The value of information literacy standards and models

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Contents

1. Information literacy and Models and Standards ........................................ 3
2. Information literacy standards and models............................................. 6
  2.1 Association of College and Research Libraries ......................................... 7
  2.2 Australian and New Zealand Information Literacy Standard for Higher Education ........ 8
  2.3 Society of College, National and University Libraries ................................. 11
  2.4 The Big6 ................................................................................................ 12
  2.5 Kuhlthau’s Information-seeking Process Model ........................................... 14
3. Comparison of different information standards and models .................. 16
4. Conclusion .................................................................................................. 22
5. References .................................................................................................. 24
1. Information literacy and Models and Standards

Models and Standards in information literacy training are valuable instruments to guide the trainer to follow the right procedure during information literacy training. It is important that the librarian use the appropriate standard or model for their specific training needs. (De Kock, 2013; Johnston & Webber, 2003). Information literacy training has become increasingly complex and it is necessary to look at the training with a new lens.

According to Wallis (2005:219), “Information literacy can be understood as the overarching term to describe the skills needed to use information and communication technologies (ICTs) effectively, and to access appropriate digital information resources”. Bruce (2004:10), Hegarty, Quinlan and Lynch (2003:442), Johnston and Webber (2003:335) and Wallis (2005:219) argue that information literacy needs to be considered as a process to find information in any environment and in any discipline.

The definition of the ALA will be accepted for the purpose of this study. The ALA defines information literacy as the ability to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (ALA, 2004). The ALA (2004) defines an information-literate individual as one who is able to determine the extent of information needed, access the required information effectively and efficiently, evaluate information and its sources critically, incorporate selected information into his/her knowledge base, use information effectively to accomplish a specific purpose, understand the economic, legal, and social issues concerning the
use of information, and access and use information ethically and legally. Key definitions from the information literacy subject field - words of emphasis are given in italics by the researcher (Author’s emphasis) Differences in emphasis

Chartered Institute of Library and Information Professionals (CILIP)

“Information literacy is knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner” (CILIP, 2011). The use and communication of information in an ethical manner are stressed.

Kuhlthau’s definition of information literacy

Kuhlthau (2006:71) refers to the quantities of information in the global society and the ability to locate, evaluate and use information wisely. She adds, “Information literacy is at the core of what it means to be educated in this century” (Kuhlthau, 2006:71).

Eisenberg’s definition of information literacy

Eisenberg (2008:39) describes information literacy as “the set of skills and knowledge that allows us to find, evaluate and use the information we need, as well as to filter out the information we don’t need.” The emphasis is on filtering out information that is not needed.

Dorner and Gorman’s definition of information literacy

The definition of Dorner and Gorman (2006:284) is aimed at developing countries, and is therefore cited here since it may have value for South Africa as a developing country. They define information literacy as:
“…to understand when information can be used to improve their [i.e. information literate people and/or people receiving information literacy training] daily living or to contribute to the resolution of needs related to specific situations, such as work or school to know how to locate information and to critique its relevance and appropriateness to their context to understand how to integrate relevant and appropriate information with what they already know to construct knowledge that increases their capacity to improve their daily living or to resolve needs related to specific situations that have arisen”. The definition stresses the creation and control of information, and the fact that information can improve daily living in a world where survival is difficult.

Recognise a need for information

• Determine the extent of information needed
• Access information efficiently
• Critically evaluate information and its sources
• Classify, store, manipulate and redraft information collected or generated
• Incorporate selected information into their knowledge base
• Use information effectively to learn, create new knowledge, solve problems and make decisions
• Understand economic, legal, social, political and cultural issues in the use of information
• Access and use information ethically and legally

• Use information and knowledge for participative citizenship and social responsibility

• Experience information literacy as part of independent learning and lifelong learning.”

2. Information literacy standards and models.

This section will give a brief overview of selected standards accepted in various countries. To put the discussion in context and to form a bridge to the decisions that need to be taken. Two key models of information literacy and information-seeking, which have been linked to standards of information literacy, will also be considered. Information literacy skills are embedded in information literacy standards and models, and therefore such standards and models can provide the necessary steps to guide the learner through a problem-solving process, and serve as essential resources in the planning of information literacy training (Eisenberg, 2008:41). Such standards can also serve as frameworks for assessment for information-literate individuals (ALA, 2000).

The information literacy skills embedded in information literacy standards and models are described in the paragraphs below. For the purpose of discussion the following standards and models, adopted by many countries around the world and specifically applied to higher education, were selected to guide this study:

1. The ACRL
2. The ANZIIL

3. SCONUL

4. Big6 information literacy model

5. Kuhlthau's information-seeking process (ISP) model.

1. The ACRL

2. The ANZIIL

3. SCONUL

4. Big6 information literacy model

5. Kuhlthau's information-seeking process (ISP) model.

2.1 Association of College and Research Libraries

The ACRL is a division of the ALA and is responsible for propagating standards and guidelines for libraries. The standards include the following (ACRL, n.d.):

Standard One

“The information-literate student determines the nature and extent of the information needed.”

Standard Two

“The information-literate student accesses needed information effectively and efficiently.”

Standard Three
“The information-literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.”

Standard Four

“The information-literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.”

Standard Five

“The information-literate student understands many of the economic, legal, and social issues concerning the use of information and accesses and uses information ethically and legally.”

Librarians can use the ACRL standards as a guideline to develop their training material. Emmett and Emde (2007:211) used the ACRL standards as an assessment tool for information literacy training; they found that using the ACRL standards added value to the curriculum of chemistry students over a three-year period. They observed evidence of skills gained by the students (Emmett & Emde, 2007:223).

2.2 Australian and New Zealand Information Literacy Standard for Higher Education

The ANZIIL standard for higher education originated from the ACRL information literacy standard. The framework supports the principles and standards of information literacy in general (Bundy, 2004a:7). The second edition of the ANZIIL standard for higher education was developed by librarians and academics (Bundy, 2004:4). It consists of six standards, which are explained below.
Standard One  “The information literate person recognises the need for information and determines the nature and extent of the information needed. Identify information needed” (Bundy, 2004b:12).

Standard Two  “The information literate person finds needed information effectively and efficiently” (Bundy, 2004b:14).

Standard Three  “The information-literate person critically evaluates information and the information seeking process” (Bundy, 2004b:14).

Standard Four  “The information literate person manages information collected or generated” (Bundy, 2004b:14).

Standard Five  “The information literate person applies prior and new information to construct new concepts or create new understandings” (Bundy, 2004b:15).

Standard Six  “The information literate person uses information with understanding and acknowledges cultural, ethical, economic, legal and social issues surrounding the use of information” (Bundy, 2004b:16).

ANZIIL standards were used as a framework in the information literacy training of undergraduate business students at the Faculty of Business at Queensland University of Technology. The information literacy training proved to be successful after pre- and post-testing had been done (Price et al., 2011:709).

The case study done by Gunasekara and Collins (2008) proved the value of the ANZIIL standards. Students of the subject Operations and Management at the Queensland University of Technology, Australia completed a weekly task that was based on the ANZIIL standards. Tutorial activities were combined with ANZIIL standards related to learning outcomes. The first standard recognising the need for information was combined with the identification of management processes and sources, with the related outcome that students understood the value of sources. The second standard, the finding of effective information sources, was combined with effective searching of
relevant sources. The outcome was the relevant retrieval of information. The critical evaluation of information was combined with the evaluation of the search criteria. The outcome was that the information-seeking process became evolutionary. The fourth step was the management of information, combined with the recording or management of the information. The outcome was use of the correct referencing methods by the students. This led to application of the principle that an information-literate person applies prior and new information, which enables the person to identify gaps between primary and secondary information sources, improving knowledge and understanding of the subject matter. The sixth standard is the use of information with understanding. The tutorial activity entailed reflection on the information-seeking process and the recognition of multiple sources. The applications of the standards were contextualised. The researchers hoped to foster lifelong learning by using the ANZIIL standards as a guideline (Gunasekara & Collins, 2008:4).
2.3 Society of College, National and University Libraries

SCONUL developed the seven pillars information literacy model to assist practitioners in the field (SCONUL, 2007).

![SCONUL Seven Pillars Model for Information Literacy](image)

Figure 2.1: The seven pillars of information literacy as developed by SCONUL (SCONUL, 2007)
Loughborough University conducted research to improve the information literacy training of students. Information literacy training was embedded into the curriculum. The information literacy training incorporates the seven pillars of the information literacy standards developed by SCONUL. Research findings proved that students’ skills improved when they attended these courses (Stubbings & Franklin, 2006). The possibility of a credit-bearing information literacy course at Strathclyde Business School was analysed. The researchers found that information literacy can be a credit-earning subject with a curriculum based on the SCONUL standard (Johnston & Webber, 2008:335).

2.4 The Big6

The Big6 is an information literacy model developed by Eisenberg and Berkowitz (2008a) and is aimed at teaching information and technology skills. The groundbreaking publication of Eisenberg and Berkowitz (1988), Curriculum initiative: An agenda and strategy for library media programs, indicates the importance of linking problem-solving and critical thinking. The six-stage approach is presented in this book. Eisenberg and Berkowitz (1988:6) suggest that the school curriculum and information literacy training can be a systematic approach to help students with their specific needs, and that problems with the curriculum can be seen as challenges to be solved by information literacy training (Eisenberg & Berkowitz, 1988:7).

As developers of the model, Eisenberg and Berkowitz argue that students are able to handle any problem, assignment, decision or task if based on the Big6 approach (Eisenberg, 2008:163). The Big6 model consists of six stages, which are not based on
a linear process, and certain steps can be repeated. The purpose of the six stages is to help define the meta-cognitive processes required in the research process. Eisenberg (2008:42) describes the six stages of the Big6 as follows:

“Stage 1: Task Definition Define the information problem Identify information needed
Stage 2: Information-seeking Strategies Determine all possible sources. Select the best sources
Stage 3: Location and Access Locate sources (intellectually and physically) Find information within sources
Stage 4: Use of Information Engage (e.g. read, hear, view, touch) Extract relevant information
Stage 5: Synthesis Organise from multiple sources. Present the information
Stage 6: Evaluation Judge the product (effectiveness) Judge the process (efficiency)”

In support of the model, Eisenberg (2008) and Singh (2008:14) argue that students who use the Big6 gain powerful skills to apply to their studies. Lecturers can apply the Big6 in subject area content and assignments. The impact of the Big6 on student achievement became evident in a report on a case study on the Big6 (Berkowitz, 2000) done at the Wayne Central High School in 1997 and 1998. Only 53% of the candidates passed the examination the year before. The students in the case study did the same test for the American History Regents examination with better results: in a class of 59, only five did not pass the examination.

Brand-Gruwel, Wopereis and Vermetten (2005:489) point out that information problem solving is a complex issue that needs scaffolding and training. The Big6 was chosen because it fits into an information-seeking framework. Regulation was added as an extra component to the Big6 to scaffold the metacognitive process. Five experts
(doctoral students) and five novices were asked to think aloud about their information problem. The results proved that the participants defined a problem, searched for information, scanned information, processed information and organised and presented information. The complex information-seeking process was analysed to observe the main differences between novices and experts. Experts looked more closely at the contents of the information than novices. Results proved that experts spent time on the main skill to define the problem and used their experience to elaborate on the content.

2.5 Kuhlthau's Information-seeking Process Model

In 1985 Kuhlthau did research that led her to suggest an ISP model, which was tested in several subsequent projects over several years. The progression and development took place from 1985 to 2008 (Kuhlthau, Maniotes & Caspari, 2007). The model was created with the thoughts, actions and feelings of the information seeker in mind. The information seeker starts with confusion and incompatibilities between new information and existing information (Kuhlthau, 2007:33).

Her experience with the model led Kuhlthau to suggest an inquiry-based learning approach in information literacy training. Information technology increases the complexity of people’s daily lives with an overwhelming amount of information. This can have a negative influence on the next generation of innovators (Kuhlthau, 2007:1). For this reason, Kuhlthau (2007) suggests an inquiry-based learning approach that can have a positive influence when students are asked to use many different information sources to understand more about a certain topic. In an inquiry-based
learning approach, students can be guided by librarians in the quest for new knowledge and information. According to Kuhlthau (2007:5), information seeking can then be described as a constructivist process that requires construction and learning.

Kuhlthau’s ISP model, which was developed over time, is one of the models that can be used for information seeking. The initial model was developed in 1983. The inquiry-based learning approach, as suggested by Kuhlthau (2007:1), follows her information search model, which is described below. The ISP is presented in six stages:

Initiation
Person realises he has a lack of knowledge

Selection
A topic to research is identified

Exploration
Incompatible information is encountered

Formulation
A focused perception is realised

Collection
Information is gathered

Presentation

The search is completed with new understanding and ability to explain (Kuhlthau, 2007:35).

In 2006, a case study was done involving 574 students in Grades 6 to 12, in ten diverse public schools in New Jersey, USA, undertaking guided inquiry projects (Heinström,
2006). Results from this project proved that students' surface information seeking remained on a factual level, the deep-seeking students developed skills of more depth, and students with a strategic approach managed the information on a higher level (Heinström, 2006). The use of the guided inquiry process has also been reported by Steinerová (2008). The importance of focus on human information behaviour was part of the research process.

Standards and models such as the above also suggest objectives and outcomes that reflect what students are able to do after completing an information literacy training course, and can therefore offer excellent guidelines on the skills to be considered for information literacy training, which would include library orientation.

3. **Comparison of different information standards and models**

Eisenberg (2008:41) compared the different standards and models in a side-by-side view and found that there were more similarities than differences. The application of information skills does not occur as isolated incidents, but connected activities (Eisenberg, 2008:41). The researcher compared the ACRL, ANZIIL, SCONUL, Big6 and Kuhlthau's ISP to reflect the different processes and values of the standards and models. The figure below gives an indication of the combined standards and models.
<table>
<thead>
<tr>
<th>ACRL Information Literacy Standards</th>
<th>ANZIL Information Literacy Standards for Higher Education</th>
<th>SCONUL (UK) Information Literacy Pillars</th>
<th>Big6</th>
<th>ISP process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard One</strong></td>
<td><strong>Standard One</strong></td>
<td><strong>Recognise information need</strong></td>
<td><strong>Stage 1:</strong> &lt;br&gt; Task &lt;br&gt; “Definition”&lt;br&gt; Define the information problem &lt;br&gt; Identify information needed” (Kuhitha, 2007)&lt;br&gt; “Construct strategies for locating”&lt;br&gt; “Locate and access” (Eisenberg, 2008)</td>
<td>“Initiation Person realises he has a lack of knowledge” (Kuhitha, 2007)&lt;br&gt; “Selection” &lt;br&gt; A topic is identified to do research”&lt;br&gt; “Exploration”&lt;br&gt; Incompatible information is encountered” (Kuhitha, 2007)&lt;br&gt; “Formulation”&lt;br&gt; A focused perception is realised” (Kuhitha, 2007)</td>
</tr>
<tr>
<td>“Standard Two”</td>
<td>“The information-literate person finds needed information effectively and efficiently” (Bundy, 2004:14).</td>
<td>“Synthesise and create” (SCONUL, 2007)&lt;br&gt; “Stage 3:”</td>
<td>“Stage 3:”</td>
<td></td>
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<tr>
<td>“The information-literate student accesses needed information effectively.”</td>
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<td></td>
<td>“Information is gathered”</td>
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<tr>
<td>“Standard Three”</td>
<td>“The information-literate person critically evaluates information and the...”</td>
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<td>Standard Three</td>
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<td>&quot;The information-literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.&quot; (ACRL, 2011)</td>
<td>&quot;The information-literate person manages information collected or generated&quot; (Bundy, 2004:14)</td>
<td>&quot;The information-literate person applies prior and new information to construct new concepts or create new understandings&quot; (Bundy, 2004:15)</td>
<td>&quot;The information-literate person uses information with understanding and acknowledges cultural, ethical, and personal interpretations&quot; (Bundy, 2004:16)</td>
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</table>

The search is completed with new understanding and ability to explain" (Kuhlthau, 2007:35).
Eisenberg (2008:41) argues that the driving force in all the models is the processes that show that information literacy skills are connected activities that include a way of thinking and using information (Eisenberg, 2008:41). The ANZIIL standards concentrate on
the management of the information and the creation of new understanding. SCONUL concentrates more on information transfer to others.

The models developed by Kuhlthau and Eisenberg are more inclusive of the whole research process. Kuhlthau concentrates more on the feelings of the students, while Eisenberg concentrates more on the metacognitive aspects. ACRL concentrates on the wider concept of information-seeking and its influence on the information society to provide a scaffold for developing and measuring the abilities of the information-literate individual (Eisenberg, 2008: 41).
<table>
<thead>
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<th></th>
<th>Combined map reflecting activities from the Information Literacy Standards and Models identified by (de Kock 2012)</th>
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<tbody>
<tr>
<td>1</td>
<td>Identify topic</td>
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<td>2</td>
<td>Information problem</td>
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<td>3</td>
<td>Awareness of lack of knowledge (uncertainty)</td>
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<td>4</td>
<td>Determine need</td>
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<td>5</td>
<td>Determine sources</td>
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<td>6</td>
<td>Gather information pertinent to focussed perspectives</td>
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<td>7</td>
<td>Evaluate sources</td>
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<td>8</td>
<td>Extract relevant information</td>
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<td>9</td>
<td>Awareness of increased confidence</td>
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<td>10</td>
<td>Information gap</td>
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<td>11</td>
<td>Use information effectively</td>
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<td>12</td>
<td>Manage and organise information</td>
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<tr>
<td>13</td>
<td>Judge the products effectiveness</td>
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<tr>
<td>14</td>
<td>Present the information with new understanding</td>
</tr>
<tr>
<td>15</td>
<td>Apply and communicate information to others</td>
</tr>
<tr>
<td>16</td>
<td>Understand cultural, ethical, economic, legal and social issues (of information sharing)</td>
</tr>
</tbody>
</table>

Table 2.3: Map of information literacy standards and models identified by (de Kock 2012)
The combined view of the information literacy models and standards reflects a very interesting view of the information literacy process. The information map might be used to gain all the advantages of the different models and standards. Combining the metacognitive processes of the Big6 with the feelings and emotions of the ISP model and the management of information of the ANZIIL model, as well as ACRL’s wider concept of information seeking and the influence of information on society, might be beneficial for the information society.

4. Conclusion

It has been noted that various innovative ways can be applied to information literacy standards to make them more acceptable in the teaching environment. The Big6 as a guide can lead a student to identify information needs, seek information, locate relevant information, synthesise and evaluate information (Eisenberg, & Berkowitz, 2008 b).

Especially the first three steps in the Big6 seem relevant to library instruction, which is the focus of this study. For library instruction in specific contexts, additional steps or issues can be added, such as tips on the writing procedure, constructing and evaluating the assignment.
The process of information literacy is a complex series of events that is relevant to finding the right information at the right time. Certain models and standards exist to sustain the information-seeking process. The evaluation of different models and standards emphasises the importance of these models and standards as guidelines for the information seeker. Combining the different models and standards in a side-by-side view reflects the complex process of information seeking.

The added value of the combined standards and models might offer the information seeker new perspectives. It is clear that information seeking is not only an intellectual process but also an emotional one, with different levels of uncertainty. The uncertainty levels might decrease if the information seeker has a specific guideline to follow.

Knowing how to find relevant information and the combined critical thinking skills of an information-literate person will have a huge effect on students from school level to tertiary level. The circumstances of public libraries and school libraries in South Africa have an influence on the academic success of students. The combined skills of a fluent library user and information-literate person might lead the students to become lifelong learners with all the benefits of lifelong learning.

IFLA and the United Nations Educational, Scientific and Cultural Organisation are putting forward a strong case for information literacy to be recognised as a universal human right because of the empowering role that it plays in the lives of individuals (Britz & Lor,
Academic libraries in South Africa will now have to cater for possible gaps in information literacy training. Using Information literacy standards and models can be a solution to empower the strive towards an information literacy society.

5. References


(Elmborg, 2006)


