Understanding the development of information literacy in higher education

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Understanding the development of information literacy in higher education: Knowing, doing, and feeling

Ellen Nierenberg
A dissertation for the degree of Doctor of Philosophy (PhD), September 2022
Supervisors

• Professor Tove Dahl (main supervisor)
• Senior academic librarian Torstein Låg
• Professor Mariann Solberg
Definition of information literacy

“Information literacy encompasses the knowledge, skills, and attitudes needed to be able to discover, evaluate, and use information sources effectively and appropriately in order to answer questions, solve problems, create knowledge, and learn.”
Main research question: How do students develop as information literate individuals in higher education?

1. Design and test tools to measure IL knowledge, skills, and attitudes

2. How students develop as information literate individuals over their first 3 years as undergraduates
MEASURES
Measuring IL knowledge

Tromsø Information Literacy Test (TILT)

- 21 items
- multiple-choice
- finding, evaluating, and using sources
- validity
- reliability
Results

• Evidence of TILT’s validity

Mean score IL knowledge test with 95% confidence intervals

<table>
<thead>
<tr>
<th>Level of higher education</th>
<th>Mean score (max. 21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate (semester start)</td>
<td>12.46 ± 1.2</td>
</tr>
<tr>
<td>Undergraduate (semester end)</td>
<td>13.92 ± 1.2</td>
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<tr>
<td>Master's</td>
<td>16.06 ± 1.2</td>
</tr>
<tr>
<td>PhD</td>
<td>16.82 ± 1.2</td>
</tr>
</tbody>
</table>
Measuring IL **skills**: Source evaluation

Source-evaluation measure (annotated bibliography)

- Quality
- Variety
- Frequency

Method inspired by Walton & Hepworth (2012)
Measuring IL skills: Source use

**Source-use measure (rubric)**

1. Are academic sources used to support arguments?
2. Are sources cited in the text when necessary?
3. Are in-text citations written in correct [reference style]?
4. Is the reference list written in correct [reference style]?
5. Are all in-text citations listed in the reference list, and vice versa?
Measuring interest

Tromsø Interest Questionnaire (TRIQ)

Based on Hidi and Renninger’s (2006) theory:
Four-phase model of interest development

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Measuring Interest

- Situation dependence
  Without others, I would lose interest in being or becoming an information literate person.

- Meaningfulness
  Being an information literate person is very useful for me.
Results: Mean TRIQ subscale scores, with 95% confidence intervals, for object-specific interest (IL) by phase.

Theory: Hypothesized relationships among key interest variables. (Based on Hidi and Renninger’s 4-phase model of interest development, 2006).
TROILS: Tromsø Information Literacy Suite

Tools for assessing Information Literacy

HERE ARE SOME TOOLS FOR DOWNLOAD

Information literacy assessment tools

INFORMATION LITERACY KNOWLEDGE TEST

The Tromsø Information Literacy Test (TILT) is a 21-

SOURCE EVALUATION MEASURE

This quantitative measure is designed to assess

SOURCE USE MEASURE

This quantitative measure uses a rubric to rate students' use of sources in

THE TROMSØ INTEREST QUESTIONNAIRE (TRIQ)

We are studying whether

https://site.uit.no/troils/
GROWTH
Research questions

1. How do KNOW, DO, and FEEL – and their interaction – change during the first 3 years of an undergraduate education?

2. How do students’ perceptions of themselves as information literate people evolve? Does transformative learning occur?
Semester 1

<table>
<thead>
<tr>
<th></th>
<th>Mean score (diam)</th>
<th>Correlations ($r$)</th>
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<tbody>
<tr>
<td>Know</td>
<td>58.1</td>
<td>Know – Do 0.22</td>
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<tr>
<td>Do</td>
<td>59.6</td>
<td>Feel – Know -0.09</td>
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<tr>
<td>Feel</td>
<td>66.5</td>
<td>Do – Feel -0.19</td>
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Semester 6

<table>
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<th>Mean score (diam)</th>
<th>Correlations ($r$)</th>
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<tbody>
<tr>
<td>Know</td>
<td>74.7</td>
<td>Know – Do 0.30</td>
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<tr>
<td>Do</td>
<td>72.8</td>
<td>Feel – Know 0.18</td>
</tr>
<tr>
<td>Feel</td>
<td>75.2</td>
<td>Do – Feel 0.37</td>
</tr>
</tbody>
</table>
Interviews

Focus groups

Indi-


gual

IL Knowing

IL Doing

IL Interest (feeling)

Transformative IL learning

Identity as an information literate person

(Thematic analysis; Braun & Clarke, 2006)
When we had IL instruction, I suddenly realized how much I didn’t know and have since been trying to learn more. I’ve really made a huge leap. Everything – from how I read, to where I choose to find information, to how I evaluate it – has changed, evolved.

[After learning about IL,] I feel more confident when it comes to academics. I’ve gradually become more reflective about the things I do. The more assignments I have, the more I realize how important it is that I do them in the correct way and that I think about the sources I’ve used.

I’m not the same person today as I was before. [Previously, I was] perhaps somewhat less reflective... [and I became] emotionally engaged a little faster.

Adapted from 4 strand braid, Wikimedia Commons. (https://www.pngfind.com/mpng/imwibi_4-strand-braiding-4-strand-braid-hd-png). CC BY-SA 3.0

• Baartman & de Bruinj (2011)
• Illeris (2014)
### Integrating QUAN and QUAL results

<table>
<thead>
<tr>
<th>Quantitative results</th>
<th>Qualitative results</th>
<th>Example quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIQ scores increased significantly for the Meaningfulness subscale.</td>
<td>When asked about how the meaningfulness of IL has changed for them, several students mentioned how it has become more meaningful regarding their present and future education and in everyday life, often referring to its instrumental value.</td>
<td>Regarding avalanche knowledge, I have become very interested in this after coming to Tromsø and I feel IL is extremely relevant for deciding which sources to use, what is reliable. <em>(Could it be a matter of life and death?)</em> Yes, it could. It’s so extreme.</td>
</tr>
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Some contributions of my research

• New IL measures (TROILS)
  • KNOW: IL test (TILT)
  • DO: 2 IL-skills measures (source evaluation and source use)
  • FEEL: IL interest questionnaire (TRIQ)

• Development of knowledge, skills, and attitudes over time
• IL learning and interest
• Transformative IL learning in students
Future research

• 1-shot vs. embedded IL instruction

• IL instruction in 1\textsuperscript{st} vs. 2\textsuperscript{nd} semester

• Information literacy in the age of artificial intelligence:
References


List of PhD publications


Thank you!

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