ISSUES IN THE INTERPRETATION OF THE AUSTRALIAN INFORMATION LITERACY STANDARDS

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ABSTRACT

The Council of Australian University Librarians (CAUL) published the first edition of the Australian Information Literacy (IL) Standards in January 2001. This paper describes issues in interpretation of the standard that arise from the assessment research, and raises possible ambiguities to be addressed in the revision of the standard planned for 2003.

INTRODUCTION

There is a commitment in most Australian universities to identify and to undergraduate students achieve specified generic skills (or graduate attributes). information literacy is normally identified as one of these generic skills. This is, at least in part, a consequence of the inclusion by Candy, Crebert, & O'Leary (1994) of information literacy among the lifelong-learning skills required of undergraduate education.

Providing a standard for information literacy is a way to promote agreement about meaning and to facilitate use. The Council of Australian University Librarians (CAUL) conducted a national workshop to develop a set of 'Information Literacy Standards' (CAUL, 2001). In the United States of America, standards for information literacy were released in 2000 by the Association of College and Research Libraries (ACRL, 2000). The USA standards were a reference source for the Australian standards and were used as input at a national workshop convened by CAUL to identify and agree on required standards. Participants also drew on the relational model of information literacy (Bruce, 1997). As a result, the Australian standards largely incorporate the US standards but also extend them, especially in addressing the ethical and broader social context of information literacy practice.

When the first edition of the Australian standards for information literacy was released, there was an expectation that with use, issues for clarification would emerge. The first edition includes a section for feedback, and in the introduction there is a statement inviting "suggestions for change" for the second edition, which is to be published in 2003. This paper has been prepared in this context as a contribution to the review of the standards.

THE STANDARDS

There are seven standards of information literacy identified in the CAUL statement. The standards were summarised for use by participants in the assessment project as follows.

- Awareness of information needs.
- Search strategies for information.
- Evaluation of information and its sources.
- Storage and retrieval of information.
- Use of information to expand, reframe or create new knowledge.
- Socio-cultural, ethical and legal information literacy practice.
- *Lifelong learning context* of information literacy practice (CAUL, 2001).

For each standard there are between two and five specific outcomes, and two to six examples of practice for each outcome are included. An abridged version listing the standards and outcomes is included as an appendix to this paper, so that the reader can follow the discussion that follows. The full standard is available free from the CAUL web site, http://www.caul.edu.au

METHODOLOGY

For each of two disciplines, education and law, six teams of librarians and academics across three universities were convened and provided with a training program to introduce the CAUL 'Information Literacy Standards'. The training consisted of pre-reading material, followed by a one-hour familiarisation workshop. During the workshop, participants were introduced to the concept of the seven standards and given a framework in which to interpret the standards. They were then given examples of student behaviour and asked to identify which standard was reflected in each example. The examples

were selected to familiarise the participants with the seven standards, and to highlight the interpretation of the standards.

Pairs of librarians and academics then worked to draft assessment items which addressed each outcome within each standard. By dividing the workload, pairs were encouraged to focus on three of the standards and to develop a range of items that addressed each outcome for the selected standards. This intensive approach was intended to foster a richer and wider range of examples than would be generated by a superficial attempt to write items across all seven standards.

Once items were collected and edited they were then presented to other teams of item writers who were asked to validate the items by identifying the standard and outcome that each item referenced. This procedure is a recommended method of demonstrating content validity in the published standards for educational and psychological assessment (APA, 1999). Each item was assessed independently by at least two teams of academics and librarians from the relevant discipline. The extent to which there was agreement among raters was used to select items for inclusion in the 'Information Literacy Assessment' tool. Examples of accepted items are presented in Table 1.

While the procedure was aimed at identifying valid items, one reason why raters may find it hard to agree on the standard and outcome to which an item should be assigned would be ambiguity in the standard. When the performance across a set of 250 items is examined, it is possible to identify those elements of the standards and outcomes where there was consistent disagreement. This is a way of identifying potential ambiguities in the standards.

RESULTS

Items were prepared for all outcomes across all standards. For the education discipline, a total of 258 items were submitted for cross validation of which 124 were confirmed. For the law discipline, a total of 255 items were submitted for cross validation of which 110 were confirmed. The results are summarised in Table 2, and are discussed below.

Among education discipline experts, no items were validated for four of the twenty-six outcomes across the seven standards, and insufficient items (defined as less than 20 percent) achieved validation for a further four outcomes. Among law discipline experts, no items were validated for three of the outcomes, while less than 20 percent of items were validated for a further four items.

Standard	Discipline	Item	
1.2	Law	When my course materials are not sufficient to answer an assignment, I search for more information.	
2.1	Law	Because the law is constantly changing, I use the library to access up to date legal information.	
3.2	Education	I can pick out the main ideas in an article.	
4.1	Education	I keep accurate details of everything I read.	
5.1	Law	When presented with a lead issue, I can determine the relationships between key elements.	
6.3	Education	I only list resources I have actually referred to in my assignment bibliography.	
7.2	Law	I assess the impact of new law on current civil rights and democratic institutions.	

Table 1. Examples of validated items.

I. The information literate person recognises the need for information						
1. The information literate person recognises the need for informa 1.1 defines and articulates the need for information	Number of	Number of Items	Proportion	Number of Items	Number of Items	Proportion
1.1 defines and articulates the need for information	nems wruch	vanius the noting	validated	written moded	thems written varidated varidated written varidated varidated varidated varidated varidated	validated
1.1 defines and articulates the need for information	ומונטון מוות תנ	Tel mines che marare	מווח בעורווו פו נווג	I I I I I I I I I I I I I I I I I I I	, 1110 1110 1110 1110	22
	9	2	.83	ý	3	££.
1.2 understands the purpose, scope and appropriateness of a variety of information sources	14	∞	.57	6	Υ	.56
1.3 consciously considers the costs and benefits of acquiring	7	9	98.	6	2	.22
1.4 re-evaluates the nature and extent of the information need	9	0	0	7	2	.29
1.2	ffectively and	on effectively and efficiently. The information literate person:	ormation literate	person:		
2.1 selects the most appropriate investigative methods or information access tools for finding the needed information	8	3	.38	8		88.
2.2 constructs and implements effectively designed search strategies	14	7	.50	14	7	.50
2.3 retrieves information using a variety of sources	8	4	.50	10	10	1.00
3. The information literate person evaluates information and its so information literate person:	sources critic	ally and incorporate	es selected inform	nation into their kno	its sources critically and incorporates selected information into their knowledge base and value system. The	e system. The
3.1 assess the utility of the information accessed.	13	0	0	4	3	.75
3.2 summarises the main ideas extracted from the information pathered.	10	3	.30	5	2	.40
3.3 articulates and applies initial criteria for evaluating both the information and its sources.	12	17	1.42*	8	8	1.00
3.4 validates understanding and interpretation of the information through discourse with other individuals, subject	14	10	.71	13	4	.31
3 5 determines whether the initial query should be revised	6	4	.44	9	0	0
4. The information literate person classifies, stores, manipulates and redrafts information collected or generated: The information literate person	and redrafts	information collecte	d or generated: 1	The information liter	rate person:	
4.1 extracts, records, and manages the information and its sources.	16	8	.50	8	4	.50
4.2 preserves the integrity of information resources, equipment, systems and facilities.	12	_	80.	5	0	0
4.3 legally obtains, stores and disseminates text, data, images, or sounds.	8		.13	=	4	.36

Table 2. Item validation findings for Education and Law

*Refer to discussion below about standard one outcome 4 for an explanation as to why more items were validated for outcome 3 standard three than were written.

5. The information literate person expands, reframes or cre	ates new knowle	dge by integrating p	rior knowledge an	id new understandir	eates new knowledge by integrating prior knowledge and new understandings individually or as a member of a	a member of a
5.1 applies prior and new information to the planning and creation of a particular product	9	0	0	6		.11
5.2 synthesises main ideas to construct new concepts	9		.17	10	9	09.
5.3 compares new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information	10	<u>د</u>	.30	11	2	.18
5.4 revises the development process for the product	3	1	0	8	0	0
5.5 communicates the product effectively to others	11	7	.64	6	4	.44
6. The information literate person understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully. The information literate person:	onomic, legal, and	l social issues surro	inding the use of i	nformation and acce	esses and uses informa	ition ethically,
6.1 understands cultural, ethical, legal and socio-economic issues surrounding information and information technology	9	5	.83	16	5	.34
6.2 follows laws, regulations, institutional policies, and etiquette related to the access and use of information	13	∞	.62	15	9	.40
6.3 acknowledges the use of information sources in communicating the product	6	5	.56	8		.73
Standard and Outcome		Education			Law	
	Number of Items Written	Number of Items Validated	Proportion Validated	Number of Items Written	Number of Items Validated	Proportion Validated
7. The information literate person recognises that lifelong le	earning and parti	cipative citizenship	requires informat	ion literacy. The inf	learning and participative citizenship requires information literacy. The information literate person:	on:
	17	15	88.	21	10	.48
7.2 determines whether new information has implications for democratic institutions and the individual's value system and takes steps to reconcile differences	20	3	.15	22	4	.18
TOTALS	258	124		255	110	

Table 2. Item validation findings for Education and Law (continued)

Standard and Outcome	Percentage Validated –	Percentage Validated –Law
	Education	
1.4	0	.29
3.1	0	.75
3.5	.44	0
4.2	.08	0
4.3	.13	.36
5.1	0	.11
5.2	.17	.60
5.3	.30	.18
5.4	0	0
7.2	.15	.18

Table 3. Comparison of item validation findings for selected items.

To assist the reader, the standards and outcomes for which there was a low proportion of items validated for either the law or the education disciplines have been selected for comparison. The results are summarised in Table 3. They show that there were several cases where, for *both* disciplines, a standard and outcome was consistently difficult to validate (shown in bold), but others where the validation results were not consistent.

DISCUSSION

The extent of agreement between the findings for each of the disciplines within which the study was conducted suggests that the results may have more general application across other disciplines. Specific comments about the areas of possible ambiguity are reported below.

Standard one outcome four

Outcome four refers to the process of "reevaluating the nature and extent of the information needed". This proved to be a difficult outcome for which to write items. In education all items that were written were validated consistently as belonging to standard three. Some selected outcome three from this standard which states "applies initial criteria for evaluating both the information and its sources". In a few cases, outcome five was selected. It states, the person "determines whether the initial query should be revised". The examples given in the CAUL Standards (2001, p.7) for standard one outcome four are, "reviews the initial information to clarify, revise, or refine the question", and "uses and can articulate the criteria used to make information decisions and choices". The question can well be asked: 'how can one do these things without evaluating the information and its sources?'

I conclude that ambiguity could be reduced if this outcome was incorporated into standard three, thus leaving standard one more clearly identified as addressing awareness of information needs and the appropriateness of various sources. In other words, outcome four is not appropriate in standard one.

Standard three outcomes one, three, and five

On an initial reading, the results for the two disciplines for standard three appear somewhat confused. For outcome one a relatively high proportion of items were validated in law, while no items were validated for outcome five. Inverse results were recorded for education, where no items were validated for outcome one. For education, some items intended to address standard three outcome one were validated consistently against outcome three. Together with the impact of items written for standard one outcome four, this meant that more items were validated against standard three outcome three than had been intentionally written for this outcome. In the case of law, participants successfully validated three of four items available for outcome one. Outcome one refers to the assessment of "the utility of the information accessed". In law research it is essential that the relevance of information be assessed in terms of currency and jurisdiction before it is used. While currency is important in all disciplines, it is of peculiar saliency in law. The four items written in law were found to be very specific to this aspect of the discipline.

Outcome three addresses the crucial element of practice involving the application of "initial criteria for the evaluation of information and *its sources*", while outcome one considers "the *utility* of the information accessed". One solution that may reduce the ambiguity would involve separating the evaluation of the utility of sources from the utility of the information. It might be better to reorder the outcomes and

have outcome one involve evaluation of sources, and outcome two 'initial evaluation' of utility of information. The current outcome two, that addresses summarising main ideas, could then become outcome three.

In the case of outcome five, it is instructive to refer back to the comment made in relation to standard one outcome four. The results for the two disciplines are contrasted in Table 4. They suggest that there may be a consistent pattern of behaviour evident, with specialists in law tending to prefer standard one, while specialists in education are more likely to opt for standard three. These results add to the evidence that standard one outcome four should be deleted to remove the ambiguity.

Outcome	Education	Law
3.1	0	.75
3.3	1.42	1.00
3.5	.44	0
1.4	0	.29

Table 4. Comparison of validation results for four selected outcomes.

The remaining outcomes for standard three were found to be satisfactory. No difficulties were found in relation to the validation of items addressing outcome three. The current outcomes two and three were differentiated sufficiently frequently to suggest that they are useful in the description of information literacy.

Standard four, outcomes two and three

Outcome two for standard four refers to the correct use of equipment to gather and store and retrieve information. There may well be a justification for including an outcome that addresses procedures to protect against viruses and that deals with safe use of equipment, even though it does not directly address the core notion of information literacy. However, as currently written, the outcome also includes correct referencing of information sources. This is best done when the information is initially accessed, and is needed for the evaluation of the reliability of the information. Therefore, this might be added as an aspect of efficient accessing of information in standard two. I conclude that if equipment use is germane to the standard, that this outcome should be written to explicitly focus on this issue.

Outcome three, however, is redundant because it is addressed in standard six. The first example presented in standard six outcome two states. "obtains, stores and disseminates text, data, images or sounds in a legal manner", while outcome three for standard four states "legally obtains, stores and disseminates text, data images, or sounds". There could hardly be a clearer example of redundancy in the standards. Ethical and legal behaviour should be a guiding principle in all aspects of information literacy. Therefore I suggest that the easiest solution is to identify in standard six, all ethical and legal aspects of information literacy. In particular, standard six outcome two should address legal requirements in all aspects of information literacy. Standard four can then be defined as dealing with the techniques required to process, store and retrieve information for subsequent

Standard five

Of particular concern were the results for standard five. In many cases, participants agreed that items reflected standard five, but no agreement was reached about specific outcomes. This is the standard that describes information use in the creation communication of knowledge and ideas. The results across the two disciplines summarised in Table 5. A consideration of the list of outcomes suggests that they may artificially segment a process that in practice is undertaken as an integrated whole. It may be appropriate to observe people in practice to clarify the actual elements that can be distinguished. In particular, synthesising main ideas, comparing new and prior knowledge, and communicating may be found to be parts of a wholistic process. Likewise, planning and revising the development of an article may be better grouped in one outcome.

Outcome	Education	Law
5.1	0	.11
5.2	.17	.60
5.3	.30	.18
5.4	0	0
5.5	.64	.44

Table 5. Comparison of validation results for standard five.

The results summarised above in Table 5 are disappointing. They suggest that the key standard that addresses the use of information is

poorly defined. Outcome one addresses the process of planning the creation of a new product. While the nature of the information to be communicated will no doubt influence the nature of the product, this is primarily a communication task. Outcome four involves the "person revising the development process for the product". This is even further removed from the core aspects of information literacy. Outcome five refers to "communicating the product effectively to others". While it is validated with some degree of consistency, it overlaps also with the proposed communication standard. If a systematic effort was made to develop a set of standards for graduate attributes, then areas of overlap such as this might well be cross referenced to aid learning and assessment; but surely each outcome should be uniquely referenced within the set of standards. Therefore, I propose that outcomes one and four and five be deleted. They are possibly better included as a separate graduate attribute of 'communication'.

Removal of the communication-focused outcomes from this standard, may help with the differentiation between the information literacy elements in standard five. Despite a poor result for the education discipline, the constructs that underlie outcome two should be retained, as the outcome refers to synthesising "main ideas to construct new knowledge." Perhaps it could be recast as two outcomes, one addressing analysis and synthesis of information, and the second addressing the construction of new insights from the analysis of information.

It is possible that the responses in relation to outcomes two and three reflect different emphases between the two disciplines. It could be argued that in law, it is crucial that the main ideas and new interpretations are clearly identified in order to respond to a brief. In contrast, in education, the integration of new concepts with existing practices is crucial to effective practice. If outcomes two and three were amended to clearly distinguish three functions in information use, then they might constitute a more targeted description of information use. The three elements suggested are:

- categorises relationships between information from various sources.
- identifies main ideas and gaps in information from various sources and,
- develops new insights or original ideas from available information.

Standard seven outcome two

There is an interesting contrast to be drawn between the responses to outcomes one and two for standard seven. For both law and education. a majority of items written for outcome one were validated, whereas for outcome two, neither discipline provided a satisfactory result. At the higher levels of information literacy practice, the skills merge with other generic attributes (Colvin & Catts, 1997, p.21). This may make it more difficult to confirm evidence for a specific generic skill. The examples given in the published standard suggest maintaining values and beliefs in democratic institutions. It is culturally biased to maintain that information literacy is a preserve of democratic institutions. Perhaps we hope that an information literate society will be less vulnerable to political deceptions, but in terms of the standards, this outcome may be casting a broader perspective than is appropriate for information literacy as a salient construct.

Terminology and the future of standards for graduate attributes

One implication that arises from this analysis is that the initiative taken by CAUL to develop standards to describe information literacy should be extended to address other graduate attributes. In the possible future context of there being a set of standards for graduate attributes, it may be desirable to refer to a standard for information literacy, rather than 'standards'. This would be consistent with the language adopted by the Australian National Training Authority (ANTA, 2002), which endorses a competency standard for each industry¹. What are referred to as the seven 'standards' at present, could then be termed the seven 'units of competency' for the information literacy 'standard', and the current outcomes could be referred to as 'elements' within each unit of competency. By developing terminology that is consistent with established usage in Australia, it is likely that widespread adoption will be facilitated. In particular, employers are likely to be more able to adopt a

¹ competency standard: an industry-determined specification of performance, which sets out the skills, knowledge and attitudes required to operate effectively in employment. Competency standards are made up of units of competency, which are themselves made up of elements of competency, together with performance criteria, a range of variables, and an evidence guide. Competency standards are an endorsed component of a training package. Source: http://www.anta.gov.au/gloatoe.asp

set of standards for graduate attributes that use language that is consistent with the prevailing terminology for industry standards of competency. An added advantage would be that items identified in the current CAUL assessment project could be included in the information literacy standard as examples of outcomes for use in assessing elements and units of competency.

CONCLUSION

Overall, the CAUL standards for information literacy provide a sound basis for developing policy and practice in Australian universities. They provide a basis on which to build a refined statement about information literacy. In preparing the second edition of the CAUL information literacy standards, consideration should be given to adopting language consistent with the wider competencies movement. In introducing the standard(s), an executive summary should place the seven units within a conceptual framework, such as outlined in the introduction to this paper. Standard one should be identified explicitly as an awareness stage and thus a necessary prerequisite to practice. Standards two, three, and four should be linked to the processes required to search, evaluate, and store information. Standard five needs to be clearly distinguished as the stage of information use, and separated from the related competency of 'communication'. The executive nature of standard six needs to be made more explicit, so that it is seen as providing an overall context of ethical and legal practice. Likewise, the role of standard seven, in setting a broader lifelonglearning context, may need to be better distinguished from the immediate operational dimensions of the other standards.

A clear distinction needs to be made between the techniques needed for storage and retrieval of information, and the legal requirements for such practice. While my preference is to locate all legal elements in a single standard, I am aware that the legal aspects of storage are of particular concern to librarians and others concerned with compliance in relation to photocopy rules. Hence an alternative might be to address the specific issues related to legal

collection of information in standard four, and expressly focus on broader aspects of ethical, lawful, and culturally-sensitive practice in standard six. Standard one needs clarification, so that its focus is on awareness of the need for information, and is more explicitly differentiated from the search strategy described in standard two, and the evaluation strategy in standard three.

The examples presented in the first edition need revision in the light of the findings of this study. Those items to be released for diagnostic purposes as a result of the present CAUL information literacy assessment project may prove to be a useful source of examples to be considered for inclusion in the second edition.

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APPENDIX

CAUL INFORMATION LITERACY STANDARDS AND OUTCOMES¹

STANDARD ONE

The information literate person recognises the need for information and determines the nature and extent of the information needed.

Outcomes

- 1.1 The information literate person defines and articulates the need for information.
- 1.2 The information literate person understands the purpose, scope and appropriateness of a variety of information sources.
- 1.3 The information literate person consciously considers the costs and benefits of acquiring the needed information.
- 1.4 The information literate person re-evaluates the nature and extent of the information need.

STANDARD TWO

The information literate person accesses needed information effectively and efficiently.

Outcomes

- 2.1 The information literate person selects the most appropriate investigative methods or information access tools for finding the needed information.
- 2.2 The information literate person constructs and implements effectively designed search strategies.
- 2.3 The information literate person retrieves information using a variety of methods.

STANDARD THREE

The information literate person evaluates information and its sources critically and incorporates selected information into their knowledge base and value system.

Outcomes

- 3.1 The information literate person assesses the utility of the information accessed.
- 3.2 The information literate person summarises the main ideas extracted from the information gathered.
- 3.3 The information literate person articulates and applies initial criteria for evaluating both the information and its sources.
- 3.4 The information literate person validates understanding and interpretation of the information through discourse with other individuals, subject area experts, and/or practitioners.
- 3.5 The information literate person determines whether the initial query should be revised.

¹ Edited version of CAUL Information Literacy Standards, based on the web version available at www.caul.edu.au as at March 2002.

STANDARD FOUR

The information literate person classifies, stores, manipulates and redrafts information collected or generated.

Outcomes

- 4.1 The information literate person extracts, records, and manages the information and its sources.
- 4.2 The information literate person preserves the integrity of information resources, equipment, systems and facilities.
- 4.3 The information literate person legally obtains, stores, and disseminates text, data, images, or sounds.

STANDARD FIVE

The information literate person expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group.

Outcomes

- 5.1 The information literate person applies prior and new information to the planning and creation of a particular product.
- 5.2 The information literate person synthesises main ideas to construct new concepts.
- 5.3 The information literate person compares new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.
- 5.4 The information literate person revises the development process for the product.
- 5.5 The information literate person communicates the product effectively to others.

STANDARD SIX

The information literate person understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully.

Outcomes

- 6.1 The information literate person understands cultural, ethical, legal and socio-economic issues surrounding information and information technology.
- 6.2 The information literate person follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.
- 6.3 The information literate person acknowledges the use of information sources in communicating the product.

STANDARD SEVEN

The information literate person recognises that lifelong learning and participative citizenship requires information literacy.

Outcomes

- 7.1 The information literate person appreciates that information literacy requires an ongoing involvement with learning and information technologies so that independent lifelong learning is possible.
- 7.2 The information literate person determines whether new information has implications for democratic institutions and the individual's value system and takes steps to reconcile differences.