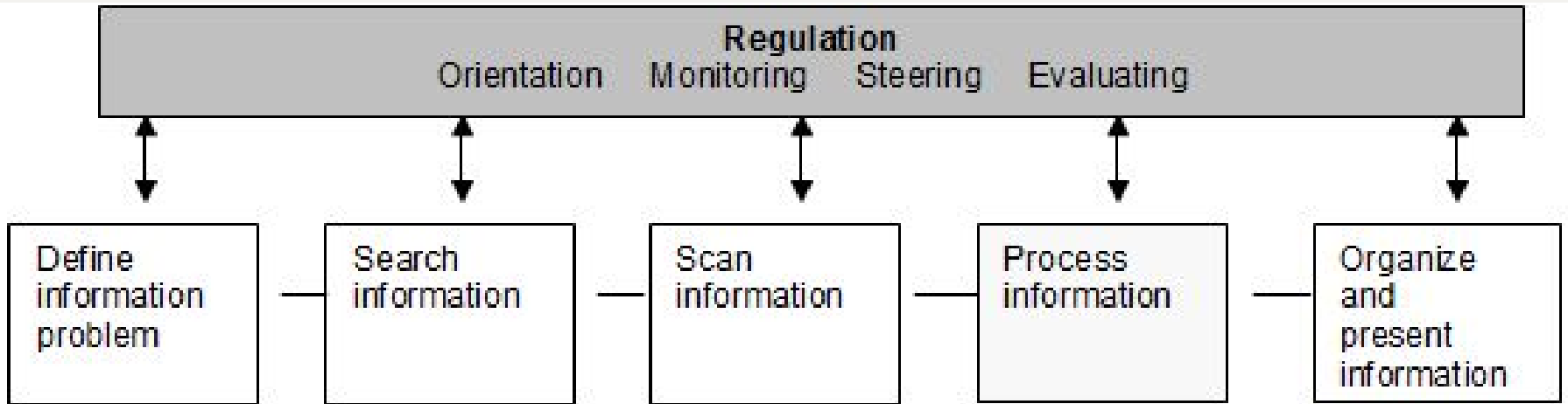
„If individuals feel ... competent ... about their information literacy skills they will willingly undertake information problem solving activities and ... easily become self-regulated learners” (Kurbanoglu, 2003, p. 639)

- self-efficacy beliefs about information literacy will determine whether people
 - actively initiate complex and differentiated information searches, and
 - continue them or even increase their effort when faced with difficulties, obstacles or failures (e.g., Kurbanoglu, 2003)

- Information Literacy Self-Efficacy Scale (Kurbanoglu, 2006)
 - $k = 17$ (basic / intermediate / advanced skills)
 - **pro:** comprehensive scale (covering beliefs about receptive as well as productive IL skills)
 - **con:** many items explicitly refer to scholarly information literacy (e.g., find specific scholarly information resources, write a research paper, create a bibliography) → irrelevant outside of formal educational contexts

- **Aim:** develop and validate a scale for the assessment of self-efficacy beliefs about the ability to perform successful information searches with a broad scope of applications, i.e. suitable for
 - adolescents and adults of all ages
 - information seeking using various sources of information
 - information seeking in formal or nonformal learning contexts as well as in everyday life
- **Conceptual basis:** Information Problem-Solving Model (e.g., Brand-Gruwel, Wopereis, & Vermetten, 2005; Brand-Gruwel, Wopereis & Walraven, 2009; Eisenberg & Berkowitz, 1990)

Information Problem Solving Model (Brand-Gruwel et al., 2009)



- **Contents:** $k = 30$ items referring to subjects' beliefs about their ability to perform of cognitive, metacognitive, and behavioral activities during information problem solving
- **Ratings:** 5-point Likert scales (“do not agree at all” - “completely agree”)
- **Introduction:** “When I am looking for information on a certain topic or a specific question, ...”

- (1) define problem** (“... I quickly capture which aspects of my topic or questions are most important.”)
- (2) search information** (“... I am able to use different information sources in a way that provides a maximum of relevant information.”)
- (3) scan information** (“... and find some new piece of information [e.g., a website, a book or an expert opinion], I am able to decide quickly whether it is worth to be considered in detail.”)

- (4) select information** (“... I know precisely how to select among several relevant informations those which are most helpful to answer my question”)
- (5) integrate information** (“... I have no trouble relating new information to my previous knowledge.”)
- (6) monitor and steer the process** (“... I can easily assess whether I chose the optimal course of action or should better change my procedure.”)
- (7) reflect and evaluate the process** (“... I ever and anon have the same problems with information searching and have no idea how to change my course of action.” [reverse coded])

Participants

- **Study 1:** $N = 78$ psychology students (all semesters), age: 19 to 34 years, 75.6 % female.
- **Study 2:** $N = 137$ psychology students (freshmen), age: 18 to 31 years, 81.8 % female
- **Study 3:** $N = 90$ students of computer sciences (freshmen), age 17 to 32 years, 16.1 % female
- **Study 4:** $N = 81$ students of educational sciences (all semesters), age: 18-29 years, 61.7% female

Procedure

- online questionnaire embedded in a test battery with other self-report measures (Study 1-4) and an information literacy test (study 4)
- completion in group sessions (4 to 20 students per group) under supervision of an experimenter (Study 1, 4) vs. individually (Study 2, 3)

- data of study 1-3 combined ($N = 305$) → Principal Components Analysis
- unidimensional solution (27.0 percent of variance)
- number of items reduced based on
 - a) factor loadings and
 - b) semantic considerations
- final version SES-IB-16:
 - $k = 16$ (1 to 3 items per activity)
 - factor loadings: $.52 \leq a \leq .69$

Study	<i>N</i>	<i>M</i>	<i>SD</i>	Cron- bach's Alpha	Range of r_{it-i}
1 (Psych. - all yrs.)	78	3.42	0.46	.86	.33 - .60
2 (Psych. - 1st yr.)	137	3.39	0.52	.89	.37 - .65
3 (Comp. Sc. 1st yr.)	90	3.56	0.54	.88	.39 - .65
4 (Educ. Sc. - all yrs.)	81	3.67	0.45	.86	.30 - .62

Study 4:

- General Self-efficacy Scale (Jerusalem & Schwarzer, 2003): $r = .58^{**}$
- Computer User Self-Efficacy Scale (Spannagel & Bescherer, 2009): $r = .24^*$
- Rosenberg Self-Esteem Scale (Ferring & Filipp, 1989): $r = .36^{**}$

Study 2, 3:

- School-Related Self-Concept Scales SESSKO (Schoene et al., 2002) - subscale “absolute (academic) self-concept”: $r = .48^{**}$ (Study 2) / $r = .48^{**}$ (Study 3)

Study 1:

- (expected) academic success (single item): $r = .33^{**}$

Study 2-4:

Scales for the Assessment of Learning and Achievement Motivation
– Student version **SELLMO-ST** (Spinath et al., 2002; 2012)

SELLMO subscale	Study 2 (<i>N</i> = 137)	Study 3 (<i>N</i> = 90)	Study 4 (<i>N</i> = 81)
Learning goals	.33**	.20*	.20*
Performance-related approach goals	.02	.08	.16+
Performance-related avoidance goals	-.22**	-.20*	-.23*
Work avoidance	-.24**	-.30**	-.22*

Study 1-4:

- Self-reported amount of scholarly search experience : $r = .21^*$ / $.35^{**}$ / $.06$ / $.32^{**}$

Study 1:

- number of scholarly information resources known: $r = .33^{**}$
- self-rated ability to use these resources: $r = .28^{**}$

Study 4:

- frequency of use of scholarly information resources (e.g., library catalogue, ERIC): $r = .20^*$
- knowledge about scholarly information seeking (Procedural Information-Seeking Knowledge Test PIKE; Rosman, Mayer & Krampen, under review): $r = .17$ ($p < .10$)

- The SES-IB-16 constitutes an
 - economic,
 - reliable, and
 - valid measure of self-efficacy beliefs related to information searching
- **educational significance:** Applications in general populations, e.g., adolescents or adult learners, as
 - **a research tool:** examine the reciprocal relations of IL self-efficacy beliefs and information behavior /achievements in information problem solving
 - **an assessment tool:** identify learners who are at risk of underperforming because of low IL self efficacy
 - **an evaluation tool:** evaluation of interventions aimed at fostering IL and IL self-efficacy

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THANK YOU!

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