

University of Windsor

Scholarship at UWindsor

LRI Participants' Publications (Peer Reviewed)

CARL Librarians' Research Institute (LRI)
Participants' Research

2013

Information literacy in the programmatic university accreditation standards of select professions in Canada, the United States, the United Kingdom, and Australia

Cara Bradley
University of Regina

Follow this and additional works at: <https://scholar.uwindsor.ca/lripub>

Recommended Citation

Bradley, Cara. (2013). Information literacy in the programmatic university accreditation standards of select professions in Canada, the United States, the United Kingdom, and Australia. *Journal of Information Literacy*, 7 (1), 44-68.

<https://scholar.uwindsor.ca/lripub/10>

This Article is brought to you for free and open access by the CARL Librarians' Research Institute (LRI) Participants' Research at Scholarship at UWindsor. It has been accepted for inclusion in LRI Participants' Publications (Peer Reviewed) by an authorized administrator of Scholarship at UWindsor. For more information, please contact scholarship@uwindsor.ca.

Journal of Information Literacy

ISSN 1750-5968

Volume 7 Issue 1

June 2013

Article

Bradley, C. 2013. Information literacy in the programmatic university accreditation standards of select professions in Canada, the United States, the United Kingdom and Australia. *Journal of Information Literacy*, 7(1), pp.44-68.
<http://dx.doi.org/10.11645/7.1.1785>

Copyright for the article content resides with the authors, and copyright for the publication layout resides with the Chartered Institute of Library and Information Professionals, Information Literacy Group. These Copyright holders have agreed that this article should be available on Open Access.

“By 'open access' to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.”

Chan, L. et al 2002. *Budapest Open Access Initiative*. New York: Open Society Institute. Available at: <http://www.soros.org/openaccess/read.shtml> [Retrieved 22 January 2007].

Information literacy in the programmatic university accreditation standards of select professions in Canada, the United States, the United Kingdom and Australia

Cara Bradley, Teaching & Learning Librarian, University of Regina, Saskatchewan, Canada. Email: cara.bradley@uregina.ca

Abstract

University accreditation schemes, in some form or other, are ubiquitous among English-language speaking countries around the world. Some countries employ national or regional accreditation processes, and a few authors have explored the role of information literacy (IL) in these institution-wide accreditation practices. Little, however, has been written about IL in the context of accreditation standards developed by various professions to regulate the quality of university programmes educating future professionals in the field. This paper investigates the potential of these professional accreditation standards to advance the IL cause and give it a higher profile on campus. It undertakes a qualitative content analysis of the professional accreditation standards for three professions-- nursing, social work, and engineering –in Canada, the United States (US), the United Kingdom (UK), and Australia to determine:

- If (and in what context) the term IL is used in the accreditation criteria
- Other terms/language used in the accreditation criteria to describe IL and associated skills and competencies
- Correlations between outcomes outlined in the accreditation documents and IL competencies outlined by the library profession

The study identifies trends, both within specific professions, and within the documents produced by each of the four countries under consideration. It reports significant variation in the language used in the professions to describe the concept of IL, highlighting the alternative language used in the various professions to describe this ability. The study also maps outcomes outlined in the accreditation documents to the Association of College and Research Libraries' (ACRL's) *Information Literacy Competency Standards for Higher Education* (ACRL 2000) in order to identify areas of overlapping concern. In doing so, this study helps familiarise librarians with the accreditation standards in several subjects, and provides a model for librarians to use in analysing accreditation standards in other subject areas in order to advance IL on their campuses.

This article is based on a paper presented at LILAC 2013.

Keywords

information literacy; accreditation; standards; academic libraries; undergraduate education; engineering; social work; nursing; US; UK; Canada; Australia

1. Introduction

Accreditation of educational institutions has become an increasingly important process in recent years as the numbers and types of post-secondary institutions around the world have ballooned. The most important role performed by accreditation is that of an indicator of educational quality; accreditation guarantees that institutions and programmes have met pre-defined quality criteria and been reviewed and approved by qualified and unbiased individuals. Accreditation by relevant bodies is essential to a university's ability to graduate students whose qualifications are recognised by their chosen profession, and in some instances (particularly in professional programmes) is integral to students' ability to obtain post-graduation employment. Growing student and workforce mobility has also increased the importance of accreditation in recent years, as it provides a means for education to be properly assessed and recognised outside of the jurisdiction in which it was obtained. Accreditation also plays an important role in public safety (especially in the health sciences), ensuring that new professionals have obtained a standard of current knowledge that will enable them to practice their profession without endangering others. Finally, an important and often overlooked role of accreditation is that of prompting and directing continuous improvement efforts within post-secondary institutions, and assisting in the identification of strategic and financial priorities, particularly in times of decreasing resources.

Accreditation is essentially a structured peer review process in which institutions are assessed against a pre-defined set of criteria. The accreditation process itself typically starts with the preparation of a self-study report, in which the organisation seeking accreditation gathers data related to enrolments, finances, resources, and reflects on its strengths and weaknesses. Some accreditation standards are also showing evidence of a shift from an emphasis on inputs to instead focus on student learning outcomes (Smith 2002, p. 30). Preparation of the self-study report is followed by a site visit, in which agents of the accrediting body tour facilities, meet with stakeholders, and gather further information. This results in a final report and recommendation as to whether accreditation should be granted. Ideally, accreditation is a cyclic process, in which insights gained during the process inform future improvements and planning.

Accreditation of post-secondary education can be divided into two broad categories: institutional and programmatic. Institutional accreditation, in which a post-secondary institution as a whole is reviewed, is employed nationwide in some countries, while others choose not to employ such a national accreditation framework. Canada and the United Kingdom (UK) are illustrative of these two extremes; Canada does not have a national post-secondary accreditation framework, while the UK has an Institutional Review Process administered by the Quality Assurance Agency for Higher Education. Australia is similar to the UK in that quality assurance criteria are laid out at a national level for each level of post-secondary education. The United States (US) has adopted a slightly different approach, with a nationwide accreditation process administered by six regional accreditation agencies, each with somewhat different criteria and processes.

In programmatic accreditation, individual academic programmes offered by postsecondary institutions are accredited separately from, or in addition to, the institution as a whole. These programmatic accreditation processes are most commonly found in professional programmes, including engineering, architecture, business, and most health sciences professions. The accreditation agencies in these cases are often subsets or affiliates of professional associations or regulatory bodies. As with institutional accreditation, programmatic accreditation typically involves preparation of a self-study report, a site visit, and a resulting final report and recommendation. As is the case in institutional accreditation, the accrediting body develops a document outlining the criteria by which programmes are assessed; these criteria generally seek to strike a careful balance by ensuring quality of the programme without becoming over-specific and thereby jeopardising academic freedom and the uniqueness of each programme.

2. Literature Review

Maintenance of accredited status is very important to university administrators and faculty members, as it serves as an external testament to the quality of a programme and is essential in recruiting new students and faculty members. It is curious, then, that the library literature pays relatively little attention to accreditation processes and their potential impact on academic libraries and their programmes. Dalrymple (2001) provided an introduction and overview of accreditation for librarians, noting the need for librarians to be aware of the process. Gratch-Lindauer (2002) analysed the content of US institutional accreditation documents, identifying trends with the potential to have an impact on libraries. While Gratch-Lindauer mentions information literacy (IL) as one of several important considerations in the context of accreditation, Saunders (2007; 2008; 2011) is the only author to-date to fully explore potential connections between institutional accreditation requirements and IL. In 2007, she undertook a content analysis of the accreditation requirements of the six US regional accreditation organisations, looking for references to library instruction, IL, and other associated terms. She took this research a step further in 2011 by conducting a similar analysis of the self-study documents prepared by institutions seeking accreditation renewal, again searching for references to library instruction and IL. The work of these authors clearly demonstrates that institutional accreditation should be viewed as an opportunity for the library to make a meaningful contribution to a process so heavily valued by faculty members and administrators.

These analyses of libraries in the institutional accreditation process, primarily limited in scope to a US setting, have not been extended to include programmatic accreditation. Saunders herself notes that as she, “examines only documentation from the regional accrediting organizations, and does not consider disciplinary accrediting associations ... the focus is likely to be on information literacy and assessment requirements at the institutional level, not the program or course level, which is also relevant” (Saunders 2007, p. 320). A few previous articles have outlined connections between programmatic accreditation criteria and IL standards in the context of describing development of specific IL programmes (Ruediger and Jung 2007; Milne and Thomas 2008). Oxnam’s brief 2003 article draws comparisons between an earlier (2003-4) version of the US engineering accreditation standards and the Association of College and Research Libraries’ (ACRL) *Information Literacy Competency Standards for Higher Education* (ACRL 2000), while Murphy and Saleh (2009) consider Canadian engineering accreditation criteria in the context of a different set of standards, ACRL’s *Information Literacy Standards for Science and Engineering/Technology* (ALA et al 2006). The present study builds on past work by taking a broad look at accreditation standards across disciplines and jurisdictions in order to assist librarians in realising the potential of these accreditation documents to generate enthusiasm and support for IL work among those involved in programmatic accreditation processes.

This article aims to explore representations of IL and its associated competencies in a selection of worldwide English language programmatic accreditation standards, and to consider the implications of these representations for librarians. More specifically, its goals are to:

- 1) Determine if, and in what context, the term information literacy (or equivalent language) is used in nursing, social work, and engineering accreditation criteria.
- 2) Map the connections between requirements outlined in nursing, social work, and engineering accreditation standards of four countries: Canada, the US, the UK, and Australia, to the Association of College and Research Libraries’ *Information Literacy Competency Standards for Higher Education* (ACRL 2000).
- 3) Identify possible entry points for librarians looking to advance IL efforts through alignment with programmatic accreditation criteria, and raise awareness of the potential for librarian/faculty collaboration in meeting accreditation requirements.

3. Methodology

The methodology employed in this study consists of a content analysis of the university programme accreditation criteria in three disciplines: nursing, social work, and engineering. Accreditation criteria documents from four countries--Canada, the US, the UK, and Australia--were included in the analysis, and are listed in Table 1, with full citations in Resources. While there are obviously accreditation documents in these subjects issued by other countries, these four nations accredit a significant number of English-language degree-granting programmes around the world. In each instance, the version of the accreditation criteria in force in December 2012 was used in the analysis; these were freely available on the web sites of the accrediting bodies. In some instances, the accreditation sites refer readers to supplementary documents for additional information; these were excluded from the analysis, with the rationale that the primary accreditation criteria document is the most frequently read and referenced, and therefore the most influential in the accreditation process. This also provided a more consistent basis for comparison among the various professions and countries. These stringent criteria excluded the UK Royal College of Nursing's document *RCN competencies: finding, using and managing information: nursing, midwifery, health and social care competencies* (RCN 2011) from the analysis. Although this document is very useful and explicit in terms of outlining the importance of IL, the fact that it is separate from the primary accreditation document likely minimises its impact on the accreditation process and may inadvertently give the impression that IL is an afterthought not warranting attention in the accreditation criteria. The focus of the analysis was also restricted to accreditation criteria for the first (undergraduate) degree in the profession. In those documents where accreditation standards for graduate studies are also included, the standards associated with these advanced programmes were disregarded as outside of the scope of this study.

Table 1. Titles and issuing bodies of accreditation documents used in the analysis

	Social Work	Nursing	Engineering
Canada	<i>Standards for accreditation.</i> Canadian Association for Social Work Education	<i>Accreditation program information.</i> Canadian Association of Schools of Nursing	<i>Accreditation criteria and procedures.</i> Canadian Engineering Accreditation Board
United States	<i>Educational policy and accreditation standards.</i> Council on Social Work Education	<i>NLNAC accreditation manual including the 2008 standards and criteria.</i> National League for Nursing Accrediting Commission, Inc.	<i>Criteria for accrediting engineering programs: effective for reviews during the 2012-2013 accreditation cycle.</i> Engineering Accreditation Commission. Accreditation Board for Engineering and Technology
United Kingdom	<i>Standards of education and training.</i> Health & Care Professions Council	<i>Standards for pre-registration nursing education.</i> Nursing & Midwifery Council	<i>The accreditation of higher education programmes: UK standard for professional engineering competence.</i> Engineering Council
Australia	<i>Australian social work education and accreditation standards.</i> Australian Association of Social Workers	<i>Registered nurses: standards and criteria for the accreditation of nursing and midwifery courses leading to registration, enrolment, endorsement and authorisation in Australia—with evidence guide.</i> Australian Nursing and Midwifery Council	<i>Accreditation criteria guidelines.</i> Engineers Australia. Accreditation Board

One anomaly arose in attempts to identify accreditation bodies within the professions. While the norm is for each profession to be accredited by a single body within a country, the United States has two separate bodies that accredit nursing programmes: the National League for Nursing (NLN) and the Commission on Collegiate Nursing Education (CCNE). For national comparison purposes, this paper considers only the National League for Nursing accreditation criteria, which are recognised by the US Department of Education and the Council for Higher Education Accreditation (CHEA). Librarians working in CCNE-accredited institutions are encouraged to consult this agency's accreditation criteria when considering how best to engage with the nursing accreditation process on their campus.

It may also be useful to note that accreditation of social work programmes in the UK differs somewhat from that in other countries. Social work programmes are accredited by the Health & Care Professions Council (HCPC), a body which approves not only social work programmes but also those in 15 other health fields, using a single set of standards. This change is recent; until August 2012, social work programmes were accredited by a separate General Social Care Council. This has several implications for readers of this study:

- 1) social workers in England, but not those in Scotland, Wales, or Northern Ireland, are accredited by the HCPC and covered by the document included in this analysis
- 2) the HCPC document included in the analysis applies not only to social work, but may also inform the practice of librarians with liaison responsibilities for 15 other health professions in the UK
- 3) Programmes are subject to a thorough initial review, after which open-ended approval is granted, subject to annual monitoring. This is different from other, cyclical processes, which may provide more opportunity for librarian intervention.

The content analysis began with a general review of the accreditation documents to search for the term "information literacy," and to identify other terms used to describe the broad spectrum of information use skills. The purpose was to identify terms used in the documents to describe this concept, as well as to note variations in terms used among the professions and in different countries. After broad terms used to describe information use skills were identified, the focus shifted from this macro-level analysis to a more nuanced, qualitative content analysis in which "the researcher looks at documents more holistically" and "analyzes meanings of words and phrases" (Saunders 2011, p. 75). The approach selected was "deductive category application," wherein, "categories are predetermined along with clear definitions" (Saunders 2011, p. 75). In this case, the five standards outlined in the ACRL *Information Literacy Competency Standards for Higher Education* provided the categories by which the accreditation documents were analysed. Each accreditation document was carefully studied and passages dealing with information skills were mapped to the relevant categories.

4. Results

Considerable differences in terminology used to describe information use and associated skills emerged between the ACRL standards and the various programmatic accreditation documents under review. Obviously, ACRL's use of the term "information literacy" is familiar to librarians worldwide, regardless of whether they are guided by the US standards (Association of College and Research Libraries 2000), the UK's *SCONUL Seven Pillars of Information Literacy* (SCONUL Working Group on Information Literacy 2011), or the *Australian and New Zealand Information Literacy (ANZIL) Framework* (Bundy 2004). This term, however, has not penetrated the accreditation criteria in the professions under review and so may be meaningless to academics concerned with accreditation, even though they may well value some of the same skills, albeit under different names. Only the US nursing accreditation document mentions the term "information literacy" and then only in the context of a competency required of programme evaluators (p. 23) and an attribute essential for graduate nursing students (p. 72); it is not used in the context of undergraduate nursing requirements.

Review of the accreditation documents reveals that terminology differs even within the professions themselves. The Australian nursing document, for example, uses the term “nursing inquiry” to capture the concept of using multiple sources to investigate and solve a problem. The UK nursing accreditation document instead refers over two dozen times to various permutations of “evidence” and “evidence-based nursing,” a term which is used to describe practice based on high-quality, relevant research. Preference for the term “evidence” is also found in the Canadian and US nursing accreditation documents, although to a lesser degree. The social work accreditation criteria also refer, although more sporadically, to the importance of basing practice on “evidence,” particularly in the US and Australian documents. Interspersed with use of this term is frequent mention of the importance of facility in using “research” in practice, often “research-based knowledge” in the US accreditation document, “social work research” in the Canadian, and simply “research” in the Australian.

Although not using the term “information literacy” to refer to the skills so described by librarians, the engineering documents do rely much more heavily on the term “information” than do the nursing and social work accreditation documents. In fact, the language used in engineering accreditation criteria are perhaps the most similar of all the fields studied to those used in the ACRL *Information Literacy Competency Standards for Higher Education*. In addition to “information,” the documents refer to “sources,” “technical literature,” and “materials and resources,” among others. Thus, while the absence of the blanket term “information literacy” from the engineering documents may leave faculty questioning its relevance to their work, delving directly into the accreditation criteria reveals great similarity of language and intent.

The accreditation documents almost unanimously refer, often repeatedly, to the importance of recognising the need for and pursuing lifelong learning and continuing professional development. These references suggest that it is important to have the skills and abilities to continue learning throughout one’s professional life, but that the drive and penchant for such learning must also be fostered in students. Although the ACRL *Information Literacy Competency Standards for Higher Education* address lifelong learning in the preamble: “Information literacy is a key component of, and contributor to, lifelong learning,” neither the phrase “lifelong learning” nor the concept itself are present in the five standards, which are by far the most widely read and referenced portion of the document. The ACRL standards, and in fact the broader library profession, view IL as essential to lifelong learning, but the five standards themselves do not make this connection. It seems that, with this version of the standards, it is up to individual librarians to reiterate to faculty the centrality of IL to the lifelong learning required by their professional accreditation documents.

4.1. Standard 1: Determines the nature and extent of the information needed

ACRL’s first IL competency requires that students possess the ability to identify and formulate their information need. Some of the accreditation documents reviewed address this fundamental skill in terms similar to that found in the ACRL standards. Engineering, in all of the countries under review, specifically requires students to “identify,” (Canada, US, UK), “formulate,” (Canada and US) or “frame” (UK) research questions and resulting information needs. The nursing and social work accreditation documents are much less precise in this regard, with two of the nursing documents (Australia and UK) requiring that students appreciate the value of research, without further elaboration. It is not surprising that, of those accreditation documents that do address this IL competency, the vast majority focus on the first performance indicator which, with its emphasis on defining and articulating the information need, is at the core of this competency standard. Three accreditation documents (Australian and UK engineering, and UK nursing) extend their requirements to include performance indicator two, which requires the ability to recognise the range and attributes of information sources. The final two performance indicators related to this standard are largely ignored by the accreditation requirements.

Table 2. Standard 1: Determines the nature and extent of the information needed

	Canada	United States	United Kingdom	Australia
Social Work		<p>“use practice experience to inform scientific inquiry” (p.5)</p> <p>“using research” (p.7)</p>		<p>“seek out relevant research” (p. 54)</p> <p>“seek ... current evidence” (64)</p>
Nursing			<p>“appreciate the value of evidence in practice” (p.14; p.23; p 32; p.41)</p> <p>“Actively seeks to extend knowledge and skills” (p.115)</p> <p>“use a range of information and data” (p.18; p.28; p.36; p.45)</p> <p>“identify areas for further investigation” (p.14; p.23; p.32; p.41)</p>	<p>“nursing inquiry” (p. 13; p.20)</p> <p>“students develop the skills themselves to understand the value of research” (p.20)</p>
Engineering	<p>“ability to use appropriate knowledge and skills to identify, formulate . . . complex engineering problems” (3.1.2)</p>	<p>“an ability to identify, formulate, and solve engineering problems” (Criteria 3e)</p>	<p>“Investigate and define a problem” (p.14)</p> <p>“frame appropriate questions” (p. 22)</p> <p>“Use their knowledge, understanding and skills, in both identifying and analysing problems and issues” (p.26)</p> <p>“Identify and address their own learning needs” (p.26)</p>	<p>“demonstrating a sense of the physical and intellectual dimensions of projects and programs, and related information requirements” (3.2.4.3)</p> <p>“recognising personal limits to knowledge and competence and ... undertaking research to supplement knowledge and experience” (3.2.4.3)</p> <p>“Graduates should have knowledge of materials and resources relevant to the field of practice, and their main properties” (3.2.4.2)</p>

Table 2 (contd). Standard 1: Determines the nature and extent of the information needed

	Canada	United States	United Kingdom	Australia
Engineering (contd)			<p>“understanding use of technical literature and other information sources” (p.15)</p> <p>“deploy accurately established techniques of ... inquiry within a discipline” (p.22)</p> <p>“able to draw on a range of current research, development and professional materials” (p.26)</p>	<p>“seeking information from the widest practicable range of sources” (3.2.4.3)</p>

4.2. Standard 2: Accesses needed information effectively and efficiently

ACRL’s second IL competency is perhaps the one that is most heavily emphasised by librarians and their instruction programmes around the world. Its focus on accessing needed information effectively and efficiently arises directly from bibliographic instruction traditions of the past, and it continues to drive much library instruction today. It is interesting to note, then, that the competencies outlined by this standard are scarcely addressed by nursing and social work accreditation requirements, with only one document in each profession (US social work and UK nursing) making mention of these traditional search and retrieval skills. It is indeed curious that documents relying heavily on “evidence” do not devote more attention to searching for and retrieving the evidence on which to base practice. One reason may be that some definitions of evidence-based practice include the search for evidence as an essential component of the term. For example, Sackett et al’s widely cited definition of evidence-based practice presumes that location and use of the best available research is a constituent element of the term, writing that it “involves tracking down the best external evidence with which to answer our clinical questions” (Sackett et al. 1996, p. 72). If accessing the best evidence is in fact considered as a component of the definition of evidence-based practice, it seems that the competencies outlined by librarians in the IL competency standards and those required by the nursing and social work accreditation bodies share overlapping concerns and similar aspirations for student skill development, but are articulating these quite differently within the language and context of their disciplines.

Each of the engineering accreditation documents, by contrast, addresses the second IL competency standard directly. Performance indicator one, which emphasises the ability to discriminate among multiple potential sources of information, is required by all but the Canadian accreditation document. Performance indicators two (developing a search strategy) and three (retrieving required information) are each addressed by two of the national engineering accreditation criteria documents. The relative congruence between the second IL competency standard and the engineering accreditation documents may in part be due to the problem-solving bent of the engineering documents in general. The engineering accreditation documents are very outcomes-based, and focus broadly on all the skills and resources that students will need to solve engineering problems, which quite neatly includes information use and associated skills, even in

instances where these are not expressly singled out from other engineering problem-solving techniques.

Table 3. Standard 2: Accesses needed information effectively and efficiently

	Canada	United States	United Kingdom	Australia
Social Work		<p>“distinguish ... multiple sources of knowledge, including research-based knowledge” (p.4)</p> <p>“continuously discover ... changing ... scientific and technological developments, and emerging societal trends” (p.6)</p> <p>“identifying ... evidence-based interventions” (p.7)</p>		
Nursing			<p>“Accesses commonly used evidence based sources” (p.142)</p>	
Engineering	<p>“an ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern engineering tools to a range of engineering activities, from simple to complex, with an understanding of the associated limitations” (3.1.5)</p>	<p>“an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice” (Criteria 3k)</p>	<p>“an ability to deploy accurate established techniques of ... enquiry within a discipline” (p.22)</p> <p>“information retrieval skills” (p.12)</p> <p>“Obtain well developed skills for the gathering ... of information, ideas, concepts and quantitative and/or qualitative data, drawing on a wide range of current sources.” (p.27)</p>	<p>“Graduates should have ... the ability to select appropriate materials and techniques for particular objectives” (3.2.4.2)</p> <p>“Developing competence in ... seeking advice from appropriate sources” (3.2.4.4)</p> <p>“skills in the selection and application of appropriate engineering resources, tools and techniques” (3.2.4.5)</p>

Table 3 (contd). Standard 2: Accesses needed information effectively and efficiently

	Canada	United States	United Kingdom	Australia
Engineering (contd)				<p>“Partitioning a problem, process, or system into manageable elements and recombining to form the whole.” (3.2.4.4)</p> <p>“ability to systematically and effectively source ... relevant information” (3.2.4.3)</p> <p>“skills in the ... management and control of documents” (3.2.4.3)</p>

4.3. Standard 3: Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system

ACRL’s third IL competency standard, which focuses on the critical evaluation of information and its sources and the incorporation of new information into the personal knowledge base, is addressed by many of the accreditation documents across professions. Performance indicator two, which requires that students articulate and apply initial criteria for evaluation, encompasses the skills most frequently required by accreditation documents. Interestingly, the use of terminology varies significantly by profession. Perhaps unsurprisingly, nursing uses the term “appraise” to describe this critical evaluation of information, a term commonly used in the evidence-based practice framework omnipresent in the nursing accreditation documents as a whole. The US social work document, which also makes frequent mention of “evidence,” also uses the term “appraise.” “Critique,” “analyze,” and “think critically” also appear in the social work accreditation documents, although none use the term “evaluate,” as is found in the ACRL standards.

Interestingly, only the UK and Australian engineering accreditation documents connect with IL competency standard three in a comprehensive way. These two documents each include references to the majority of the abilities outlined in the seven performance indicators associated with this standard, and in several instances make multiple references. The terms used in these accreditation documents are quite varied, but include many uses of “evaluate” and its derivatives, again aligning quite closely to the ACRL IL competency standard. Some of the statements in the engineering accreditation documents demand sophisticated information skills from their students, such as the UK’s requirement to “Show an awareness of the provisional nature of knowledge” (p. 26) and Australia’s desire for a “commitment to the importance of being part of a professional and intellectual community: learning from its knowledge and standards, and contributing to their maintenance and advancement” (3.2.4.3).

Table 4. Standard 3: Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system

	Canada	United States	United Kingdom	Australia
Social Work	<p>“social work students acquire knowledge and skills to critique ... social work research” (6.1)</p>	<p>“comprehend quantitative and qualitative research” (2.1.6)</p> <p>“appraise ... multiple sources of knowledge, including research-based knowledge” (p.5)</p> <p>“critique ... knowledge to understand person and environment” (p.6)</p> <p>“continuously ... appraise ... scientific and technological developments and emerging societal trends” (p.6)</p> <p>“analyzing ... evidence-based interventions” (p.7)</p>		<p>“think critically ... identifying the knowledge used” (p. 64)</p>
Nursing	<p>“Learners acquire and apply critical appraisal skills related to evidence from a variety of sources” (Knowledge-based Practice)</p> <p>“Learners further develop and enhance creative and critical reasoning, thinking, reflective repertoires” (Knowledge-based Practice)</p>		<p>“be able to understand ... research” (p.14; p. 23; p. 32; p. 41)</p> <p>“be able to ... appraise research” (p.14; p.23; p.32; p.41)</p>	

Table 4 (contd). Standard 3: Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system

	Canada	United States	United Kingdom	Australia
Engineering	<p>“synthesis of information in order to reach valid conclusions” (3.1.3)</p>		<p>“describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline” (p.22)</p> <p>“Awareness of quality issues” (p.15)</p> <p>“critically evaluate arguments, assumptions, abstract concepts and data” (p.22)</p> <p>“evaluating ... evidence-based solutions and arguments” (p. 26)</p> <p>“Obtain well developed skills for the... evaluation, analysis ... of information, ideas, concepts and quantitative and/or qualitative data, drawing on a wide range of current sources.” (p.27)</p>	<p>“developing a propensity to ... comprehend ... new information” (3.2.4.3)</p> <p>“ability to systematically and effectively . . analyse, evaluate ... relevant information” (3.2.4.3)</p> <p>“an ability to assess the accuracy, reliability and authenticity of information” (3.2.4.3)</p> <p>“Graduates should have an ability to ... recognise results, calculations or proposals that may be ill-founded, identify the underlying source and nature of the problem” (3.2.4.2)</p> <p>“Skills in perceiving possible sources of error, eliminating or compensating for them where possible, and quantifying their significance to the conclusions drawn” (3.2.4.5)</p>

Table 4 (contd). Standard 3: Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system

	Canada	United States	United Kingdom	Australia
Engineering (contd)			<p>“Show an awareness of the provisional nature of knowledge” (p.26)</p> <p>“evaluate evidence, arguments and assumptions, to research sound judgements” (p.23)</p> <p>“applying evidence-based solutions and arguments” (p.26)</p>	<p>“commitment to the importance of being part of a professional and intellectual community: learning from its knowledge and standards, and contributing to their maintenance and advancement.” (3.2.4.3)</p> <p>“Conceptualise, defining and evaluating possible alternative solution strategies.” (3.2.4.4)</p>

4.4. Standard 4: Individually or as a member of a group, uses information effectively to accomplish a specific purpose

The fourth IL competency, using information to effectively to accomplish a specific purpose, is perhaps where the greatest discrepancy but most easily reparable differences emerge between the ACRL standards and the accreditation requirements of the three professions under consideration. The language of the ACRL standard itself (“specific purpose”) is all-encompassing, but the specificity of the performance indicators is problematic. Performance indicator one states that the student “applies new and prior information to the planning and creation of a *particular product or performance*” (emphasis added). Limiting the meaningful use of information to the “products” and “performances” which are the traditional outputs of academia is problematic. The professional accreditation standards, particularly in social work and nursing, reflect other outputs or results from information gathering and use that are more commonly experienced by the working professional. “Decision-making,” and “professional practice” are repeatedly evoked in the accreditation documents as common purposes of information use; “policy development” and “service provision” are also mentioned as outcomes arising from information use. There are many connections to be made between ACRL standard four and the accreditation documents when the broad “purposes” invoked in the standard itself are used, rather than the unnecessarily restrictive performance indicators (see Table 5). Librarians striving to connect with faculty and articulate the contributions that they can make to meeting accreditation criteria would be well-advised to highlight the broader standard in this case in order to best demonstrate the relevance of their contributions to information use.

The engineering accreditation documents fit more neatly with IL competency four not because the use of information in the profession necessarily falls into the categories of “product or performance” specified in the performance indicator, but because engineering leaves the purpose of information use wide open by making only general statements about applying information. The engineering accreditation documents of all four countries also emphasise skills included in performance indicator three, which is the ability to communicate the product or performance to others. It is

interesting that written and oral communication to various audiences, as expressed in the IL competency standards, receives so much attention in the engineering documents but none in social and health care. This again may result from the emphasis on traditional academic outputs implicit in the ACRL document; when information is used for decision-making and support for professional practice in the health and social care professions, communication would likely consist of patient relations and counselling rather than traditional academic performances and products. Again, standard four is most consistent with the aims of the nursing and social work accreditation documents if it is broadly conceived; librarians will need to keep this in mind when making connections between their work and accreditation in these subject areas.

Table 5. Standard 4: Individually or as a member of a group, uses information effectively to accomplish a specific purpose

	Canada	United States	United Kingdom	Australia
Social Work	<p>“social work students acquire knowledge and skills to ... apply, or participate in social work research” (6.1)</p> <p>“apply social work knowledge, as well as knowledge from other disciplines, to advance professional practice, policy development, research, and service provision” (6.2)</p>	<p>“integrate multiple sources of knowledge, including research-based knowledge” (p.4)</p> <p>“employ evidence-based interventions ... and use research findings to improve policy, practice, and social service delivery“ (p.5)</p> <p>“use research evidence to inform practice” (p.7)</p> <p>“implementing evidence-based interventions” (p.7)</p> <p>“research informed practice” (p.8)</p> <p>“evidence-informed practice” (p.9)</p>	<p>“encourage evidence-based practice” (4.7)</p>	<p>“knowledge-based practitioners” (p.8)</p> <p>“utilise research in practice” (p.10)</p> <p>“research- and evidence-informed” (p.60)</p> <p>“utilise current evidence” (p.64)</p> <p>“disseminate findings” (p.10)</p>

Table 5 (contd). Standard 4: Individually or as a member of a group, uses information effectively to accomplish a specific purpose

	Canada	United States	United Kingdom	Australia
Nursing	<p>“evidence-based decision making” (Information Management Systems)</p> <p>“evidence-informed decision making” (Information Management Systems)</p> <p>“The use of data and information are evident in the policies, processes and practices of the educational unit consistent with a learning-centred organization” (Information Management Systems)</p> <p>“Knowledge based practice” (Scholarship)</p> <p>“Learners apply knowledge from nursing and related fields” (Knowledge-based Practice)</p>	<p>“evidence-based practice” (p. 76)</p>	<p>“use ... evidence in decision-making” (p 5)</p> <p>“evidence-based nursing practice” (p.5)</p> <p>“All nurses must apply knowledge and skills based on the best available evidence” (p.12)</p> <p>“evidence-based nursing” (p.13)</p> <p>“apply ... research findings to their work” (p 14; p 23; p 32; p.41)</p> <p>“All practice should be informed by the best available evidence” (p 17; p.26; p.35; p.44)</p> <p>“evidence-based judgements and decisions” (p.17; p.28; p.36; p.44)</p> <p>“evidence-based nursing” (p.22; p.31; p.40)</p>	<p>“students develop the skills themselves to ... apply it [research] to their practice.” (p.20)</p> <p>“students develop an understanding of all aspects of nursing inquiry and skills in applying research to their practice” (p.20)</p>

Table 5 (contd). Standard 4: Individually or as a member of a group, uses information effectively to accomplish a specific purpose

	Canada	United States	United Kingdom	Australia
Nursing (contd)			<p>“must use up-to-date knowledge and evidence to assess, plan, deliver and evaluate care” (p 26; p.44)</p> <p>“evidence-based individual and group psychological and psychosocial interventions” (p.28)</p> <p>“use evidence-based models” (p.28)</p> <p>“use data and research findings” (p.38)</p> <p>“apply research based evidence to practice” (p.90)</p> <p>“Bases decisions on evidence” (p.120)</p> <p>“uses evidence to support an argument” (p.136)</p>	

Table 5 (contd). Standard 4: Individually or as a member of a group, uses information effectively to accomplish a specific purpose

	Canada	United States	United Kingdom	Australia
Engineering	<p>“An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation” (3.1.7)</p>	<p>“an ability to communicate effectively” (Criteria 3g)</p>	<p>“ability to use and apply information from the technical literature” (p.19)</p> <p>“ability to ... make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to the discipline” (p.22)</p> <p>“to devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of a discipline” (p.22)</p> <p>“Obtain well developed skills for the ... presentation of information, ideas, concepts and quantitative and/or qualitative data, drawing on a wide range of current sources” (p.27)</p> <p>“communicate information, ideas, problems and solutions to both specialist and non-specialist audiences” (p.22)</p>	<p>“developing a propensity to ... apply new information” (3.2.4.3)</p> <p>“Advanced knowledge and capability development in one or more specialist areas should be achieved through in-depth engagement with the specific body of knowledge” (3.2.4.2)</p> <p>““Ability to communicate with the engineering team and the community at large and evidenced by: ... an ability to make oral and written presentations to technical and non-technical audiences; · a capacity to ... disseminate information; · effective discussion, debating and argument presentation skills” (3.2.4.3).</p> <p>“fluency in the use of computer based communication and document preparation tools” (3.2.4.3)</p> <p>“skills in the creation ... of documents” (3.2.4.3)</p>

Table 5 (contd). Standard 4: Individually or as a member of a group, uses information effectively to accomplish a specific purpose

	Canada	United States	United Kingdom	Australia
Engineering (contd)			“Communicate the results of their studies and other work accurately and reliably in a range of different contexts” (p 26)	“skills in the preparation of progress reports, project reports, reports of investigations, proposals, designs, briefs and technical directions” (3.2.4.3)

4.5. Standard 5: Understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally

It is indeed surprising that the skills covered by the fifth ACRL IL competency standard, which focuses on the ethical and legal use of information, receives little attention in the accreditation documents, particularly those of nursing and social work. The Canadian social work accreditation criteria does mention the need to take care with privacy and confidentiality issues when using social media, but only in the context of the need for academic department policy development, not as a student learning outcome. All of the engineering accreditation documents address ethical issues broadly which, while certainly including the requirements outlined in IL competency standard five, do not single out the information use components of ethical behaviour. The relative silence of these accreditation documents in highlighting ethical information use is curious, given increasing reports of student and professional plagiarism and misconduct. It will be interesting to see if these aspects of ethical conduct find their way into future versions of the accreditation documents, and what role librarians might play in advocating for their inclusion and in ensuring that they are met during accreditation.

Table 6. Standard 5: Understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally

	Canada	United States	United Kingdom	Australia
Social Work	<p>“the academic unit has a policy regarding ethical use of all forms of social media” (2.4.6)</p> <p>“Contracting with settings regarding the use of process recordings, audio and videotapes and social media, and clearly identifying ownership of such material.” (3.2.9)</p>			
Nursing				<p>“develop an understanding of the ethics of research and of applying research to practice” (p.20)</p>
Engineering	<p>“An ability to apply professional ethics, accountability, and equity” (3.1.10)</p>	<p>“an understanding of professional and ethical responsibility” (Criteria 3f)</p>	<p>“Understanding of the need for a high level of professional and ethical conduct in engineering” (p.14)</p> <p>“awareness of the nature of intellectual property” (p.15)</p>	<p>“Understanding of and commitment to ethical and professional responsibilities” (3.2.4.3)</p>

5. Discussion

Overall, it is clear that the accreditation standards emerging from the UK and Australia pay most heed to the importance of information use skill development and align most closely with the priorities outlined in the ACRL *Information Literacy Competency Standards for Higher Education*. It is difficult to know exactly why the accreditation documents issued in these countries have incorporated IL considerations so effectively, as opposed to those in Canada and the US. Part of the explanation, at least with respect to Canada, may be that that country lacks its own IL standards/guidelines, whereas each of the other three countries does have a national document. It may be that IL achieves a higher profile in countries where the profession has developed and promoted its own set of IL standards. This, however, does not explain why the *ACRL Information Literacy Competency Standards for Higher Education* (highly influential around the world and

produced in a country with which Canada has close relations) haven't been incorporated more wholly into Canadian accreditation processes.

Another contributing factor to differences between countries may be the comprehensive system of institutional accreditation that is in place in some of the nations under review, but non-existent in others. The Australian nursing accreditation document, for example, requires that institutional quality criteria be met by institutions offering a nursing programme: "Current quality assurance and accreditation in the relevant education sector in Australia—Bachelor degree in nursing courses must show evidence of Australian university quality assurance and accreditation" (p. 6). This may mean that some of the generic information competencies are addressed in other documents outlining criteria to which all bachelor's degrees are subjected. This may well be the case in the US, where several of the six regional accreditation criteria documents for institutions include IL, with the Middle States Commission on Higher Education (2006) even adopting the five ACRL standards in its document. Inclusion of IL competencies in programmatic accreditation criteria could be viewed as redundant in these instances, given that most nursing, social work, and engineering programmes are offered by institutions that have already secured institutional accreditation.

Ultimately, further study is warranted to determine why IL competencies have been more successfully integrated into accreditation requirements for professional programmes in Australia and the UK when compared to Canada and the US, and whether the robustness of IL programmes is impacted by these differences in programmatic accreditation criteria. Future research should also consider other disciplines and other countries, and include accreditation criteria in other languages. The composition of committees developing accreditation criteria should be analysed to determine if librarians have been (or more importantly, could be in the future) contributing members to programmatic accreditation documents. Additionally, analysis of self-study documents prepared by programmes prior to accreditation may provide further insight into whether and how IL is represented by institutions when going through the accreditation process; a methodology similar to that used in Saunders' 2011 analysis of self-study documents prepared for institutional accreditation processes in the US might serve as a model for such a study. Finally, it would be useful for practicing librarians everywhere to read about the experiences of librarians who have attempted (whether successfully or not) to realise the potential for IL programme development presented by programmatic accreditation guidelines.

6. Conclusion

Representation of IL in programmatic accreditation processes is an understudied topic that has the potential to have a significant impact on the uptake and success of campus IL initiatives. Accreditation is very important to university faculty and administrators, and provides a prime opportunity for librarians to showcase their value by directly contributing to a successful accreditation outcome. Librarians should familiarise themselves with accreditation bodies and standards for their liaison areas, and become active partners in the accreditation process for the departments with which they have liaison responsibilities. They are encouraged to approach academic departments to offer support and assistance with the accreditation process, using the language of the accreditation standards themselves when doing so. They must make explicit connections between their skills/services and the requirements of the accreditation process. The traditional written "size of the collection" report no longer constitutes a sufficient library contribution to an accreditation review; librarians must follow the changing demands of accreditation processes by demonstrating how they contribute to student learning outcomes and graduate competencies. Nor is it sufficient to limit conversations about library contributions to accreditation to the preparation period for a specific visit. Librarians should be engaging in conversations with faculty on an ongoing basis about how further development of IL programmes will better position the academic department with respect to accreditation. Librarians should also be documenting and assessing their IL efforts on an ongoing basis, and continually reporting achievement of student outcomes to faculty members and administrators.

Over the longer term, subject liaisons and special librarians and their professional associations should explore opportunities to become more involved with the development/revision of relevant sections of the accreditation standards to include IL-related outcomes, even if these are documented in the preferred terms of the profession rather than those used by librarians. It is important, though, that IL expectations are articulated within the primary accreditation criteria, rather than in supplementary documents that are more easily overlooked. An even bolder step in developing a truly collaborative approach to IL would involve including non-librarian academics and professionals in future revisions of librarianship's IL-related standards. This has the potential to strengthen relationships not only between academic librarians and teaching faculty/academic departments, but also to have a lasting impact on post-student professionals, allowing them to see greater connections between their information needs as working professionals and the libraries (whether public, special, or academic) in their lives.

Resources

Documents used for content analysis:

Engineering

Canadian Engineering Accreditation Board. 2011. *Accreditation criteria and procedures* [Online]. Ottawa: Canadian Council of Professional Engineers. Available at: http://www.engineerscanada.ca/files/w_Accreditation_Criteria_Procedures_2011.pdf [Accessed: 10 December 2012].

Engineering Accreditation Commission. Accreditation Board for Engineering and Technology. 2011. *Criteria for accrediting engineering programs: effective for reviews during the 2012-2013 accreditation cycle* [Online]. Baltimore, MD: Accreditation Board for Engineering and Technology. Available at: http://www.abet.org/uploadedFiles/Accreditation/Accreditation_Process/Accreditation_Documents/Current/eac-criteria-2012-2013.pdf [Accessed: 10 December 2012].

Engineering Council. 2010. *The accreditation of higher education programmes: UK standard for professional engineering competence* [Online]. London: Engineering Council. Available at: <http://www.engc.org.uk/ecukdocuments/internet/document%20library/AHEP%20Brochure.pdf> [Accessed: 10 December 2012].

Engineers Australia. Accreditation Board. 2008. *Accreditation criteria guidelines* [Online]. Barton, Australia: Engineers Australia. Available at: <http://www.engineersaustralia.org.au/sites/default/files/shado/Education/Program%20Accreditation/AMS%20Professional%20Engineer/G02%20Accreditation%20Criteria%20Guidelines.pdf> [Accessed: 10 December 2012].

Nursing

Australian Nursing and Midwifery Council. 2009. *Registered nurses: standards and criteria for the accreditation of nursing and midwifery courses leading to registration, enrolment, endorsement and authorisation in Australia—with evidence guide* [Online]. Dickson, ACT: Australian Nursing and Midwifery Council. Available at: http://www.anmac.org.au/sites/default/files/documents/ANMC%20Accreditation%20standards%20-%20Registered%20Nurse%202009_0.pdf [Accessed: 10 December 2012].

Canadian Association of Schools of Nursing. n.d. *Accreditation program information* [Online]. Ottawa, ON: Canadian Association of Schools of Nursing. Available at: http://www.casn.ca/en/AccreditationProgramInformation_62/ [Accessed: 10 December 2012].

National League for Nursing Accrediting Commission, Inc. 2012. *NLNAC accreditation manual including the 2008 standards and criteria* [Online]. Atlanta, Georgia: National League for Nursing Accreditation Commission, Inc. Available at: <http://www.nlnac.org/manuals/NLNACManual2008.pdf> [Accessed: 10 December 2012].

Nursing & Midwifery Council. 2010. *Standards for pre-registration nursing education* [Online]. London: Nursing & Midwifery Council. Available at: <http://standards.nmc-uk.org/PublishedDocuments/Standards%20for%20pre-registration%20nursing%20education%2016082010.pdf> [Accessed: 10 December 2012].

Social Work

Australian Association of Social Workers. 2012. *Australian social work education and accreditation standards* [Online]. Canberra, ACT: Australian Association of Social Workers. Available at: <http://www.aasw.asn.au/document/item/100> [Accessed: 10 December 2012].

Canadian Association for Social Work Education. 2012. *Standards for accreditation* [Online]. Ottawa, ON: Canadian Association for Social Work Education. Available at: <http://www.caswe-acfts.ca/vm/newvisual/attachments/866/Media/CASWEStandardsAccreditation2012.pdf> [Accessed: 10 December 2012].

Council on Social Work Education. 2012. *Educational policy and accreditation standards* [Online]. Alexandria, VA: Council on Social Work Education. Available at: <http://www.cswe.org/File.aspx?id=41861> [Accessed: 10 December 2012].

Health & Care Professions Council. 2009. *Standards of education and training* [Online]. London: Health and Care Professions Council. Available at: <http://www.hpc-uk.org/assets/documents/1000295EStandardseducationandtraining-fromSeptember2009.pdf> [Accessed: 10 December 2012].

References

American Library Association/Association of College and Research Libraries/Science and Technology Section Task Force on Information Literacy for Science and Technology. 2006. *Information literacy standards for science and engineering/technology* [Online]. Chicago: Association of College and Research Libraries. Available at: <http://www.ala.org/acrl/standards/infolitscitech> [Accessed: 10 December 2012].

Association of College and Research Libraries. 2000. *Information literacy competency standards for higher education* [Online]. Chicago: Association of College and Research Libraries. Available at <http://www.acrl.org/ala/mgrps/divs/acrl/standards/standards.pdf> [Accessed: 10 December 2012].

Bundy, A., ed. 2004. *Australian and New Zealand information literacy framework*, 2nd ed. [Online]. Adelaide: Australian and New Zealand Institute for Information Literacy. Available at: <http://www.library.unisa.edu.au/learn/infolit/Infolit-2nd-edition.pdf> [Accessed: 10 December 2012].

Dalrymple, P. W. 2001. Understanding accreditation: the librarian's role in educational evaluation. *portal: Libraries and the Academy* 1(1), pp. 23-32. <http://dx.doi.org/10.1353/pla.2001.0004>

Gratch-Lindauer, B. 2002. Comparing the regional accreditation standards: outcomes assessment and other trends. *Journal of Academic Librarianship* 28 (1-2), pp. 14-25. Available at: [http://dx.doi.org/10.1016/S0099-1333\(01\)00280-4](http://dx.doi.org/10.1016/S0099-1333(01)00280-4)

Middle States Commission on Higher Education. 2006. *Characteristics of excellence in higher education: requirements of affiliation and standards for accreditation*. 12th ed. [Online]. Philadelphia, PA: Middle States Commission on Higher Education. Available at: <http://www.msche.org/publications/CHX-2011-WEB.pdf> [Accessed: 10 December 2012].

Milne, C., and Thomas, J. A. 2008. Are your foundations sound? Information literacy and the building of holistic professional practitioners [Online]. In: *19th annual conference for the Australasian Association for Engineering Education: to industry and beyond*. Yeppoon, Queensland, 7-10 December, 2008. Available at: <http://eprints.qut.edu.au/16899/1/16899.pdf> [Accessed: 10 December 2012].

- Murphy, S., and Saleh, N. 2009. Information literacy in CEAB's accreditation criteria: the hidden attribute [Online]. In: *Proceedings of the Canadian Engineering Education Association*. Hamilton, Ontario, 27-29 July, 2009. Available at: <http://library.queensu.ca/ojs/index.php/PCEEA/article/view/3681> [Accessed: 10 December 2012].
- Oxnam, M. 2003. The informed engineer. In: *Proceedings - 33rd ASEE/IEEE frontiers in education conference*. Boulder, Colorado, 5-8 November, 2003. Boulder, CO: IEEE, pp. FIE5-FIE8.
- Royal College of Nursing. 2011. *RCN competencies: finding, using and managing information: nursing, midwifery, health and social care competencies*. London: Royal College of Nursing. Available at: http://www.rcn.org.uk/_data/assets/pdf_file/0007/357019/003847.pdf [Accessed: 19 Feb. 2013].
- Ruediger, C., and Jung, D. 2007. When it all comes together: integrating information literacy and discipline-based accreditation standards. *College and Undergraduate Libraries*, 14(1), pp. 79-87. Available at: http://dx.doi.org/10.1300/J106v14n01_06
- Sackett, D. L. et al. 1996. Evidence based medicine: what it is and what it isn't. *BMJ* 312, pp. 71-72. Available at: <http://dx.doi.org/10.1136/bmj.312.7023.71>
- Saunders, L. 2007. Regional accreditation organizations' treatment of information literacy: definitions, outcomes, and assessment. *Journal of Academic Librarianship* 33(3), pp. 317-26. Available at: <http://dx.doi.org/10.1016/j.acalib.2007.01.009>
- Saunders, L. 2008. Perspectives on accreditation and information literacy as reflected in the literature of library and information science. *Journal of Academic Librarianship* 34(4), pp. 305-313. Available at: <http://dx.doi.org/10.1016/j.acalib.2008.05.003>
- Saunders, L. 2011. *Information literacy as a student learning outcome: the perspective of institutional accreditation*. Denver, CO: Libraries Unlimited.
- SCONUL Working Group on Information Literacy. 2011. *The SCONUL seven pillars of information literacy: core model* [Online]. Available at: http://www.sconul.ac.uk/groups/information_literacy/publications/coremodel.pdf [Accessed: 10 December 2012].
- Smith, K.R. 2002. New roles and responsibilities for the university library. *Journal of Library Administration* 35(4), pp. 29-36. Available at: http://dx.doi.org/10.1300/J111v35n04_07