Developing a Blended Learning Approach to Foster Information Literacy in German Psychology Education

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Overview

• Conceptual background
• Outline of the project BLInk (“Blended Learning of Information Literacy”)
• Pilot study: Information literacy in German psychology students
• Conclusions
Conceptual background: Information literacy

**Definition:** “To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.” (ACRL, 1989)

- Set of individual skills regarded as key competencies within the modern “information society” to
  - enhance higher education,
  - improve workplace effectiveness,
  - ensure the quality of scientific work
Information literacy: Differences between novices and experts

Inefficient strategies of information seeking among (future) scientists with little expertise ("novices") compared to "experts":

- limited knowledge of relevant information systems / databases (e.g., Chu & Law, 2008);
- use of narrower, simpler, and less complex repertoire of search strategies (Sihvonen & Vakkari, 2004);
- no appropriate use of thesauri (Sihvonen & Vakkari, 2004);
- less persistent with searches (e.g., Hoelscher & Strube, 2000)
Basic principles of the project BLInk
(Funded by the Leibniz-Association, Germany, 2012-2015)

(1) **Domain specificity:** program for students of psychology and related disciplines

(2) **Multimodality:** “blended learning” approach to combine advantages of E-learning and classroom interaction

(3) **Personal involvement:** participants will work on information problems relevant to their ongoing work

(4) **Adaptation to participants’ levels of competencies:**
   - information literacy
   - domain knowledge (Hoelscher & Strube, 2000)
Pilot study – aims and hypotheses

Aims:
(1) construction and psychometric testing of measures of
   • information literacy
   • domain knowledge (psychology)
(2) description of information search behavior of students (use of scientific databases vs. web search engines)

Hypotheses:
• increase of information literacy as well as psychological knowledge during studies \(\rightarrow\) differences between freshmen and groups of advanced students on all measures
Pilot study

Sample:  $N = 64$ German psychology students
- Group 1: first-year students ($n = 22, M = 21.77$ years),
- Group 2: advanced students ($n = 21, M = 23.90$ years),
- Group 3: PhD students ($n = 21, M = 28.48$ years)

Measures:
(a) pilot versions of two paper & pencil tests
  - information literacy test
  - test of psychological knowledge
(b) information search tasks
Information Literacy Test

First version: \( k = 35 \) items (multiple-choice with three options) related to Standards 2 and 3 of the ACRL (2000), e.g.:

**Which statement is true?**

- The Journal Impact Factor (JIF) indicates...
- \( O \) ... how often articles published in this journal have been cited by other authors during a certain period of time
- \( O \) ... how many libraries have subscribed to the journal
- \( O \) ... the relevance ascribed to this journal by a group of experts

[related to Standard 3: Evaluating information]

Final version: 2 subscales \( (k = 22) \):
- “Searching for information” \( (k = 14, \text{ Cronbach's alpha } = .73) \)
- “Evaluating information” \( (k = 8, \text{ Cronbach's alpha } = .73) \)
Test of Psychological Knowledge

**First version:** \( k = 25 \) items (multiple-choice, sentence completion, open-ended format) \( \rightarrow \) knowledge of “psychological core concepts” (e.g., Proctor & Williams, 2006), e.g.

> “Please name the three most important quality criteria of psychological tests according to Classical Test Theory.”

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**Final version:** Cronbach’s alpha = .86 \( (k = 21) \)
Information Search Tasks

**Procedure:** students do searches at a PC with access to the WWW, including the university library's website and psychological databases (PSYNDEX\textsuperscript{plus}, PsycINFO etc.), and copy their results into an MS Word document

**Tasks:** $k = 3$ scientific information search tasks, framed as part of the preparation of a scientific presentation about assessment centers, e.g.

> “Find three meta-analyses on the predictive validity of assessment centers.”

**Dependent variables:**
- quality of search results $\rightarrow$ scored by experts (0-15 points)
- type of information sources used (web search engines: Google, Google Scholar vs. scientific databases: PSYNDEX, PsycINFO) $\rightarrow$ log files
Results 1: Group means and standard deviations of the tests

- Psychological Knowledge (Group 1 < 2 < 3)
- “Searching for information” (Group 1 < 2 < 3)
- “Evaluating information” (Group 1 = 2 < 3)

First-year students
Advanced students
PhD students
Results 2: Group means and standard deviations of the information search task score

\[ \Delta \text{n.s., } t < 1 \]
Information search behavior

<table>
<thead>
<tr>
<th></th>
<th>No use of databases</th>
<th>Use of databases</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year students</td>
<td>16</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Advanced students</td>
<td>10</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>n</td>
<td>26</td>
<td>16</td>
<td></td>
</tr>
</tbody>
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\( \chi^2 = 3.64, \ df 1, p = .06 \)

Information search task score

\( \Delta \) n.s., \( t < 1 \)
Summary and conclusions 1

(1) Construction and psychometric testing of measures of information literacy and domain knowledge

- Reliability: moderate to high internal consistency
- Validity: ability to differentiate between groups with different levels of expertise
Summary and conclusions 2

(2) Description of information search behavior of students
  • advanced students have not only gained knowledge about searching and evaluating information, but also use scientific databases more often than first year students
  • yet, they are not able to perform more effective searches
  • even use of scientific databases does not lead to more effective searches
    → inefficient use of databases (e.g., thesaurus, classification of methodology; see Sihvonen & Vakkari, 2004)?

  → need for instruction about the proper use of scientific databases among German psychology students
References


