Engineering program accreditations expect graduates to gain life-long learning skills, but do not specifically discuss information literacy. This poster presents an understanding of life-long learning concepts with ill-defined problem solving (Atman, 2007) and why measuring information literacy can help present student achievement of some lifelong learning skills (Bursic & Atman, 1997).

Purdue’s Infoskills research group reviewed existing information literacy assessments, and determined that a gap existed especially in the higher order information literacy skills, and in contextualizing problems in lifelong learning situations. The group developed a two-tiered multiple choice assessment, CELT, based on the InfoSEAD framework: Seek, Evaluate, Apply, and Document (Wertz et al, 2013).

The assessment promises to provide a scalable method to probe information literacy skills in a contextualized environment, providing data that engineering programs will understand as meeting their accreditation requirements for lifelong learning and librarians can use to show information literacy development of students.

The researchers designed CELT, a two-tiered multiple choice instrument, for use by librarians and disciplinary teaching faculty to be used for summative and formative assessment of student skills related to information literacy. In the two-tier model, students answer a multiple choice question and then respond to a prompt to explain the reasoning for the answer selected. (Wertz, Ross, Purzer, Fosmire & Cardella, 2011).

The CELT instrument was developed based on the Information Search Process (Kuhlthau, 2004) and the ACRL Information Literacy Competency Standards, encapsulated as InfoSEAD.

We need you!

Do you want to use CELT in one of your classes? Review the instrument. doi: 10.4231/D3P26Q358

Contact the team. Pick-up an information bookmark.

Abstract

Question Mapping / Blueprint

<table>
<thead>
<tr>
<th>Objectives (Students can...)</th>
<th>Item number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Seeking (Recognizing Need and Locating Information)</td>
<td>Part 1</td>
</tr>
<tr>
<td>1. Differentiate referenced information from unsupported assumptions</td>
<td>2</td>
</tr>
<tr>
<td>2. Select key words to locate information relevant to a specific topic</td>
<td>10</td>
</tr>
<tr>
<td>Information Evaluation (Assessing Relevance and Credibility)</td>
<td>4</td>
</tr>
<tr>
<td>3. Identify credible and authoritative information sources</td>
<td>4</td>
</tr>
<tr>
<td>4. Activate prior knowledge to critically examine new information</td>
<td>3*</td>
</tr>
<tr>
<td>5. Identify limitations of information</td>
<td>6</td>
</tr>
<tr>
<td>Information Application (Using Information and Constructing an Argument)</td>
<td>1, 5</td>
</tr>
<tr>
<td>6. Accurately interpret and summarize information</td>
<td>7</td>
</tr>
<tr>
<td>7. Identify relevant information needed to support arguments</td>
<td>8</td>
</tr>
<tr>
<td>Information Documentation (Citing and Referencing Information)</td>
<td>9*</td>
</tr>
<tr>
<td>8. Identify necessary elements of citations and in-text references</td>
<td>11</td>
</tr>
<tr>
<td>9. Determine when referencing external information sources is appropriate</td>
<td>15</td>
</tr>
</tbody>
</table>

Use of the Instrument

The instrument has been used as a baseline measure of student abilities, and as a pre-test / post-test measure to identify student growth in abilities during the course of a semester. Students can complete the assessment as part of a homework assignment, or during class (it takes about 20 minutes).

Sample Question

Q1. Which one of the following is an unsupported assumption presented in the memo?
   a. Students occupy their dorm rooms 200 days a year
   b. Students use dorm room lights for an average of 5 hours a day
   c. The average cost of electricity in West Lafayette is 6 cents per kWh
   d. CFL light bulbs are 75% more energy efficient than incandescent light bulbs

Q1A. This statement is an unsupported assumption because...

Acknowledgements

The authors would like to thank the support of the Purdue University Engineer of 2020 Seed Grant and the Purdue University Provost’s Learning Outcome Assessment grant.

Results

- Classical test theory was used to describe item difficulty and item discrimination.
- Internal reliability was determined using the Kuder-Richardson KR-20.
- Content validity was assessed with a correlational analysis that explored the relationships between the CELT instrument and the validated Critical Assessment Test (CAT).

Discussion & Further Research

Item analysis, internal reliability, and correlational data show that CELT is a viable instrument that can be used to measure information literacy constructs.

Data gathered from additional universities will allow the team to perform additional tests for validity and reliability of the instrument. By gathering data from different locations, we can assess the generalizability of the instrument.

The instrument has not been used with graduate students, which would be another area of investigation.

References


First Year Students (N = 188)
- Engineering = 72
- Aviation Tech = 91
- Nursing = 25
- KR-20 = 0.67