Towards a Refined Information Literacy Model

Yun-Ke Chang, Shaheen Majid, Schubert Foo and Yin-Leng Theng
Nanyang Technological University, Singapore. {YKCHANG, asmajid, assfoo, TYLTheng}@ntu.edu.sg

Xue Zhang
National Library, Singapore. ZH0002UE@e.ntu.edu.sg

Intan Azura Mokhtar
National Institute of Education. Singapore. intanazura.mokhtar@nie.edu.sg

Pilerot and Lindberg (2011) classified IL texts into three areas, namely Professional Practice, Policy-Making, and Research. This paper reports on an effort in assisting in policy making and professional practice. In Singapore, some efforts have been made through various government agencies to investigate and improve skills of students. Examples include NLB’s (National Library Board) 5-year National Information Literacy Program (NILP) since 2012, which includes plans to assist Ministry of Education (MOE) to improve students’ IL competencies through the provision of supplementary IL related resources. The purpose of this on-going project is to develop a refined model covering various IL stages, collaborative information seeking, as well as social responsibility and desirable attitudes that would facilitate an individual to become an information literate person. The review of existing IL models revealed that the majority are based on the research/information seeking process, perspectives, or components. On the other hand, the affective and cognitive domain in information literacy was acknowledged, and a relational approach towards information literacy has been constructed. In recent years, recognition of individual actions, behaviour, thoughts and skills in information literacy has been extended to teams, groups and organizations, and, with the proliferation of web technologies, information literacy has extended its reach to focus on social and multimodal networked technological environments, and may be redefined as meta-literacy or meta-competency (Kearns, 2001, Lloyd, 2003; Mackey & Jacobson, 2010). Other authors have also advocated fostering IL use and learning by accommodating cultural, linguistic and educational differences (Hughes, Bruce & Edwards, 2007). Considering the unique multi-ethnic and multi-cultural setting of Singapore, there is a need to develop a comprehensive IL model which not only elaborates IL activities and corresponding competencies along a research process at both individual and group levels, but also integrates other components of IL such as attitudes and social responsibility. This paper will provide a detailed elaboration of the proposed model which is essentially made up of 5 stages: Defining the information task; Selecting information sources; Seeking and evaluating information from sources; Synthesizing and using information; and Appraising the information process and product. What makes this model more suitable and ready for implementation is that all stages are scaffold into Definition, Scope, Outcome, Activities, Optional Activities, Concepts and Tools, with some further illustrated by a set of descriptors. As part of future work, based on the proposed
IL model and international benchmarks, the authors are also developing a curriculum framework of expected levels of IL competencies and related values for the whole spectrum of education, ranging from primary to pre-tertiary level, which can be used as guidelines for teaching and imparting IL competencies to Singapore students. The Authors are also conducting a bibliographic study to identify the most prolific authors in IL research around the world with the intention of seeking input from these IL experts on the proposed model.

References


Keywords: Information literacy, model, collaborative information seeking, social responsibility
Towards a Refined Information Literacy Model

Yun-Ke Chang, Xue Zhang, M Shaheen Majid, Schubert Foo Intan Azura Mokhtar, and Theng Yin Leng

ECIL 2013
Istanbul, Turkey

Information literacy Definition

- Coined by Zurkowski in 1974
  - Information literates:
    - “People trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems.”

- Illiterates:
  - “…do not have measure for the value of information, do not have an ability to mold information to their needs…”
Information literacy Definition

- Many definitions including knowledge and competencies that enable individuals
  - To define their information needs, search, retrieve, synthesize, evaluate and use information,
  - To evaluate one’s own information seeking process and the final information products,
  - To perform collaborative information-seeking behavior and ethical use of information.

Information literacy Definition

- IL has been studied with different focuses, such as
  - Social context factors: culture, distribution of authority, social norms, habits, practices, expectations, rewards, and preferences held by the group that an individual belong to (Cho & Lee 2008; Robbins & Judge 2009).
  - Social and multimodal networked technological environments: in which some researchers also redefined IL as metaliteracy or metacompetency (Kearns, 2001, Lloyd, 2003; Mackey and Jacobson, 2010).
IL Models

- Various IL models have been proposed,
  - based on perspectives
    - e.g. *The Seven Faces of Information Literacy* (Bruce, 1997).
  - based on components
    - e.g. *Burdick’s Five Components of Information Literacy* (1998).
    - *Information Literacy Elements Framework* (Australian and New Zealand Institute for Information Literacy, 2004)

IL Models

- And of course, (just to name a few!)
  - based on the research/information seeking process
    - *The Big 6 Model* (Eisenberg and Berkowitz, 1990)
    - *8 Ws of Information Literacy Model* (Lamb, Smith & Johnson, 1997)
    - *Alberta’s Focus on Research Model* (Oberg, 1999)
    - *The Seven Pillars of Information Literacy Model* (SCONUL, 1999)
    - and so on.
The Presented Project

- We present an IL model which not only elaborates IL activities and corresponding competencies along a research process at both individual and group level.

- The refined model also attempt to cover various IL stages, collaborative information seeking, as well as social responsibility and desirable attitudes that would facilitate an individual to become an information literate person.
i-Competency Model

1. Defining Information Task/Analyzing Information Gap
2. Selecting Information Sources
3. Seeking and Evaluating Information from Sources
4. Synthesizing and Using Information
5. Appraising the Information Process and Product

- Collaborative IL Process
- Social Responsibility
- Attitudes

---

i-Competency Model

1. Defining Information Task/Analyzing Information Gap

Definition:

Ability to recognize and define the need for and the extent of information.

Scope:

- Individual Work-based, Individual Personal, Group Work-based, Group Personal

Theory:

- Information needs vs. information task
- Emergence of needs (visceral, conscious, formalized, compromised level)
i-Competency Model

1. Defining Information Task/Analyzing Information Gap

Activities and Outcomes:
Flow of these activities depend on the knowledge of individual/group seekers

Key Activities:
1.1 Identifying main topic and sub-topics
1.2 Analyzing information need and defining gap
1.3 Iterating the process to clarify, revise, or refine need

i-Competency Model

1. Defining Information Task/Analyzing Information Gap

Optional Activities
- Questioning: clarification process,
  e.g. (what we want to know, what we know -> information gap)
- Scheduling, organizing (project management)
- Brainstorming (g)
- Seeking advice from appropriate social networks (g)
- Delegating (g)

Outcomes:
- Research topic and questions
- Research plan
i-Competency Model

1. Defining Information Task/Analyzing Information Gap

Concepts:
- ‘WH’ questions
- Cooperative group roles

Tools:
- Reference tools (e.g. dictionary, encyclopaedia)
- Group facilitating tools (physical vs. online)
- Mind-mapping tools (idea generator, graphic organizers)
- Web 2.0 tools (e.g. blogs, wikis, social networking tools, twitter)
- Project management tools (time, budget, and resource)

1. Defining Information Task / Analyzing Information Gap

Definition:
- Ability to recognise and define the need for and the extent of information.
- Scope (Apply to all stages):

Theory:
- Information needs vs Information task
- Emergence of needs (declarative, procedural, strategic, declarative level)

Activities and Outcomes – few of these activities depend on the knowledge of individual group members

Key Activities:
1.1 Identifying main topic and subtopics
1.2 Analyzing Information need and defining gap
1.3 Identifying the process to clarify, name, or refine need

Optional Activities:
- Questioning clarification process
  - e.g. (what we want to know, what we know, information gap)
- Subdividing, organizing (project management)
- Literature review
- Building profile from appropriate social network(s)
- (Unspecified)

Outcomes:
- Research topic and question
- Research plan

Concepts and Tools & analytical model

Concepts:
- ‘WH’ questions
- Cooperative group roles

Tools:
- Reference tools (e.g. dictionary, encyclopaedia)
- Group facilitating tools (physical vs. online)
- Mind-mapping tools (idea generator, graphic organizers)
- Web 2.0 tools (e.g. blogs, wikis, social networking tools, twitter)
- Project management tools (time, budget, and resource)
IL Curriculum Framework

1. Defining Information Task/Analyzing Information Gap
   - Ability to recognize and define the need for and the extent of information

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Primary 1-3</th>
<th>Primary 4-6</th>
<th>Secondary 1-4</th>
<th>Pre-Tertiary (JC/Polytechnic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Identifying main topic and sub-topics.</td>
<td>Use reference tools to clearly understand assignment and project requirements (e.g., poster), and formulate appropriate information questions.</td>
<td>Identify the information problem (main topic) to be resolved according to the type and complexity of end product (e.g., presentation, project report).</td>
<td>Identify the information problem (main topic) clearly and state it concisely based on the desired form of the end product (e.g., term paper, research report).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify sub-topics (potential areas) for investigation.</td>
<td>Use &quot;WH&quot; questions to determine the specific area of focus.</td>
<td>Use various strategies and questions to determine the specific area of focus, as well as the extent of information needed.</td>
<td></td>
</tr>
<tr>
<td>1.2 Analyzing information need and defining gap.</td>
<td>Determine what is already known about the topics.</td>
<td>Develop an overview of the areas of focus using pre-selected materials.</td>
<td>Develop an overview of the focus area through a preliminary search.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop an overview of the areas of focus using pre-selected tools.</td>
<td>Determine what additional information is needed.</td>
<td>Determine the extent and depth of information needed.</td>
<td></td>
</tr>
<tr>
<td>1.3 Iterating the process to classify, reframe, or refine need.</td>
<td>Refine the information need as necessary.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Concepts
- "WH" questions
- PM (planning)
- Brainstorming
- Cooperative group sales
- PM (controlling)

Tools
- Online and printed reference tools (e.g., dictionary, encyclopedia)
- Web 2.0 tools (e.g., group facilitating tools, physical vs. online, mind-mapping tools)
- Group facilitating tools (idea generator, graphic organizer)
- Project management tools (time, budget, and resource)

On Going Project

- National IL Survey
  - Primary 3 (grade 3)
  - Primary 5 (grade 5)
  - Secondary 3 (grade 8)
On Going Project

• Bibliometric analysis on IL related paper
  ◦ 830 documents during 2001-2012
  ◦ Topic 10 journals with most global citations

<table>
<thead>
<tr>
<th>Journal</th>
<th>Recs</th>
<th>LCS</th>
<th>GCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOURNAL OF ACADEMIC LIBRARIESHIP</td>
<td>89</td>
<td>176</td>
<td>436</td>
</tr>
<tr>
<td>JOURNAL OF DOCUMENTATION</td>
<td>17</td>
<td>86</td>
<td>166</td>
</tr>
<tr>
<td>COLLEGE &amp; RESEARCH LIBRARIES</td>
<td>35</td>
<td>65</td>
<td>160</td>
</tr>
<tr>
<td>LIBRARY QUARTERLY</td>
<td>10</td>
<td>79</td>
<td>136</td>
</tr>
<tr>
<td>JOURNAL OF LIBRARIANSHIP AND INFORMATION SCIENCE</td>
<td>31</td>
<td>78</td>
<td>133</td>
</tr>
<tr>
<td>PORTAL-LIBRARIES AND THE ACADEMY</td>
<td>41</td>
<td>65</td>
<td>138</td>
</tr>
<tr>
<td>LIBRARY TRENDS</td>
<td>19</td>
<td>55</td>
<td>92</td>
</tr>
<tr>
<td>LIBRARY &amp; INFORMATION SCIENCE RESEARCH</td>
<td>15</td>
<td>31</td>
<td>86</td>
</tr>
<tr>
<td>REFERENCE &amp; USER SERVICES QUARTERLY</td>
<td>34</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>COMPUTERS &amp; EDUCATION</td>
<td>6</td>
<td>11</td>
<td>49</td>
</tr>
</tbody>
</table>

On Going Project

• Top 10 most cited articles

<table>
<thead>
<tr>
<th>Articles</th>
<th>LCS</th>
<th>GCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information literacy as a sociotechnical practice</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td>Critical information literacy: Implications for instructional practice</td>
<td>27</td>
<td>53</td>
</tr>
<tr>
<td>Rethinking information literacy</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>Information literacy landscapes: an emerging picture</td>
<td>23</td>
<td>42</td>
</tr>
<tr>
<td>A discipline-based approach to information literacy</td>
<td>21</td>
<td>37</td>
</tr>
<tr>
<td>Information literacy 1973-2002: A selected literature review</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Information literacy: A contradictory coupling</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Information literacy: Different contexts, different concepts, different truths?</td>
<td>19</td>
<td>35</td>
</tr>
<tr>
<td>Assessing information literacy among undergraduates: A discussion of the literature and the University of California-Berkeley assessment experience</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>A phenomenographic study of English faculty's conceptions of information literacy</td>
<td>18</td>
<td>26</td>
</tr>
</tbody>
</table>
On Going Project

- Top 10 most cited authors

<table>
<thead>
<tr>
<th>Author</th>
<th>Recs</th>
<th>LCS</th>
<th>GCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elmborg J</td>
<td>1</td>
<td>27</td>
<td>53</td>
</tr>
<tr>
<td>Gross M</td>
<td>4</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>Johnston B</td>
<td>2</td>
<td>33</td>
<td>57</td>
</tr>
<tr>
<td>Julien H</td>
<td>13</td>
<td>21</td>
<td>50</td>
</tr>
<tr>
<td>Latham D</td>
<td>4</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>Lloyd A</td>
<td>19</td>
<td>77</td>
<td>152</td>
</tr>
<tr>
<td>Savolainen R</td>
<td>1</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td>Talja S</td>
<td>1</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td>Tuominen K</td>
<td>1</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td>Webber S</td>
<td>5</td>
<td>33</td>
<td>57</td>
</tr>
</tbody>
</table>

Thank You!