

ARE THEY READY? EXPLORING STUDENT INFORMATION LITERACY SKILLS IN THE TRANSITION FROM SECONDARY TO TERTIARY EDUCATION

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How information literate are the Google generation, and what information literacy skills do they bring to university? For university libraries, understanding student prior knowledge provides a foundation on which to introduce appropriate learning activities during the first year. In 2009, in response to a new pedagogical model in health sciences, La Trobe University Library measured and analysed the entry-level information literacy skills of first year health science students. The data was gathered during the first week of semester and 1,029 responses were collected. This paper examines the results of the survey and its implications for programs that broaden and build on students' existing knowledge base.

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How information literate are first year students, and what information literacy skills do they bring to university? In the university environment, information literacy is like other fundamental capabilities that support learning and need to be developed early in the first year of study. Information literacy and learning are intertwined. In general, awareness of how to find and use information facilitates learning in the tertiary environment (Lupton, 2008). More specifically, information literacy is a threshold concept that is critical to learning about research and the research process. In order to succeed, students need to grasp and assimilate an understanding of information literacy: both

the lower order skills needed to find and access resources, and the higher order thinking required to use and evaluate information.

Students come to university with “a range of prior knowledge, skills, beliefs and concepts that significantly influence what they notice about the environment and how they organize and interpret it” (Bransford 2000: 10). Just as new knowledge is constructed from existing knowledge, new understandings of scholarly information and research are influenced by prior experience of finding and using information. However, when it comes to information literacy, it is generally accepted by academic librarians that the information skills of incoming first year students are limited in terms of expected capabilities for university research (Ellis & Salisbury, 2004; Guise, Goosney, Gordon & Pretty, 2007; Hufford, 2010; Mittermeyer, 2005; Rowlands, 2008; Russell, 2009 and Hartmann 2001). While it is not surprising, nor should it be expected, that commencing students are ready and equipped for discovering and using scholarly information, it should also not be assumed that this lack of readiness and awareness means students are information illiterate.

Academic librarians need to recognise that building research skills doesn't necessarily always begin in the first year. Existing skills represent a milestone along the lifelong information literacy learning continuum and provide a starting point for building and refining existing skills to suit the university environment. Understanding prior knowledge has the potential to shift our perspective of first year students as having limited skills (and need to learn everything from scratch) to a perception that incoming students have a degree of information literacy which includes a range of skills that can be harnessed and extended to embrace scholarly literacy. It opens up possibilities to improve learning activities so that they are more relevant to students' existing skill set and more likely to support students in their trajectories from peripheral to more engaged participation in learning about university research.

This paper examines the findings from a survey of the entry-level information literacy skills of first year health sciences students. It is a step towards understanding the prior information literacy knowledge of first year students at La Trobe University, and has broader implications for how we understand readiness for library research as well as for the future development of information literacy programs.

LITERATURE REVIEW

Understanding prior knowledge

If information skills are the building blocks that make information literacy possible (Bruce, 2008: 184), then, likewise, information literacy is the threshold concept that needs to be in place if new students are to engage with scholarly information and research. First year students are like “immigrants to a new country” (Orme, 2008: 69), and they need to build a cultural understanding of the central role that scholarly information plays in the academic community. While they are generally not aware of the information skills needed in a university environment, they are

not without experience and have well established information seeking behaviours that are relevant for university research.

Why is the understanding of prior knowledge so important? Educational theorists stress the value of learning activities that build on what students already know (Biggs, 1999; Prosser & Trigwell, 1999; and Ramsden, 2003). In terms of using information to learn, students' prior experience provides the scaffolding that enables them to augment their existing knowledge. In terms of teaching, if prior understandings are not engaged, students may not fully grasp new concepts (Bransford, 2000, 14). Smith and Hepworth (2007) link lack of appreciation of prior knowledge to an over emphasis on teaching skills that are already known, which may result in missed opportunities to give students the chance to engage with new skills. Building on prior knowledge also offers reassurance for the learner by starting with the familiar (Lonsdale & Armstrong 2006). Students start with what is known, refine their existing skills and become more conscious of what is not known whilst learning new skills. The more academic librarians understand and recognise prior skills, the more easily meaningful programs can be developed to complement and build on the students' existing skill base. Acknowledging prior knowledge provides a basis to view information literacy as a lifelong activity that begins in primary and secondary education, continues in higher education, and forms inter-alia a preparation for the world of work (Crawford & Irving, 2007).

Existing strengths

There are many reported studies in the academic library literature that use pre-test surveys as a technique to understand prior knowledge of first year students (for example Ellis & Salisbury, 2004; Hufford 2010; Mittermeyer, 2005 and Bernath & Jenkin, 2006). The results reported demonstrate consistent findings in many aspects, with some authors concluding that despite the ubiquitous presence of technology, it has "not resulted in improved information seeking, retrieval or evaluation" in first year students (Rowlands, 2008: 305).

However, the results of pre-experience studies do not merely demonstrate gaps in skills and knowledge; a closer examination of the results of various studies reveals a range of existing information literacy strengths. For example, simple keyword searches using the AND operator (Hufford, 2010); understanding the reliability of internet sources (Ellis & Salisbury, 2004) and concept identification (Mittermeyer, 2005 and Bernath & Jenkin, 2006), are all easily understood, and have often already been mastered by incoming undergraduate students at a level that is adequate for first year research.

Where are the gaps?

Academic librarians are able to identify skill gaps based on their experience of working closely with first year students. Areas readily identified include understanding scholarly information types and finding journal articles (Bernath & Jenkin, 2006 and Hartmann 2001), developing sophisticated search strategies, and evaluating and critically thinking about information retrieved (Crawford & Irving, 2007).

However, Guise et al. (2007), reviewed entry-level students' research skills and concluded that they were unprepared to meet the needs of first year research requirements. Likewise, Russell (2009: 92) identifies significant gaps in "information competencies that students demonstrate during high school to university transition". For example, they lack an understanding of what constitutes quality scholarly information; they have difficulty evaluating information retrieved, and when faced with an array of interfaces and search methods, they favour more intuitive and familiar methods like Google. Rowlands (2009: 296) also identified Google as ingrained "coping behaviour" for university students that is preferred, because it is familiar and simplistic, and makes up for a poor understanding of how to develop sophisticated searching strategies.

A number of studies (eg. Smith & Hepworth, 2007), indicate first year students are not comfortable with more complex Boolean searches and were unclear about how to use these when conducting a search. However, such complex skills may not generally be required in first year.

Students' perception of their own skills

While pre-experience testing reveals strengths and gaps, students are often oblivious to the areas where they need to build skills and knowledge. Students' perception of their own ability is often at variance with their capacity to apply their existing skills in the university environment (Carver-Gibson, 2007). Ivanitskaya (2004: 170) found that "students' perceptions of their own information-seeking skills were often inflated", as their prior experience of finding information via the internet was positive and often didn't involve library resources or classes. Guise et al. (2007) revealed that prior to entering university, students expect their skills to be adequate. However, if a mismatch of skills means their first encounter with library search tools is negative their confidence in using the library is quickly eroded. Crawford and Irving (2007) go further and link effective information usage and experience with student progression and retention.

Implications for practice

Pre-test surveys clearly improve our understanding of student skills as they transition from secondary to tertiary study. An effective transition to university has been described as "the degree to which previous education and previous experiences have equipped them for the expectations and demands they will encounter in college" (Conley, 2008: 24). Pre-tests can also be used to inform students of their own knowledge gaps and provide feedback. For example, at Central Michigan University, an indicator tool was developed to assess student readiness and map to their actual skills, in order to build skills to a scholarly level (Ivanitskaya, 2004).

While many studies acknowledge the importance of building on prior knowledge there is less evidence of how this understanding results in improved programs or links between the secondary and tertiary sectors. Crawford and Irving (2007) focus attention on the links between secondary and tertiary sectors, and the world of work. Likewise, Lonsdale and Armstrong (2006) propose that the findings of

pre-tests highlight the need for investigation of skill development and transfer between the secondary and tertiary sectors, and make a strong case for cross sectoral activity. Supporting this call, around 50% of UK secondary institutions now have some links or collaborative activities with the university sector (Crawford & Irving, 2007). The perceived benefits include a greater orientation for prospective students, increased knowledge and skills of electronic resources, enhanced performance in school, encouragement of tertiary participation, easing of transition stress, and more. In the Australian context, there are examples of cross-sectoral activity to promote and increase readiness, for example, at La Trobe University (latrobe.edu.au/bulletin/2008/0808/community3html), and the University of Queensland's cyber school program (library.uq.edu.au/schools).

BACKGROUND AND METHODOLOGY

The La Trobe University Library pre-experience survey was part of a larger evaluation of the new information literacy program for first year students in 2009 which was designed to align with the new Health Sciences Common First Year. Students enrolled in the Common First Year come from a range of health science disciplines, including Bachelor of Health Sciences, Health Information Management, Nursing and Midwifery, Occupational Therapy, Orthoptics, Podiatry, Prosthetics and Orthotics, Physiotherapy, Social Work, and Speech Pathology.

The survey was conducted in the first week of semester one 2009, across all five campuses, and involved students enrolled in the Interprofessional Practice A unit in the Faculty of Health Sciences. To maximise the response rate, data were collected using a pencil and paper questionnaire administered during tutorial groups. A total of 1,029 (1,000 usable) responses were collected, a response rate of 63% for this cohort. Data were analysed using SPSS by an external consultant, who was also experienced in health sciences statistical analysis.

Questionnaire design

A questionnaire of twenty questions (see Appendix 1) was developed to gather data on the educational background, previous information skills training, library expectations, and information seeking preferences of students. The questionnaire also tested basic threshold skills grouped according to the themes of concept identification, search strategy, document types, search tools, and understanding of scholarly information. For the purposes of validation, the survey was based on the questionnaire devised by Diane Mittermeyer (2003). Although various survey instruments were considered, the Mittermeyer questionnaire was deemed the best fit for the La Trobe environment and cohort. Limitations related to outdated questions were addressed by simplifying both question language and related multiple-choice items.

A key advantage of the Mittermeyer questionnaire was that it had been internationally benchmarked and, as a multidisciplinary tool, could be applied across other disciplines if required. Furthermore, this instrument had been used successfully by another Australian university (Bernath & Jenkin, 2006).

Using this questionnaire also facilitated international comparison of the key identified themes, which corresponded with the learning objectives outlined in the Foundation level of the La Trobe University Library Information Literacy Framework (lib.latrobe.edu.au/about/infolit.php), which is based on the Australian and New Zealand Information Literacy Framework (2004).

Pre-experience Survey

Students aged between 16-18 formed 50.2% of the total cohort surveyed, and when added to the student group 19-21, they formed 84.3% of the total, with only 2.2% aged over 40. This distribution is what would be expected of a first year on-campus university student group, with fewer mature-age students and a predominance of school leavers. Over 84% of respondents had completed secondary school, with 6.9% being university graduates and another 8.3% mostly TAFE certificate students. The largest number of respondents were enrolled to become nurses (32%), while the smallest group were the prosthetics and orthotics students (1.9%). The other eight disciplines each comprised between 3-10% of the total. The respondent numbers within each group were consistent with the actual student enrolment statistics. As expected, the largest percentage, 69.1% of respondents, were from the Bundoora campus, with 19% at Bendigo and 6.9% at Albury-Wodonga. The smaller campuses, Mildura (2.5%) and Shepparton (2.3%) had the lowest relative numbers. More than half of the respondents (60%) had had library classes on finding and using information in their most recent educational institution prior to commencing their La Trobe studies.

RESULTS: KEY FINDINGS

The following selected key findings are based on the full report of the pre-experience survey (Fisch, Karasmanis, Salisbury & Corbin, 2009).

Discovery tools

Students were asked to rate in order of preference, how they would go about finding information on a topic about which they knew very little (q.5). The results show that first, second, and third preferences were Google, friend, and book. The strong preference for Google is not surprising and reflects other studies that demonstrate that the majority of students use search engines to begin an information search and are very satisfied with their overall experience of this searching method (OCLC, 2006).

To find out the level of student awareness of different search tools, students were asked to indicate which tool they use when finding scholarly journal articles (q.10). While all multiple-choice responses listed in question 10 were deemed acceptable, at the time of the survey, a 'database' was considered to be the most efficient library search tool for locating scholarly journal articles on a topic. Only 14% of respondents chose this answer. 35% of respondents selected Google, followed by 21% selecting the library catalogue, and 15% selecting the journals in the Library.

Students were tested on their knowledge of contents in the library catalogue (q.17). The number of respondents answering correctly both books and journals in the library was only 8.4%. However, 71.3% included books and 59.1% included journals, even if other incorrect options were circled as well. Respondents answering do not know comprised 18.5% of the cohort.

Search Strategy

Do students understand the relationship between keyword choice and search results? In response to question 11, the majority of students (77.3%) selected the right answer, indicating that entry-level students have a good grasp of the influence of keyword selection on search results in this context. Question 12 also explored whether students were able to identify the most appropriate concepts from an essay topic in order to construct a search strategy. One third of students selected the correct answer, successfully isolating the three key concepts in the question, however half (51.1%) of the respondents selected the option which included a non-significant word in the combination of words for the search strategy.

Do students understand that the Boolean operator AND limits a search to results which include all the search terms? More than one third (38.6%) of respondents chose the correct answer to question 16 (depression and psychotherapy and antidepressants), with the single keyword option depression coming a close second at (30.1%). Encouragingly, the incorrect option which used OR (depression or psychotherapy or antidepressants) recorded the lowest response rate of 9.8%. These results indicate a reasonable level of Boolean understanding within the cohort, as approximately half of the respondents selected options which included AND to limit the search.

Quality of an internet site

Students were tested on their knowledge of the characteristics used to evaluate the quality of an internet site (q.18). The best answer (date, author, and responsibility of the site) was selected by 23.8% of respondents, but 73.9% of responses included at least one of these options (even if it included other answers). A further 27% of students selected the correct answer, but also included accessibility of the site as a quality element.

Citation recognition

The purpose of question 13 was to determine whether students were able to recognise a journal article citation. Being able to assess the relevance of particular citations and knowing how to find them is an important threshold skill. Only 23% of students selected the correct answer, suggesting that the majority of students in the cohort would not be able to identify a journal article citation in a bibliography or a reading list.

Question 14 tested students on their knowledge of the elements in a citation that they would use to locate the journal article in the library catalogue. The question also probed whether students understood that the library catalogue lists journal

titles rather than indexing the articles in journals. Only 13% of students selected the correct answer, indicating that the majority would have found it difficult to locate the journal article, either in electronic format or print.

Referencing

Do students know how and when to acknowledge an information source? In response to question 19, less than one third of respondents answered correctly (28.3%) that in all cases listed (word for word or in my own words); they would need to reference the source. The next most common answer (25.4%) focused only on the need to reference if one directly quoted word for word from a source. 24% of respondents answered do not know.

Peer-reviewed journal articles

Could students describe the elements which would qualify an article published in a peer-reviewed scholarly journal? The highest percentage of respondents to question 20 answered do not know (45.2%). The correct answer was given by only 4.4% of respondents and required students to select all three correct options. However, a number of respondents selected single correct answers; list of references provided (23.7%), research method used is described (17.2%), and it has been evaluated by an editorial board (21%).

Discussion

While recent studies (Mittermeyer, 2005; Hufford, 2010), conclude that students commence university with limited information seeking skills, the results of our 2009 study provide the evidence to argue that students do indeed bring skills to university that are commensurate with their current level of educational attainment. The findings demonstrate that entry-level students have some of the skills outlined in the foundation level of the Library Information Literacy Framework, indicating that they are well placed to start building skills in areas where they are less competent.

As would be expected of new university students, understanding the nature of scholarly literature and how to find it is challenging and unfamiliar. The majority of students (77%) could not recognise a journal article citation, a threshold skill that all students need in order to be able to assess the relevance of particular citations and know how to find them. The higher a student's level of previous education, the more likely they were to correctly identify the journal article citation. Cross tabulation of the data showed that only 21% of students whose previous level of education was secondary school were correct, while 47% of students whose previous level of education was university were able to correctly identify the journal article citation.

Related to recognising and assessing journal citations, very few students understood the concept of peer-review. This means in general that students need to build an understanding of the nature of scholarly information and communication and the importance of identifying and using scholarly resources in their bibliographies etc. Scholarly processes were also not well understood with

results showing that while some respondents are aware of the need to reference, there is less awareness of the need to include the source when paraphrasing. However, as Corbin and Karasmanis (2010) noted, this is what should be expected of new university students, and that understanding unfamiliar resources such as peer-reviewed literature and journal article citations can be challenging throughout the first year.

The idiosyncratic nature of finding known journal article citations in a university library catalogue is not intuitive and does not match students' previous experience of using search tools where any element of a citation can be searched. The large majority incorrectly believed that they can search the catalogue on any element of the citation (29%) or search for journal titles using article author (37.5%). In a University of Melbourne study (Ellis & Salisbury, 2004) only 22% of the study group had the skills to locate the journal article using the library catalogue. This corresponded exactly with their 2002 study group when asked to perform the same task. However, in the future, this may not be an issue, as library discovery tools change to become more intuitive and Google-like.

Similarly, the majority of students beginning first year Health Sciences are not familiar with the concept of using databases for finding scholarly journal articles on a topic, although there is some awareness of the content of databases. It is not surprising that 34% of respondents selected the search engine option considering the strong preference of Google as search tool of first choice.

The study results indicate a reasonable level of Boolean understanding within the cohort, with approximately half the respondents selecting the appropriate operator, AND, to limit the search. It may be that Google use has given this student cohort a higher level of familiarity with how operators and keywords function in the search strategy.

Results related to evaluation of internet resources show some indication of awareness of relevant criteria, in that approximately one third of respondents included the best answer. This is a critical skill required for this health cohort, as there is a requirement in their assessments which expects them to find information from credible websites. Another 27% of respondents answered correctly but also included accessibility as a quality element. It could be argued that from a student perspective, accessibility is just as important as other considerations when determining the quality of an internet site.

Mittermeyer Comparisons

Because the La Trobe University Library questionnaire was based on the Mittermeyer survey (Mittermeyer & Quirion, 2003), it is interesting to compare the Canadian and Australian cohorts. The most notable variables of the two surveys were the dates the surveys were conducted, 2003 in Canada and 2009 in Australia.

Although all respondents were entry-level undergraduate students, the Canadian sample comprised a multi disciplinary group from fifteen universities in the province of Quebec; consequently, there was a mixture of French and English

respondents. The Australian sample was limited to health sciences students within one Australian university. Both questionnaires were administered in print format prior to, or within the first week of semester, which ensured optimal timing for exact entry-level data gathering, and both secured a substantial response rate. Response rates in the Canadian survey were 3,003 from 5,281 (56.9%) and the Australian survey was 1,029 from 1,651 (62.3%), providing enough data to provide confidence in the ensuing results.

The following table depicts relevant comparisons from the themes:

Table 1: Mittermeyer and La Trobe University results comparison

Theme and Task:	Canadian 3,003 responses	Australian 1,000 responses
Search strategy and keyword choice	86%	77%
Understanding the Boolean operator AND	61%	39%
Use of scholarly databases	28%	11%
Use of the library catalogue	45%	40%
Recognition of a citation	36%	24%
Recognition of the elements of a citation	19%	13%
Referencing an information source	28%	28%
Evaluation of the quality of an internet site	23%	24%
Understanding of peer-reviewed journal articles	14%	4%

Overall, differences between the cohorts are not significant in most criteria and reflected similar patterns. Generally though, the knowledge exhibited by the Australian group seems to be lower than that reported for the Canadian group; however this is perhaps due to the nature of the survey delivery. In the Australian group the questionnaire was handed out in tutorial groups. The Australian students had only 10-15 minutes to think about and complete the questionnaire at the start of their tutorial. In contrast, the Canadian students had more time to complete the questionnaire as it was posted to their home address. The Canadian group was self-selecting, while all students in the Australian group were strongly encouraged to complete the questionnaire in class time. However, given the available data, it is not possible to draw any firm conclusions from the comparison.

Implications for future practice at LTUL

The results of the 2009 study provide a clear understanding of the starting point of first year health sciences students. Lessons learned about first year students' incoming information literacy skills provide the basis for further research;

development of new tools and learning activities for all commencing students; and improving links between secondary and tertiary educational institutions.

For the library, one outcome of the 2009 study has been to inform the development of an online self-assessment quiz which will be implemented in 2011 in selected cornerstone subjects in each Faculty. The quiz questions will provide students with an indication of their skill level and will alert them to the threshold skills required for starting research at university. The quiz consists of ten questions, with each question addressing an intended learning outcome in the Information Literacy Framework. Question feedback is formative and caters for both students who need to be challenged and those who need to practice unfamiliar skills.

While the purpose of the quiz and feedback animations is to help first year students learn and rehearse threshold skills early in their course, there is also potential for these sorts of online tools to be used by students before they enroll in university, thereby increasing opportunities for communication and collaboration between sectors. Creating opportunities for increased communication between sectors has the potential to contribute to improved student transition and success in the tertiary environment.

CONCLUSION

Lack of understanding of prior knowledge by university libraries is in itself a barrier to engaging students in the research process in their first year, as it may result in programs that do not inspire students, or do not give relevant feedback or encouragement to build on what students already know. Information seeking behaviour studies can help provide a detailed understanding of prior knowledge. This understanding is essential in developing appropriate learning activities, framing feedback around skill gaps, thinking differently about program development, and harnessing existing skills. Helping students to build on their existing information literacy skills when they start university means they can begin to “develop the intellectual tools and learning strategies to acquire the knowledge that allows people to think productively... and ask meaningful questions about various subject areas” Branford (2000: 5). Understanding prior experience will ultimately contribute to the wider objective of fostering lifelong independent learners that can evaluate and critically appraise the information they find.

The La Trobe University study identified students’ existing strengths and weaknesses in relation to library research in an academic environment. For example, while more than three quarters of students could construct a simple keyword search strategy, fewer than one third were able to demonstrate the understanding of journal article citations, peer-reviewed articles, or referencing. While we cannot not expect first year students to come to university well equipped for academic research, the more evidence we have of their existing strengths and skill gaps, the more we can intentionally design tools to help each individual student build the required skills to move onto more sophisticated discipline based-research.

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Appendix 1: Questionnaire



Library Survey

This survey covers a variety of topics concerning how you look for information for assignments or essays. The goal of this survey is to help us assess your information literacy skills so we can develop tutorials which will match your needs well. This is not a test. Your responses are anonymous and we will be looking at the results of the group not individuals. So it is important to answer all questions honestly and without asking anyone else. If you don't know the answer, circle 'Don't know'.

Your participation is voluntary. If you choose not to answer this survey there is no penalty.

Confidentiality - Under no circumstances will individual student responses be shown to lecturers or other University authorities. Your answers will be combined with those of other students and used by the University Library to find out about the information skills of whole groups of students.

Thank you for completing the survey.

-
1. Age group: CIRCLE only ONE answer
 - a 16-18
 - b 19-21
 - c 22-30
 - d 31-40
 - e 40+
 2. Highest level of education completed: CIRCLE only ONE answer
 - a Secondary School
 - b University
 - c Other (please specify)
 3. Health sciences discipline area in which you are enrolled: CIRCLE only ONE answer
 - a Health Information Management
 - b Nursing and Midwifery
 - c Occupational Therapy
 - d Orthoptics
 - e Physiotherapy
 - f Podiatry
 - g Prosthetics and Orthotics
 - h Public Health
 - i Social Work / Human Services
 - j Speech Pathology
 - k Other (please specify)
 4. Which campus do you attend? CIRCLE only ONE answer
 - a Albury/Wodonga
 - b Bendigo
 - c Bundoora
 - d Mildura
 - e Shepparton
 5. In order to become familiar with a subject about which I know very little, first I consult: Please number in order of importance 1 = most important ... 8 = least important:
 - ___ A journal
 - ___ Ask a friend
 - ___ An encyclopaedia
 - ___ A blog
 - ___ A database
 - ___ Google
 - ___ A book
 - ___ Wikipedia
 - ___ Other (please specify)

6. How do you expect to use the Library at La Trobe University? CIRCLE as MANY as apply:
- a Borrow books and other resources
 - b Private study
 - c Socialise or meet people
 - d Use e-resources (online books, journals etc)
 - e Print out materials
 - f Ask a librarian for help
 - g Use the computers
 - h Do group work
 - i I only use the library on the web
 - j I do not expect to use any library services at all
 - k Comments
7. At my most recent educational experience: (e.g. school, TAFE, college) CIRCLE only ONE answer
- a I had classes on finding and using information
 - b I did not have classes on finding and using information
 - c Don't know
8. At my most recent educational experience: CIRCLE only ONE answer
- a I had access to internet computer facilities
 - b I did not have access to internet computer facilities
 - c Don't know
9. At home (currently) CIRCLE only ONE answer
- a I have internet computer access whenever I need to use it
 - b I have internet computer access but cannot use it often
 - c I do not have internet computer access
 - d Don't know
10. If I want to find scholarly journal articles about the impact of global warming I will search in: CIRCLE only ONE answer
- a The Library catalogue
 - b A database
 - c Google
 - d The journals in the Library
 - e Other (please specify):
 - f Don't know
11. You have used the words 'business letters' in a library catalogue search. No items are found by the computer. What do you conclude? CIRCLE only ONE answer
- a The Library does not have any items on this topic
 - b I have not used the right words
 - c All items on this topic are already on loan
 - d The system is down
 - e Other (please specify):
 - f Don't know
12. You must use a psychology database to find information on: 'The effect of family relations, on the academic results of primary school students'. Which combination of words will you use? CIRCLE only ONE answer
- a Family relations, academic results, primary school
 - b Family relations, academic results
 - c Effect, family relations, academic results
 - d Effect, family relations, academic results, primary school
 - e Other (please specify):
 - f Don't know
13. Which one of the following citations refers to a journal article? CIRCLE only ONE answer
- a Miller, A.W. (1997). Clinical disorders and stressful life events. Madison, CT, International University Press.
 - b Anderson, K.H. (1999). Ethical dilemmas and radioactive waste: A survey of the issues. *Environmental Ethics*, 2(3):37-42.
 - c Hartley, J.T. & D.A. Walsh. (2000). Contemporary issues and new directions in adult development of learning and memory, in L.W. Poon (ed.), *Aging in the 1980s: Psychological issues*, Washington, D.C., American Psychological Association, pp. 239-252.
 - d Don't know

14. A friend told me that I should read an article by John Broome about the ethics of climate change in the June 2008 edition of Scientific American. To check the availability of this article in the Library, I search in the catalogue under: CIRCLE only ONE answer

- a Scientific American
- b John Broome
- c The Ethics of climate change
- d Answers (a), (b), and (c) are correct
- e Other (please specify):
- f Don't know

15. To find all the information about Tim Winton in the Library catalogue, I would do a search: CIRCLE only ONE answer

- a By title
- b By publisher
- c By subject
- d By author
- e Other (please specify):
- f Don't know

16. You have to write a paper on the 'Treatment of depression'. Which search strategy will find the least number of items? CIRCLE only ONE answer

- a Depression and psychotherapy
- b Depression or psychotherapy or antidepressants
- c Depression and psychotherapy and antidepressants
- d Depression
- e Other (please specify):
- f Don't know

17. Some of the items that can be found in the Library catalogue include: CIRCLE as MANY as apply

- a All the titles of the books available in the Library
- b All the titles of the books available on the market
- c All the titles of articles found in the journals available in the Library
- d All the titles of journals available in the Library
- e None of the above
- f Don't know

18. Among the characteristics that are used to evaluate the quality of an internet site I would check: CIRCLE as MANY as apply

- a The date of publication is provided
- b The author is known in the field
- c Responsibility for the site is clearly indicated
- d The site is rapidly accessible
- e None of the above
- f Don't know

19. You found magazine articles and web pages presenting different views on a current issue and you want to use this information to write your paper. In which case(s) do you need to include a reference to the source of information? CIRCLE as MANY as apply

- a When I copy word for word a paragraph from a magazine article
- b When I copy word for word a paragraph from a Web page
- c When I write in my own words what is being said in a magazine article
- d When I write in my own words what is being said in a web page
- e In none of the above cases
- f Don't know

20. Which of the following best describe(s) articles published in a peer-reviewed scholarly journal? CIRCLE as MANY as apply

- a The information is written for the general public
- b It includes a list of references
- c The research method used is described
- d It has been evaluated by an editorial board
- e None of the above
- f Don't know

We thank you very much for your participation – for further information, contact:
library@latrobe.edu.au

Your comments are most welcome:

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This survey was based on the questionnaire in Mittermeyer, D. and Quiron, D. Information literacy: study of incoming first-year undergraduates in Quebec. Conference des recteurs et des principaux des Universités du Québec. Montreal, 2003. Available http://crepuq.qc.ca/documents/bibl/formation/studies_Ang.pdf