# Library Research Skills: A Study of First-Year Undergraduates at the University of Victoria

**June 2006**

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## Acknowledgements

This study was the result of the efforts of Inba Kehoe, Information Literacy Coordinator and principal investigator for the project, three members of the Instruction Working Group and a member of the Reference Services unit of the University of Victoria Libraries, in cooperation with several other parties.

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The Task Group members for the current study are:

- Bill Blair, Music and Media Librarian and Member, Instruction Working Group, Reference Services;
- Inba Kehoe, Information Literacy Coordinator, Principal Investigator and Chair of the Task Group for the project.
- Ophelia Ma, Information Services Librarian and Member, Instruction Working Group, Reference Services;
- Katy Nelson, Information Services Librarian, Reference Services;
- Tad Suzuki, Information Services Librarian and Member, Instruction Working Group, Reference Services;

## Introduction

We live in a world where there is an abundance of information, available in various formats (e.g. print, electronic, spatial, sound, etc.), easily accessible, the quality, accuracy and currency of which often seeming indeterminate. Computer technologies have certainly made retrieval of information easier and faster on the one hand, but on the other, it has made the evaluation process more problematic. Anthony Comper, president of the Bank of Montreal, in his address to the 1999 graduating class at the University of Toronto, said that in today's knowledge industries we need "people who know how to absorb and analyze and integrate and create and effectively convey information – and who know how to use information to bring real value to everything they undertake" (Anonymous, Jun 14, 1999).

The term information literacy (ACRL, 2000), is used to encompass the ability to recognize information needs, access appropriate information sources, make critical evaluations of the material retrieved and to use that information effectively, ethically and legally. These skills constitute a lifelong learning objective, and as such a University requirement. Students arrive at university with varying skill levels and most believe that they already know how to conduct information research efficiently and effectively. Librarians at UVic are always asking: What do students know when they enter university? What level of research skills do the students have? If they have some knowledge of how to do research, where or who did they learn it from? Where or when will they learn these skills as they progress through their university careers?

McPherson Library offers both general drop-in workshops at the beginning of September and January and course-integrated workshops throughout the year. None of these library workshops, however, are strategically aligned or integrated with a department's program of requirements. In 1999, the UVic Technology Plan recommended that the library, in collaboration with faculty, provide opportunities for UVic students to enhance their information literacy skills.

The Information Literacy Coordinator reviewed the literature and found that there are an abundance of articles on information literacy and descriptions of information literacy programs and courses. There are, however, very few assessment tools that measure student information literacy competencies. Currently, most libraries evaluate particular library instruction sessions and test user satisfaction but do not measure skills assessment. Over the last few years, several libraries have started developing tools to measure a list of information literacy competencies as set out by the Association of College and Research Libraries. For example, California State University Libraries and UCLA have attempted to design competency measurement tools. The UCLA and CSU studies deal with students who had already received some form of library instruction. Project SAILS (Standardized Assessment of Information Literacy Skills Project) is another project attempting to develop a standardized instrument to measure university students' information literacy competencies based on the ACRL Information Literacy Standards for Higher Education.

Of the various studies, the CREPUQ working group on libraries had conducted a study of incoming undergraduate students at Quebec universities in 2000. The Quebec study included province-wide participation from 14 universities and was spearheaded by Dr. Diane Mittermeyer at the University of McGill's Graduate School of Library and

Information Studies. The UVic task group reviewed the Quebec questionnaire and wrote to Dr. Diane Mittermeyer, principal investigator for the Quebec survey, to request for permission to use the CREPUQ survey, with some adjustments.

The current study is our first attempt to assess the library research skills of first year undergraduate students at the University of Victoria. The objectives of the study are to:

- determine students' information literacy skills in order to make library instruction more effective at UVic.
- obtain data to use in discussions with faculty about student's library research skill levels, the impact of those abilities on students' coursework, and the potential for subject-integrated library instruction to improve them.
- provide the Library with data to support recommendations for the integration of information literacy into the university curriculum.

The current study does not seek to evaluate all research skills, but whether 1st year, incoming students have any or adequate research skills to conduct research or complete assigned course work. We were also curious to compare the results between the UVic survey with that of the Quebec survey conducted in 2002.

The task group met several times to discuss the necessary steps for the realization of the project, which included:

- Selection of a survey tool for data collection: preferably an online tool; questionnaire to be completed online; email notifications to students once they arrived on campus in September, etc.;
- Changes to update the Quebec questionnaire where necessary;
- The application for the necessary certificates of ethics, sending email broadcasts to all first year undergraduate students, etc.

The group then proceeded to administer the questionnaire. At the end of the survey period, we analyzed the results for each question and compared our findings with the Quebec survey, as well as the Science Engineering Book Survey conducted at UVic in February 2005.

## Statement of the Problem

Librarians at UVic have the impression that there is a gap in the basic library research skills levels of first year undergraduate students. Our hypothesis is based on our daily interactions with students at the Reference desk, via email and during library workshops. The current study attempts to verify if these observations are valid and to determine if first year undergraduate students have the ability to define, access and evaluate information.

The questions in the survey frame a conceptual approach in the information seeking process. The process as defined and described below is based on the Information Literacy Standards documented in the Association of College & Research Libraries' Information Literacy Competency Standards for Higher Education. The five skills listed below are essential for achieving success with coursework as well as a preparation for a lifetime of continuous learning.

To understand the research process outlined below, the following example will be used as an assignment ***discrimination in the workplace***

1. **Defining the information needed**

   In this first step, the student needs to determine what information is needed based on the assignment:
   - type and length of report, e.g. book review, a bibliography, etc.
   - type of document needed, such as scholarly articles, primary documents
   - number of references required
   - recent or historical information
   - availability of documents
   - due date of the assignment.

2. **Formulating the research question**

   Armed with information from the above step the student can now explore the topic to formulate a research question. A preliminary search in dictionaries, encyclopedias, handbooks or the internet may help the student get an overview of the topic. In order to narrow the topic, the student needs to ask the following questions:

   - **Who** Who does the topic concern?
   - **What** What are the components of the topic?
   - **Why** Why is the topic important?
   - **When** What is the time frame for the topic?
   - **Where** What are the geographical limitations for the topic?
   - **How** What sociological, legal, economic, historical or technological, etc. aspects of the topic need to be considered?

   Next, the student will need to express the ideas in their topic in a succinct research statement, for example, **Glass ceiling: discrimination of women in corporations**.

## 3. Identifying key concepts and developing a search strategy

### Identifying key concepts

Using the research statement above, the student needs to identify key concepts that may be used as search terms to locate information from various search tools (e.g. library catalogue, databases, search engines, etc.). In the process of identifying concepts the student needs to avoid using insignificant words such as impact, cause, consequences, effects, etc. because those words describe the relationship between ideas and not the subject itself. Using the above example, the concepts are:

| Concept 1 | Concept 2 | Concept 3 |
|---|---|---|
| discrimination | women | corporations |

### Developing a Search Strategy

The student then proceeds to build a list of synonyms and related words for each of the concepts. The list may include words that have narrower or broader meanings than the original concepts. For example:

| Concept 1 | Concept 2 | Concept 3 |
|---|---|---|
| discrimination | women | corporations |
| sex discrimination | Female | businesses |
| wage gap | gender | employment |
| marginalization | | executive positions |

In the next step, the student represents the relationships between the concepts using Boolean operators, such as AND and OR, and parentheses. The following is an example of a search statement:

**(discrimination OR wage gap)**
**AND**
**(women OR female OR gender)**
**AND**
**(business OR employment)**

## 4. Executing the search

Before executing the search, the student has to identify the tools from which they will be able to retrieve the preferred document types (i.e. books, journal or newspaper articles, statistics, cases, government documents, theses, etc.). The three main sources of information are the library catalogue, databases and the internet.

The library catalogue indexes titles of books, journals, newspapers, government publications, maps, videos, scores, online books and journals, etc. Databases list references to mainly journal and newspaper articles. Today, many of them provide access to the fulltext of the article as well. In both the above instances, the student needs to differentiate between popular and scholarly or primary and secondary information sources. The internet, on

the other hand, provides access to a combination of the above and much more.

The student needs to know the differences among these tools and how to search each of them effectively and efficiently. The search strategy is entered in the tools selected and the results are retrieved and evaluated for relevancy. In some cases the search strategy may have to be refined.

## 5. Using the Results

### Locating and retrieving documents

The student needs to retrieve and locate the relevant documents. They have to be able to identify the document type from a citation (i.e. a journal article, book, book chapter, etc.) in order to locate the document in the library or on the internet.

### Evaluating information

The student needs to evaluate each document for its suitability and eventually its reliability according to certain criteria:

- Author's credibility
- Currency of the information – publication date
- Information – comprehensiveness, bias and accuracy
- Credibility of the publisher

### Citing Sources

Finally, a student is expected to acknowledge or cite the documents used in his/her research paper or report. This allows the professor to subsequently identify and locate the works.

### Next Steps

Finally, the current task group reviewed the ACRL standards mentioned earlier and decided to test the same set of research skills, themes and variables mentioned in the Quebec survey. The themes and variables studied are provided in the following table. The Quebec questions were modified so as to update language, context and resources available at UVic.

| Themes | Variables | Questions |
|---|---|---|
| **Theme 1. Concept Identification** | Significant words | 9 |
| | Significant words | 12 |
| | Significant words | 17 |
| **Theme 2. Search Strategy** | Translation into keywords | 7 |
| | Boolean operator OR | 13 |
| | Search indexes | 15 |
| | Controlled vocabulary | 16 |
| | Boolean operator AND | 20 |
| **Theme 3. Document Types** | Encyclopedias | 8 |
| | Periodicals | 19 |
| | Scholarly journals | 24 |
| **Theme 4. Search Tools** | Databases | 6 |
| | Search engines | 11 |
| | Library catalogues | 18 |
| | Metasearch engines | 21 |

| | | |
|---|---|---|
| **Theme 5. Use of Results** | Reading citations | 10 |
| | Bibliographies | 14 |
| | Evaluation of internet information | 22 |
| | Ethical use of information | 23 |

## Research Methodology

### Survey

The Task Group decided to use the survey as a means to collect data to gauge the library research skill levels of first year undergraduate students at UVic.

### Questionnaire

Two methods of data collection were considered:

- an online questionnaire
- a questionnaire sent by regular mail

The task group elected to have the questionnaire available online because we felt that this particular participant group (ages 18-21) was more likely to fill out an online questionnaire than one sent via regular mail. We used Survey Monkey, an online survey tool, to publish the questionnaire. The survey was conducted from September 18, 2005 to October 19, 2005.

Participants who completed the questionnaire were given the opportunity to fill out an entry form for a draw of three prizes. The first prize was a laptop computer, while the second and third prizes were an IPOD and IPOD shuffle respectively.

### Sample

The number of full-time, first year undergraduate students registered at UVic was estimated to be approximately 2900. These numbers included students registered in at least one course. Students who did not have UVic email identification were sent a separate email announcing the survey. A sample of 30% was considered adequate to provide satisfactory results.

### Procedures Prior to the Distribution of the Questionnaire

1. **Questionnaire, Letters and Entry Form for the Draw**
   Based on the themes and variables listed in the table on page 7, we developed a questionnaire consisting of 20 questions. The Quebec questionnaire was modified to update language, content and resources available at UVic. We included an additional 5 questions at the beginning of the survey to get some background information on the student (e.g. last degree completed; status of student; part-time or full-time; whether they had attended a library workshop; and the Faculty in which they were registered).

   Once the questionnaire, cover letter and entry form for the draw were completed, Inba Kehoe, the Information Literacy Coordinator prepared the documents for posting on the internet and in the survey tool.

2. **Ethics Certification for the Study**
   Inba Kehoe submitted an application for ethics approval for Human Participant Research to the Human Research Ethics Board, Office of Research Services at UVic.

3. **Marketing strategies for the survey**

The task group employed several mechanisms to advertise the availability of the survey to incoming first year undergraduate students.

a. A banner advertising the survey on the Libraries homepage for the duration of the survey.
b. A bookmark handed to first year students during orientation week.
c. The bookmark was also handed out at the Reference desk for the duration of the survey.
d. Librarians providing instruction to first year classes and/or workshops advertised the purpose of the survey to their students.

4. **Preparation for mailing and receipt of completed questionnaire**
A programmer in Computing Services was assigned to harvest a list of UVic email addresses from the University's student registration database system for the study. This mechanism ensured that participants could remain anonymous. On the first day of the survey, a broadcast email was sent to all full-time, first year undergraduate students announcing the survey. Each student received an email containing:

a. a personal letter signed by the principal and co-investigators at McPherson Library,
b. a link to a banner advertising the survey on the UVic Libraries homepage: http://gateway.uvic.ca/lib/instruction/infolit/surveys/firstyear2005.html
c. The banner lead to the consent form and subsequently a link to the online questionnaire in Survey Monkey.
d. At the end of the questionnaire, the student was prompted to fill out an entry form for the draw.

A second broadcast email reminder was sent two weeks later to encourage students who had not participated in the survey to do so by October 19, 2005.

A summary of the results was tabulated within the online survey tool. The task group was able to download the results into excel in order to evaluate the results for each question separately.

**Response Rate**

We received a response rate of 942 out of 2900 or 32% which was quite high given the time of year and the object of the study. The prize draw seemed to have provided an excellent incentive. We received 97 comments at the end of the survey which provided a number of ideas for possible changes and/or successes in our library instruction program.

## Results

## Summary and Analysis

The questions have been grouped by theme. The question, purpose and results are given for each. The correct answer or best practice, in the opinion of the group, is in bold type at the beginning of each question.

## Theme 1: Concept Identification

### Question 9

You are looking for information on "*The effect of family relations on the academic performance of primary school students*." Which combination of words would you use?

**a) Family relations, academic performance, primary school**
b) Family relations, academic performance
c) Effect, family relations, academic performance
d) Effect, family relations, academic performance, primary school
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| **Family relations, academic performance, primary school** | | **46.7%** | **381** |
| Family relations, academic performance | | 9.4% | 77 |
| Effect, family relations, academic performance | | 6.4% | 52 |
| Effect, family relations, academic performance, primary school | | 32.9% | 268 |
| Don't know | | 3.8% | 31 |
| View Other (please specify) | | 0.7% | 6 |
| | **Total Respondents** | | **815** |

### Purpose of the Question

The purpose of the question was to assess the students' ability to identify key concepts in their research topic, and differentiate between significant and insignificant words in their topic.

### Results

Almost half the students (46.7%) chose the best answer (a), which included the three key concepts in the research topic. About one-third (39.3%) of the students chose answer (d) or (c), which indicates that they were unable to distinguish that the word "effect" is an insignificant word and therefore did not need to appear in a search statement. Students who chose answer (b) missed "primary school" as a key concept, which would result in not only more documents but irrelevant hits as well.

**Question 12**

Using a search engine such as Google to search for documents on "*The depletion of the ozone layer and the impact on health*," I use the words:

a) impact, depletion, ozone layer, health
**b) ozone layer, health**
c) ozone layer
d) skin cancer, ozone layer
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| impact, depletion, ozone layer, health | | 33.9% | 275 |
| **ozone layer, health** | | **52%** | **422** |
| ozone layer | | 4.2% | 34 |
| skin cancer, ozone layer | | 5.2% | 42 |
| Don't know | | 2.2% | 18 |
| View Other (please specify) | | 2.5% | 20 |
| | **Total Respondents** | | **811** |

**Purpose of the Question**

The purpose of the question, as in Question 9, was to assess the students' ability to identify key concepts in their research topic, and differentiate between significant and insignificant words in their topic. The omission of significant words would result in a search strategy that would be too broad and would subsequently result in irrelevant results.

**Results**

Only 52% of the students chose the best answer (b), which included the key concepts in the research topic. Just over one-third (33.9%) of the students chose answer (a), which indicates that they were unable to distinguish that the word "impact" is an insignificant word. This search strategy is too specific and will result in fewer results. Students who chose answer (c) would have retrieved many irrelevant results with such a broad search strategy. Students who chose answer (d) would have retrieved articles about skin cancer, but other health implications of ozone layer depletion would have been missed. Overall, 48% of the students either did choose the correct answer or did not know the answer which seems to indicate that they do not know how to search effectively.

**Question 17**

You must make an oral presentation on the topic "*Measures currently used across the country to decrease the damage to the natural environment*." Among the following choices, which one describes best the ideas contained in your subject?

a) Damage to the natural environment, Canada
b) Measures currently used, environment, country
c) Damage, environment, measures currently used
**d) Protective measures, environment, Canada**
e) Don't know
f) Other (please specify):

| | | Response Percent | Response Total |
|---|---|---|---|
| Damage to the natural environment, Canada | | 7.9% | 64 |
| Measures currently used, environment, country | | 5.3% | 43 |
| Damage, environment, measures currently used | | 12.3% | 100 |
| **Protective measures, environment, Canada** | | **69.6%** | **565** |
| Don't know | | 4.2% | 34 |
| View Other (please specify) | | 0.7% | 6 |
| | **Total Respondents** | | **812** |

**Purpose of the Question**

The purpose of the question, as in Questions 9 and 12, was to assess the students' ability to identify key concepts in their research topic, and differentiate between significant and insignificant words in their topic. In addition the question seeks to determine if students know how to formulate a search statement that contains the key concepts from an abstract question.

**Results**

The majority of students (69.6%) was able to draw out the key concepts, as well as the geographic specification, and chose answer (d). About one-fifth of the students (20.2%) chose answers (a) or (c), where one of the key concepts was missing. A few students (5.3%) did not realize that they had to translate the word "country", an important concept, into a significant word for the search strategy.

## Theme 2: Search Strategy

### Question 7

You have used the words "*avian flu*" in the online library catalogue search. No items are found by the catalogue. What do you conclude?

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) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| The library does not have any items on this topic | | 13.5% | 110 |
| **I have not used the right words** | | **70.4%** | **575** |
| All items on this topic are already on loan | | 2.7% | 22 |
| The system is down | | 1.5% | 12 |
| Don't know | | 9.3% | 76 |
| View Other (please specify) | | 2.7% | 22 |
| | **Total Respondents** | | **817** |

### Purpose of the Question

The purpose of this question was to determine if students are able to identify a common problem when researching, namely, that the words they may choose to describe their topic do not correspond to those used by the search tool. Understanding that synonyms, related terms or descriptors can be used to represent a topic is an important component of the search strategy and improves retrieval of relevant documents.

### Results

A large majority (70.4%) of the students chose the correct answer (b). The high response rate in this case may be due to the fact that the correct answer may be easily deduced from the other three unlikely answers to the question: (a) The library does not have any items on this topic; (c) All items on this topic are already on loan and (d) The system is down. The small proportion (9.3%) of students who chose (e) may indicate ignorance about how the catalogue works, how to formulate a search strategy or how to find information in general.

**Question 13**

In order to find more items on my topic I can include synonyms in my search statement. To connect those synonyms in my statement, I use:

a) AND
b) +
c) NOT
**d) OR**
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| AND | | 23.9% | 194 |
| + | | 29.9% | 243 |
| NOT | | 1.6% | 13 |
| **OR** | | **30%** | **244** |
| Don't know | | 13.7% | 111 |
| View Other (please specify) | | 0.9% | 7 |
| | **Total Respondents** | | **812** |

**Purpose of the Question**

The purpose of the question was to assess if students are familiar with Boolean operators, specifically the "OR" operator. An understanding of Boolean logic, used by many search tools, is essential for developing a sound search strategy: it can be used to formulate a query that reflects the logic of the initial query and clearly indicates to the search tool the relationship between the keywords.

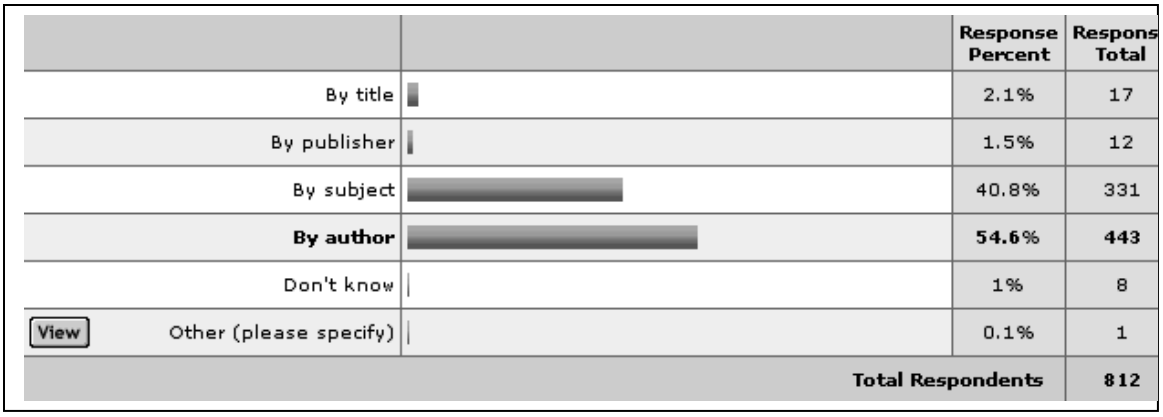
**Results**

Only 30% of the students chose the OR operator. The other two answers which received a high score – "AND" (23.9%) and the "+" symbol (29.9%) – has the opposite effect to "OR" in that it limits the search results to documents containing all the key concepts used. The "+" symbol is used in a search engine, like Google" to indicate that a key concept must figure in the search results. Moreover, keywords entered in Google are all "AND-ed" automatically and the search results are presented in relevancy order. More than half (55.4%) of the students opted for the wrong answers. The latter scores indicate that these students do not understand that these operators are interpreted differently by different search engines. Finally, 13.7 % of respondents didn't know which operator to use.

**Question 15**

To find all the books about *Margaret Atwood* in the library catalogue, I would do a search:

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



| | | Response Percent | Respons Total |
|---|---|---|---|
| By title | | 2.1% | 17 |
| By publisher | | 1.5% | 12 |
| By subject | | 40.8% | 331 |
| **By author** | | **54.6%** | **443** |
| Don't know | | 1% | 8 |
| View Other (please specify) | | 0.1% | 1 |
| | **Total Respondents** | | **812** |

**Purpose of the Question**

Question 15 assesses the student's understanding of the different search fields (e.g. author, title, subject, keyword, etc.) in the library catalogue records. A good search strategy requires an understanding of the structure and contents of the fields in the library catalogue to ensure selection of appropriate search fields when performing a search.

**Results**

Less than half (40.8%) of students chose the correct answer (c) – "By subject." It is clear that 54.6% of the students recognize Margaret Atwood as an author, but unfortunately, they do not realize that to find books about an author, they need to search by subject.

**Question 16**

When searching a specialized database for items on my subject, it is recommended to use the terminology specific to the database. To identify these items I should consult:

a) An ideogram
b) A dictionary
**c) A thesaurus**
d) An Internet search engine
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| An ideogram | | 10.9% | 88 |
| A dictionary | | 14.3% | 116 |
| A thesaurus | | 13.8% | 112 |
| An Internet search engine | | 11.4% | 92 |
| **Don't know** | | **47.9%** | **388** |
| View Other (please specify) | | 1.7% | 14 |
| | **Total Respondents** | | **810** |

**Purpose of the Question**

The purpose of the question 16 was to determine if students are familiar with the concept of a controlled vocabulary tool, such as a thesaurus. A thesaurus provides a list of preferred terms to describe a subject in databases.

**Results**

Only 13.8% of the students chose the correct answer (c) whereas a majority (47.9%) of the students said that they "Don't know." The concept of a controlled vocabulary, whether subject headings in the library catalogue or a thesaurus in the database is an advanced concept, and it is perhaps not surprising that most students are not familiar with it.

**Question 20**

You have to write a paper on the "Treatment of depression." Which search strategy will find the least number of items?

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

| | | Response Percent | Respons Total |
|---|---|---|---|
| depression and psychotherapy | | 6.8% | 55 |
| depression or psychotherapy or antidepressants | | 13.6% | 110 |
| **depression and psychotherapy and antidepressants** | | **57%** | **462** |
| depression | | 15.8% | 128 |
| Don't know | | 5.5% | 45 |
| View Other (please specify) | | 1.4% | 11 |
| | **Total Respondents** | | **811** |

**Purpose of the Question**

The purpose of the question was to verify if students understand Boolean logic. Question 13 checked students familiarity with the "OR" operator. This question assessed their familiarity with the "AND" operator which limits the search results to those records containing all the specified search terms.

**Results**

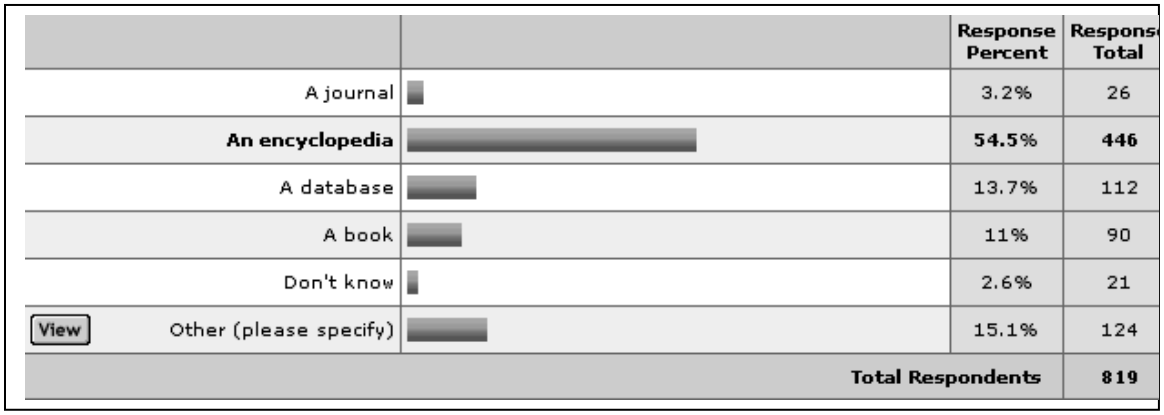
A large number (57%) of students answering this question chose the correct answer. It appears when comparing the results to Question 13, that students understand the use of the "AND" operator more than the "OR" operator. Of the 40% who did not choose the correct answer (c), 15.8% of them chose (d), which contains only one term while 6.8% chose answer (a) which contains two terms. One might deduce that these students could not translate the word treatment into words like antidepressants and psychotherapy. The students (13.6%) who chose answer (b) would retrieve the most documents, a result producing the opposite of what was required. It can be deduced that most students do not understand the use of Boolean operators in an effective search strategy.

## Theme 3: Document Types

### Question 8

In order to become familiar with a subject about which I know very little, first I consult:

a) A journal
**b) An encyclopedia**
c) A database
d) A book
e) Don't know
f) Other (please specify):



| | | Response Percent | Response Total |
|---|---|---|---|
| A journal | | 3.2% | 26 |
| **An encyclopedia** | | **54.5%** | **446** |
| A database | | 13.7% | 112 |
| A book | | 11% | 90 |
| Don't know | | 2.6% | 21 |
| View Other (please specify) | | 15.1% | 124 |
| | **Total Respondents** | | **819** |

### Purpose of the Question

The purpose of the question was to determine if students understand that an encyclopedia is a good source for finding an overview of a topic or for familiarizing oneself with a subject. Encyclopedias can be online or in print and can have general coverage or be subject specific.

### Results

The results show that 54.5% of the students seem to recognize that encyclopedias are the best source for an overview of a topic. 27.7% of the students choose (a), (c), or (d) and although these answers are not technically incorrect – journals, databases and books may include summaries of a topic – they are not the best answer. Among the 15.1% who chose (f), 75 (61%) said "Internet" and 20 (16%) said they would use Google. Other answers included Wikipedia, online source, teacher, family, someone with more knowledge and a librarian. Considering the number of respondents that wrote in Internet or Google (77%) as the answer under (f) this would seem to indicate that a fair number still consider the Internet the primary resource for information and their first choice for finding information.

**Question 19**

To find the most recent information about drug abuse, I consult:

a) A book
**b) A journal**
c) An encyclopedia
d) A dictionary
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| A book | | 3.5% | 28 |
| **A journal** | | **74.5%** | **604** |
| An encyclopedia | | 4.1% | 33 |
| A dictionary | | 1.1% | 9 |
| Don't know | | 3.2% | 26 |
| View Other (please specify) | | 13.7% | 111 |
| | **Total Respondents** | | **811** |

**Purpose of the Question**

The purpose of the question was to determine if students understand the characteristics of various document types and if they know that journals contain more recent information than other types of documents.

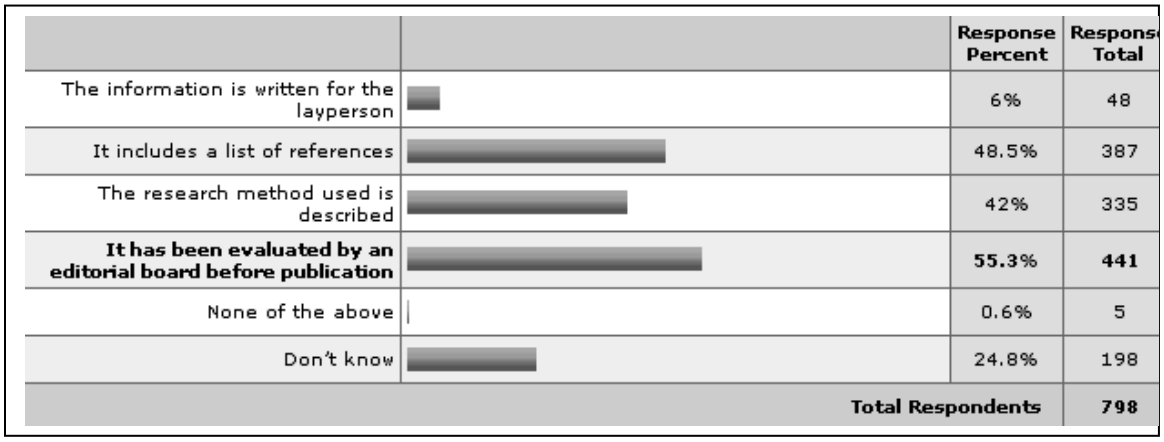
**Results**

74.5% of the participants chose the correct answer (b). The second most popular answer was (e) and of the 111 who chose this option 77 selected "internet" while 13 chose Google. This general reference to the Internet or Google by a sizeable number of students indicates that they consider the web their first choice for finding information. The results also seem to indicate that many people consider the Internet to be a document type that is as up to date as a journal. Other answers included 'a journal on the Internet', 'Internet articles', and 'online articles'. Since these answers included the words journal and articles, this might indicate that some students were unaware that journals are available in print and online.

**Question 24**

Which of the following best describe(s) articles published in a scholarly journal?

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



| | | Response Percent | Response Total |
|---|---|---|---|
| The information is written for the layperson | | 6% | 48 |
| It includes a list of references | | 48.5% | 387 |
| The research method used is described | | 42% | 335 |
| **It has been evaluated by an editorial board before publication** | | **55.3%** | **441** |
| None of the above | | 0.6% | 5 |
| Don't know | | 24.8% | 198 |
| | **Total Respondents** | | **798** |

| | | | | | | Response Distributions | Percentage |
|---|---|---|---|---|---|---|---|
| | B | C | D | | | 197 | 24.7% |
| | | | | | F | 191 | 23.9% |
| | | | D | | | 121 | 15.2% |
| | B | | D | | | 67 | 8.4% |
| | B | C | | | | 46 | 5.8% |
| | B | | | | | 45 | 5.6% |
| | | C | | | | 39 | 4.9% |
| | | C | D | | | 33 | 4.1% |
| Other combinations | | | | | | 59 | 7.4% |
| | | | | | **Total** | 798 | 100% |

**Purpose of the Question**

The purpose of the question was to determine if students' knowledge of various document types enables them to distinguish between scholarly journals and popular magazines.

**Results**

The three answers that characterize a scholarly journal were (B), (C), and (D) and 25% of the students chose this option, while 24% chose (F). These results indicate that nearly as many students are familiar with the characteristics of a scholarly journal as those who are not. 49% chose only one or two of the three correct answers along with an invalid answer. This may indicate that at least half of the

students demonstrated a partial understanding of the characteristics of the scholarly journal. Overall (D) and (B) were selected the most. Answer (D) was chosen by 15% of respondents, and in conjunction with another answer by 55%. Again this may indicate that just over half the students had some understanding of a scholarly journal and that (D) was the best known characteristic.

## Theme 4: Search Tools

### Question 6

If I want to find journal articles about "*eating disorders*", I will search in:

a) The library catalogue
**b) A database**
c) Google
d) The journals in the library
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| The library catalogue | | 25.2% | 207 |
| **A database** | | **26.2%** | **215** |
| Google | | 24.6% | 202 |
| The journals in the library | | 15% | 123 |
| Don't know | | 7.7% | 63 |
| View Other (please specify) | | 1.2% | 10 |
| | **Total Respondents** | | **820** |

### Purpose of the Question

This question examines the students' method for finding journal articles. Specifically, it tests their knowledge of the most appropriate search tool for finding journal articles.

### Results

The best answer to this question is (b). Only 26.2% of the respondents chose this option. A similar percentage of the respondents (24.6 %) answered (c), which may be marginally acceptable answer, though decidedly not the best answer. Google is becoming increasingly an important tool in academic research and its coverage also includes some journal articles, though the coverage and search capability are neither comprehensive nor most efficient in retrieving relevant articles. 15% chose (d), which is again not the most efficient and comprehensive method of searching relevant articles. Very few first year students are aware of journal databases as the appropriate research tool for journal article searches.

**Question 11**

A friend told me that I should read an article published in the November 2001 issue of *Internet Guide*, "The Microsoft Xbox Console," by Mark Kenney. To check the availability of this article at the library, I search in the online library catalogue for:

**a) Internet Guide**
b) Mark Kennedy
c) The Microsoft Xbox Console
d) Answers (a), (b) and (c) are correct
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| Internet Guide | | 11.6% | 94 |
| Mark Kennedy | | 9.9% | 80 |
| The Microsoft Xbox Console | | 13.1% | 106 |
| **Answers (a), (b) and (c) are correct** | | **57.6%** | **468** |
| Don't know | | 6.8% | 55 |
| View Other (please specify) | | 1.1% | 9 |
| | **Total Respondents** | | **812** |

**Purpose of the Question**

This question examines the students' knowledge of the use and function of the library catalogue in the context of locating journal articles. In the course of research, there may be a need for following up on citations found in the bibliography of an article or book, or provided by professors or their peers. The students must then attempt to find the document.

**Results**

Only 11.6% of the students gave the correct answer (a). A higher percentage (13.1%) chose the article title (c) as the search element in the library catalogue. A majority (57.6%) seem to think that the library catalogue indexes the article title and the article author. These results seem to indicate, as in question 6, that students do not have clear understanding of the purpose and content between the library catalogue and journal databases.

**Question 18**

Using a metasearch engine such as Metacrawler or Vivisimo, it is possible to:

**a) Launch a search in many search engines simultaneously**
b) Execute a search in all the existing websites
c) Extend the search into foreign language websites
d) Execute the search in all the databases available in the library
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| Launch a search in many search engines simultaneously | | 30.6% | 247 |
| Execute a search in all the existing websites | | 4.2% | 34 |
| Extend the search into foreign language websites | | 3.8% | 31 |
| Execute the search in all the databases available in the library | | 4% | 32 |
| **Don't know** | | **57.3%** | **463** |
| View Other (please specify) | | 0.1% | 1 |
| | **Total Respondents** | | **808** |

**Purpose of the Question**

The purpose of this question is to assess students' understanding of Internet metasearch engines. We may assume assumed that students entering university in recent years may be computer-savvy and routinely "surf the Net," and therefore, have a better understanding of the nature and function of various Internet search engines. This question challenges such an assumption.

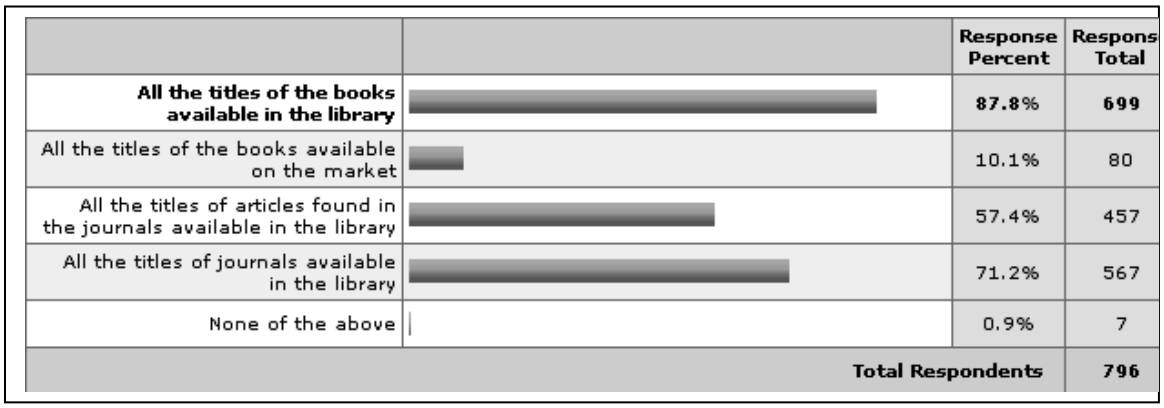
**Results**

Only one third (30.6%) of the students chose the correct answer (a). A majority (56.7 %) selected (e). The responses demonstrate that the students may use a certain search engine routinely (e.g., Google), but may not fully appreciate the different functions and coverage of the metasearch engine. They do not seem to take advantage of this category of search engines for research purposes.

**Question 21**

Some of the items that can be found in the library catalogue include:

**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



| | | Response Percent | Respons Total |
|---|---|---|---|
| **All the titles of the books available in the library** | | **87.8%** | **699** |
| All the titles of the books available on the market | | 10.1% | 80 |
| All the titles of articles found in the journals available in the library | | 57.4% | 457 |
| All the titles of journals available in the library | | 71.2% | 567 |
| None of the above | | 0.9% | 7 |
| | **Total Respondents** | | **796** |

| | | | | | Response Distribution | Percentage |
|---|---|---|---|---|---|---|
| **a** | | | **d** | | **187** | **23.5** |
| a | | c | d | | 332 | 41.7 |
| a | | | | | 98 | 12.3 |
| a | | c | | | 38 | 4.8 |
| | b | | | | 33 | 4.1 |
| a | b | c | d | | 33 | 4.1 |
| | | c | | | 39 | 5 |
| | | | d | | 1 | 0.1 |
| Other answers | | | | | 28 | 3.5 |
| None of the above | | | | | 7 | 0.9 |
| **TOTAL** | | | | | 796 | 100 |

**Purpose of the Question**
The purpose of this question was to assess the students' understanding of features and functions of the library catalogue. This question is similar to Question 11, but it takes a different approach by directly asking what types of materials fall within the coverage of the library catalogue.

**Results**

The correct answer is the (a) and (d) combination. 23.4% of the students selected the correct answer, while a significantly higher number (42.1%) responded with the (a). (c) and (d) option. Surprisingly perhaps, a fair number of the respondents (12.4%) chose (a) only, which is only partially correct. Once again, the results seem to reveal the need for students to understand the difference between the library catalogue and the journal databases.

## Theme 5: Use of Results

### Question 10

Which one of the following citations refers to a journal article?

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) Maccoby, E.E. & J. Martin. (1983). "Socialization in the context of the family: Parent-child interaction", in P.H. Mussen (ed.), *Child psychology: Socialization, personality, and social development*. New York, Wiley, vol. 4, pp. 1-101.
e) Don't know

| | | Response Percent | Respons Total |
|---|---|---|---|
| Miller, A.W. (1997). Clinical disorders and stressful life events. Madison, CT, International University Press. | | 10.3% | 84 |
| **Anderson, K.H. (1999). "Ethical dilemmas and radioactive waste: A survey of the issues." Environmental Ethics, 2(3): 37-42.** | | **29.8%** | **242** |
| 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. | | 15.1% | 123 |
| Maccoby, E.E. & J. Martin. (1983). "Socialization in the context of the family: Parent-child interaction", in P.H. Mussen (ed.), Child psychology: Socialization, personality, and social development. New York, Wiley, vol. 4, pp. 1-101. | | 22.6% | 184 |
| Don't know | | 22.1% | 180 |
| | **Total Respondents** | | **813** |

### Purpose of the Question

The purpose of the question was to determine if students are able to interpret a citation in order to locate and retrieve the document.

**Results**

Although a high percentage (29.8%) of students selected the correct answer (b), a larger percentage (48%) of students chose the citations associated book (a, c or d) or didn't know (e) the answer (22.1%). One can assume that over 50% of the students would have difficulties locating the documents from a bibliography efficiently.

**Question 14**

You have found a book that is right on your topic. Which section of the book will you consult to find other books on the topic?

a) The glossary
b) The index
**c) The bibliography**
d) The table of contents
e) Don't know
f) Other (please specify):

| | | Response Percent | Respons Total |
|---|---|---|---|
| The glossary | | 4.2% | 34 |
| The index | | 9.4% | 76 |
| **The bibliography** | | **79.3%** | **640** |
| The table of contents | | 2.6% | 21 |
| Don't know | | 3.8% | 31 |
| View Other (please specify) | | 0.6% | 5 |
| | **Total Respondents** | | **807** |

**Purpose of the Question**

The purpose of the question was to determine if students understand the purpose of a bibliography. References in a bibliography are selected by the author and help students find other documents on their topics, thereby building an awareness of existing or past research in the area.

**Results**

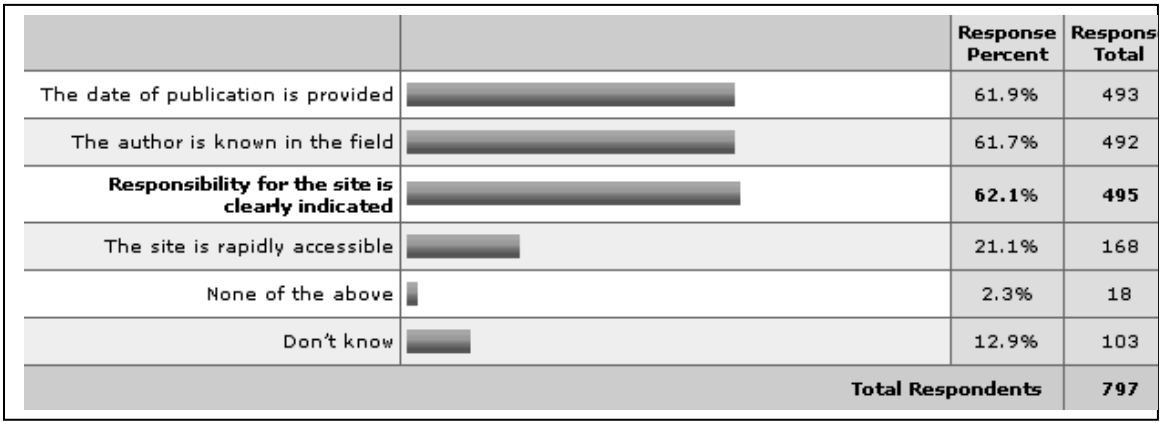
The results show that a majority (79.3%) of the students understand the purpose of a bibliography. The results do not, however, show how often or to what extent students make use of bibliographies. It is also important to note, from the results in Question 10 that although students understand the purpose of a bibliography they may still have difficulty interpreting the citations and locating the documents cited.

In addition, a small number of students (f) indicated that they would use a "reference," an "author's list of references" or an "annotated bibliography" instead. As survey designers we were made aware that students in different disciplines use terms other than "bibliography".

**Question 22**

Among the characteristics that are used to evaluate the quality of an Internet site one finds:

**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



| | | Response Percent | Respons Total |
|---|---|---|---|
| The date of publication is provided | | 61.9% | 493 |
| The author is known in the field | | 61.7% | 492 |
| **Responsibility for the site is clearly indicated** | | **62.1%** | **495** |
| The site is rapidly accessible | | 21.1% | 168 |
| None of the above | | 2.3% | 18 |
| Don't know | | 12.9% | 103 |
| | **Total Respondents** | | **797** |

| | | | | Response Distribution | Pecentage |
|---|---|---|---|---|---|
| **a** | **b** | **c** | | 248 | 31.1 |
| a | b | c | d | 80 | 10 |
| | b | c | | 29 | 3.6 |
| a | | c | | 47 | 5.9 |
| a | b | | | 50 | 6.3 |
| a | b | | d | 15 | 1.9 |
| a | | c | d | 19 | 2.4 |
| | b | c | d | 7 | 0.9 |
| | | | | | |
| **TOTAL** | | | | 797 | 100 |

**Purpose of the Question**

The purpose of the question was to determine if students, who often use the internet to satisfy their research needs, can identify basic criteria when evaluating the quality of a website.

**Results**

Among the combinations and options offered, about 31% of the students chose what was considered the best answer (a), (b) and (c). Between 47-50% of the students demonstrated some knowledge for evaluating the quality of websites/webpages by selecting one or two of the relevant criteria. Students need to be aware that web

resources rarely have editors or fact checkers, are often not peer reviewed and that there are no universal web standards that ensure accuracy when compared to scholarly journals.

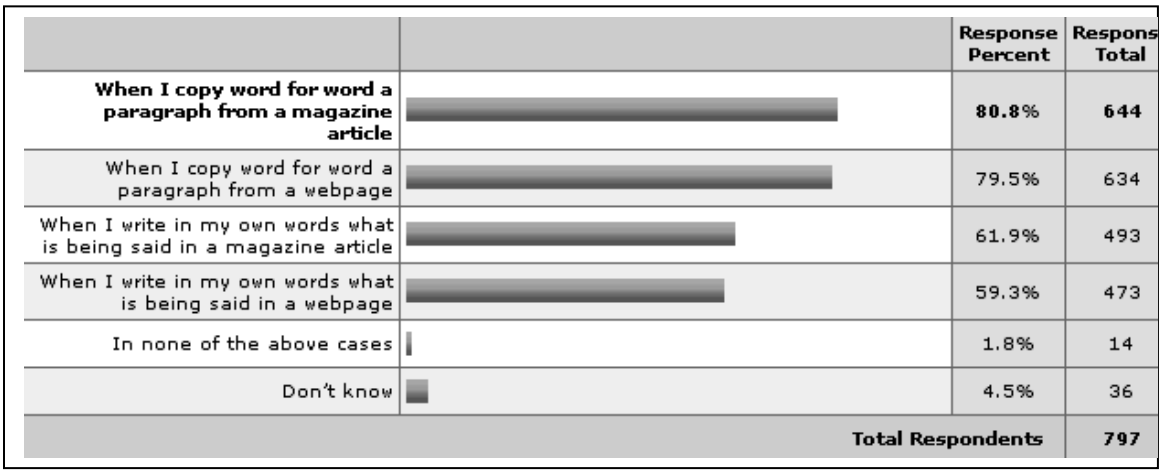
Rapid accessibility to a site (d), though important for evaluating the usability of a website, is not necessarily important when determining the quality of a website. This particular criteria may be important to students (e.g. in Business, Computer Science or Engineering) who are evaluating a website as a commercial enterprise.

Finally, 15.2% of students chose either (e) or (f). The results from this question indicate that students may not fully understand the need for evaluating neither a website nor the criteria by which to undertake such a task.

**Question 23**

You found magazine articles and webpages presenting different views on a current issue. 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?

**a) When I copy word for word a paragraph from a magazine article**
**b) When I copy word for word a paragraph from a webpage**
**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 webpage**
e) In none of the above cases
f) Don't know



| | | Response Percent | Respons Total |
|---|---|---|---|
| **When I copy word for word a paragraph from a magazine article** | | **80.8%** | **644** |
| When I copy word for word a paragraph from a webpage | | 79.5% | 634 |
| When I write in my own words what is being said in a magazine article | | 61.9% | 493 |
| When I write in my own words what is being said in a webpage | | 59.3% | 473 |
| In none of the above cases | | 1.8% | 14 |
| Don't know | | 4.5% | 36 |
| | **Total Respondents** | | **797** |

| Copy from magazine article | Copy from webpage | Own words from magazine article | Own words from webpage | **Response Distribution** | **Percentage** |
|---|---|---|---|---|---|
| **a** | **b** | **c** | **d** | 415 | 52.1 |
| a | b | c | | 5 | 0.6 |
| a | b | | | 185 | 23.2 |
| | | c | d | 36 | 4.5 |
| a | | | | 30 | 3.8 |
| | b | | | 19 | 2.4 |
| | | c | | 28 | 3.5 |
| | | | d | 16 | 2 |
| Other Answers | | | | 63 | 7.9 |
| **TOTAL** | | | | 797 | 100 |

**Purpose of the Question**

The purpose of the question was to see if students understand when they should include a reference to a source of information. Students are expected to observe standards of academic integrity. When submitting a work to an instructor or

professor for grading purposes. Adequate attribution to an author or creator is necessary when quoting verbatim passages or paraphrasing materials from a source. It is imperative that students are familiar with the principles of the ethical use of information.

**Results**

Only 52.1% of the students selected all the correct answers (a), (b), (c) and (d). The other half of the group is not entirely aware of **all** the circumstances under which they should be providing references to sources of information used.

It seems to be clear to 76.2% of the students that they should be attributing sources when they are quoting word for word, regardless of whether it is from a magazine article (a) or a webpage (b). Students are less knowledgeable of the need to cite when paraphrasing from a magazine article or a webpage.

Students have to fully appreciate the need to give proper recognition to the ideas, concepts and theories of authors they incorporate into their own work/writing.

## Analysis of Comments

Comments were received from 10% of returned surveys (97). A number of categories were suggested after reading through the comments.

**1. Self-realization**
Students made comments indicating they realized that they did not know certain things, eg. How to find items in the library, knowing which databases to search in, how to interpret citations, how to search for articles in a database and what exactly the library contains i.e. books and journals.

> "Journals are a mystery to me…"
> "I had no idea I knew so little about research…"
> "I don't know very much about how to cite sources for a paper…"

**2. Information Literacy Programs**
This category refers to comments students made about the existing IL programs in the library, i.e. Tours, Basic Instruction workshops, online tutorials, online help pages, Subject Instruction workshops and various paper handouts. Students were often confused about the difference between tours and workshops, and did not know that other IL programs existed. Comments also indicated a need to expand the tutorial modules. A gap in marketing the IL programs to first year students was clear from the comments. One student noted the usefulness of course integrated library instruction.

> "I didn't know there was a library course you could take though it seems that it would be a good idea"
> "this is very confusing! I would like to take a library tutorial, but don't know where to go…"
> "i knew very few of the answer… i guess that must mean that i have to take a library tour…lol"
> "I took the online tour of the library and although it showed me how to look up different things it didn't really include any other information such as the questions asked in this survey. Maybe if it were to include not only "how" to look things up but also "why" you would look for this particular type of publication i.e. books, journals, encyclopedias"
> "I think the lib. quiz I did in English is very helpful."
> "I think it would be very beneficial to all students to gain a better understanding of how to effectively use the library resources available. The idea of incorporating this into the curriculum I think is a good idea."

**3. Compliments**
Overall, comments about the library, library staff and library tutorials were positive. Students remarked that the library was a good place to study and a good resource.

> "The library is Amazing!! I've never had so many books at my fingertips to choose from, I love it!

Students also commented on the usefulness of the library tutorials and quizzes.

> "I found the UVic Online Library Tutorials to be very helpful in learning how to find items in the library and what to search for."
> "I think the lib. quiz I did in english is very helpful."

All comments on the staff were positive and the following comment summed up nicely what most people said.

> "All the staff at the library have been very friendly and open. They have gone out of their way to help me without breathing over my shoulder. Cheers to 4 more years of this!"

**4. Suggestions**

Of the comments that offered suggestions some wanted more computers (but not Mac's) and others commented on the difficulty searching the catalogue and databases.

> "Searching the library database is much more complex than a Google search, especially concerning the strict rules needed for typing in keywords. Is there any way to make the catalogue search more efficient?"

Still other students commented on the lack of workshops, guides and tutorials.

> "on-line tutorial on uvic website about library use would be very useful (not just a "help" function)
> "I know that there are library workshops but i dont know when and it is not easy to sign up for one. If the library sent out an email where we signed up and the times i think that more people would utilise the library more effectively."
> "I was not aware of Library Tutorials being offered"

Since we offer tours and workshops and there are guides and a tutorial on the library web page, these comments showed students were not aware of these resources. Students cannot find the links to the workshops and therefore assume we do not offer any. As with the comments about information literacy, these suggestions showed a gap in marketing the library services to first year students.

**Internet vs. Library**

From the comments there is evidence that students do not understand the difference between what they find on the internet and what they find through the library web page (i.e. peer reviewed journals). Students seem to consider all on-line resources equal in value as part of the "Internet".

> "I am really unsure of anything to do with the Library and Journals etc. The Internet is the most readily available source of research for me; I hardly ever go to the library."
> "I am just starting to use the internet for research and I am still learning a lot of valuable information"

The concern raised from the comments, and from the answers given in the survey, was not that students use the internet to find information but rather that they use the internet exclusively and worse, do not know how or why they should evaluate web resources. A possible solution to this problem might be to add another module in the library tutorial about evaluating resources.

**Survey Design and Result Bias**

There was one comment that addressed the make up of the survey.

> “A lot of these answers I don't know for sure, but I picked the most sensible one and the one I would try if I thought of it.”

This response raised the question about how the respondents would have done if there had not been multiple choice answers. Would they have been able to answer as many of the questions correctly? Was this survey a true test of their knowledge or did the multiple choice option act as a prompt towards the correct response? This might be something to address in future surveys.

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