

# The University of Scranton Information Literacy Assessment



February 2005

# Information Literacy Assessment

## Background

In 1993 national standards for information literacy were revised and accepted by the Association of Colleges and Research Libraries (ACRL). Most of the relevant literature on information literacy focuses on why, when, and how to develop information literacy in your institution. Very little is written on how undergraduate students meet the ACRL standards. A search in September 2004 found one article, written by Patricia Davitt Maughan, "Assessing Information Literacy among Undergraduates: a discussion of the literature and the University of California-Berkeley Assessment Experience," which described the extent to which undergraduates met the ACRL standards or earlier sets of standards. This article reports subjective student self-assessment and not objective data (Maughan, 2001).

## Relevance of Information Literacy Training

Information Literacy is defined in the 2002 edition of the Middle States Commission on Higher Education's (MSCHE) *Characteristics of Excellence in Higher Education: Eligibility Requirements and Standards for Accreditation*. As well as being defined, Standards 11 and 12 indicate that one of the overarching goals of an institution "should be to produce information literate graduates." Standard 12 also states that: "The institution's curricula are designed so that students acquire and demonstrate college level proficiency in general education and essentials skills, including oral and written communication, scientific and quantitative reasoning, critical analysis and reasoning, technological competency, and information literacy" (pg.38).

The MSCHE 2003 publication entitled *Developing Research & Communication Skills: Guidelines for Information Literacy in the Curriculum*, discusses the importance of information literacy training,

"Information literacy training can deepen and improve basic general education skills...weaving information literacy instruction explicitly into specific disciplines enables students to place essential skills in the context of their majors, because each discipline has its unique approach to information, critical thinking, and evaluation. This may be done seamlessly throughout a course or as an explicit and minor component of a course (pg. 3)."

## Introduction

Terrance Mech, King's College Librarian, approached the University of Scranton Weinberg Memorial Library to participate in the *Information Literacy Assessment (ILA)* administration for the fall of 2004. The *ILA* was originally adapted from the "Information Literacy Competency Inventory," administered in September 2001 at Maryville College's Lamar Memorial Library in Maryville, TN. The *ILA* has undergone several revisions as

a result of a factor analysis performed by the Library faculty at King's College. King's instrument includes 25 questions not specific to any institution, reflecting all of the Association of Colleges and Research Libraries (ACRL's) *Information Literacy Competency Standards* and not limited to traditional library-related skills. King's College is continuing to develop the reliability and validity of the instrument with subsequent administrations. The data collected from this assessment provides The University with outcomes based information to support the student self-report assessment that is already being collected. Currently the instrument has a reliability (Cronbach's alpha) of .60.

### **Purpose of the Assessment**

The purpose of this assessment is to improve the quality of the information fluency instruction at the University of Scranton. "Information Fluency" is defined as the optimal outcome when critical thinking skills are combined with information literacy and relevant computing skills (Associated Colleges of the South, 2005).

### **Administration of Information Literacy Assessment (ILA)**

The Information Literacy Assessment was administered to a sample of freshmen and seniors during the time period of August 30 to October 15, 2004. A cross-sectional research design was employed. A total of twenty sections of freshman classes were administered the assessment. The *ILA* was administered to eighteen sections of Freshman Seminar, and two freshmen nursing sections, equaling 275 freshmen, and 10 sections of 400 level classes from a variety of majors, equaling 217 seniors. All administrations were in a classroom setting and proctored by either a Librarian or a staff member from the Planning, Assessment, and Institutional Research Office (PAIRO). The students were given an information sheet to read prior to participating in the assessment which was also read aloud by the proctor. Participation was completely voluntary. The students were given a time limit of 30 minutes to complete the assessment. The average student time for completion of the *ILA* was 15 to 18 minutes.

The information gathered from this assessment administration will be considered baseline data. The freshman and seniors were from different cohorts. The expectation for subsequent administrations is to assess a sample of incoming freshman and then post-test the same students as seniors to develop a direct comparison of skills.

## Results

The results will be presented in the context of the 5 national standards for information literacy accepted by the Association of Colleges and Research Libraries.

Standard 1	Determines the nature and extent of the information needed
Standard 2	Assesses needed information effectively and efficiently
Standard 3	Evaluates information and its sources critically
Standard 3	Incorporates selected information into one's knowledge base
Standard 4	Uses information effectively to accomplish a specific purpose
Standard 5	Understands many of the economic, legal, and social issues surrounding the use of information, and accesses and uses information ethically and legally (The Association of College and Research Libraries, 2000).

**For complete information about the ACRL information literacy standards please refer to the library web page.**

<http://academic.scranton.edu/department/wml/infolit.html>

Comparative results are not presented in this paper due to varying research designs utilized among the schools participating in the study. The results will include the following:

- Class level
- Number of participants
- Composite score
- Five individual Standard scores
- Knowledge score
- Application score
- Library items score

## Individual Standards Scores

**Table 1**  
**Freshman and Senior Composite and Standards Scores**

Class	N	Composite Score	Standard 1	Standard 2	Standard 3	Standard 4	Standard 5
Freshmen	275	44.73	45.60	36.36	45.31	48.36	48.00
Seniors	217	57.27**	61.38**	54.01**	53.27**	57.88**	59.82**
Difference		12.54	15.78	<b>17.65</b>	<b>7.96</b>	9.52	11.82

\*\* Indicates a significant difference between the groups ( $p < .001$ )  
Scores are based on 100%

The highest and lowest differences are in bold. **Standard 2**, Access the needed information effectively and efficiently, was the highest increase from freshman students to seniors. This indicates that the sample of seniors, for this assessment, were better able to identify the most efficient and effective process to access the information needed. However, the lowest difference was for **Standard 3**, the ability to evaluate information and its sources critically and incorporate selected information into one's knowledge base. This may indicate that the students were able to identify how to obtain the information but were not able to identify if the sources were credible and answer questions correctly regarding synthesizing information. It appears that for **Standard 3**, the seniors are not increasing much beyond their freshman skills in their ability to assess whether the information obtained is of a credible nature and also then being able to synthesize the sources into assignments. Although there is a significant difference, does a practical significant difference exist? This may be an area for future investigation.

## Freshman and Senior Knowledge and Application Scores

**Table 2**  
**Freshman and Senior Knowledge and Application Scores**

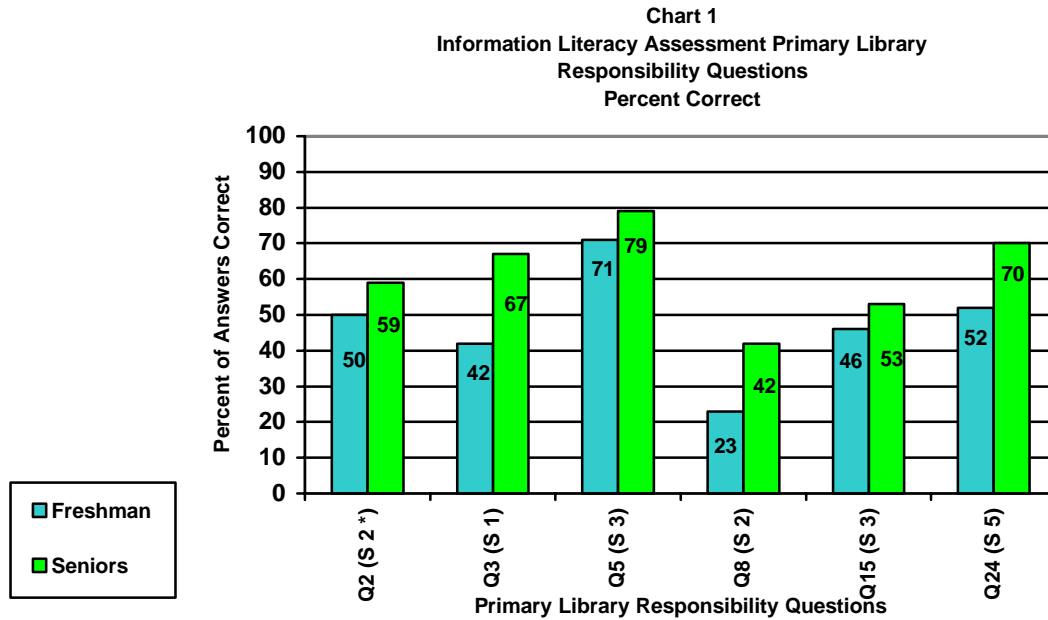
Class	N	Composite Score	Knowledge Score	Application Score
Freshmen	275	44.73	41.76	47.47
Seniors	217	57.27	57.30**	57.25**
Difference		12.54	<b>15.54</b>	<b>9.78</b>

\*\* Indicates a significant difference between the groups ( $p < .001$ )  
Scores are based on 100%

The results from Table 2 appear to echo the results from Table 1. The difference between the freshmen and seniors are the highest when the student needs to identify the knowledge or acquisition of skills but demonstrate less of an increase when it is necessary to choose the correct answer demonstrating the application of the knowledge gained.

## Library Specific Questions

When considering the individual items on the assessment, questions 2, 3, 5, 8, 15, and 24 were identified as information that is the primary responsibility of library instruction. The percentage of students who answered each question correct is listed in Chart 1.



\*This represents the ACRL standard that is associated with the question on the assessment

**Table 3**  
**Differences for Freshmen and Seniors for Percent of Questions Answered Correctly for Library Specific Questions (arranged by ACRL standards)**

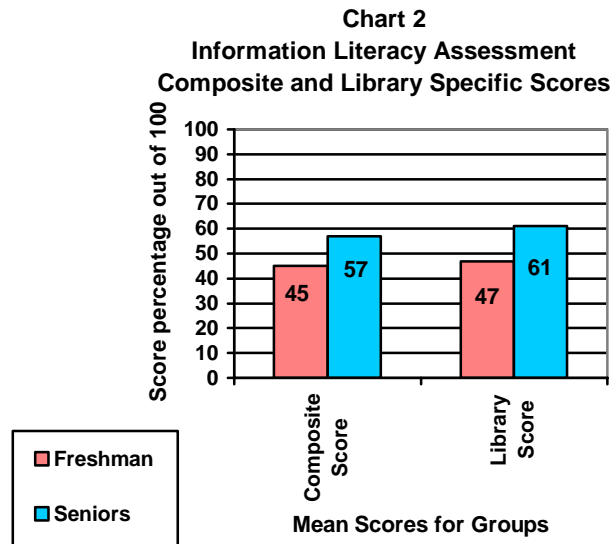
Question	Topic	Standard	Senior Score*	Freshman Score*	Difference	Potential Explanation
3	Secondary source identification	1	67	42	<b>25</b>	Higher increase due to practice and instruction on determining the extent of information needed.
2	Search Strategy	2	59	50	9	Due to previous experience with commercial search engines- there may already be a familiarity with search strategies using key words. Easy for students to succumb to inefficient searching.
8	Boolean Logic	2	42	23	<b>19</b>	Higher increase due to the unfamiliarity of Boolean logic prior to entering college. Boolean Logic is emphasized in Information Literacy Classes. Search engines use natural language styles as opposed to developing search strategies
5	Main Concepts	3	79	71	8	Students may be entering college using keyword searches and not higher level searches by subjects headings. Students may not see the reason for using subject heading searches because they find enough information through keyword searches.
15	Best support for claim	3	53	46	7	Both groups are failing to recognize the difference between primary, secondary, and tertiary materials and the appropriate application of those materials
24	Database usages from other schools	5	70	52	<b>18</b>	Students, after instruction, have a better understanding of our subscriptions and how to obtain items beyond those owned/accessible by the university.

\*Percent of questions answered correctly

**Bolded** numbers represent the largest differences between freshmen and seniors

## Library Composite Score

Chart 2 presents the overall composite scores for the ILA and also the library specific question composite scores. As shown, the freshman score is 2 mean points higher for the library only questions and the seniors score 4 mean points higher in the library only composite score. The differences between the freshmen and the seniors for both the composite score and the library score were significantly different ( $p < .001$ )



## Overview

Analysis of the data from the *ILA* demonstrates that the University of Scranton senior students are scoring higher for Standard 1 (Determine the extent of information needed) and Standard 2 (Access the needed information effectively and efficiently). It appears that the seniors are making greater gains in the knowledge area, supported by the *Knowledge Score* (p. 5). However the seniors are scoring lower on Standard 3 (Evaluate information and its sources critically-Incorporate selected information into one's knowledge base) and 4 (Use information effectively to accomplish a specific purpose). This data is also supported by the smaller gains by the seniors in the *Application Score*. Standard 5 (Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally) scores for the seniors fall between the Standards 1 and 2 and Standards 3 and 4 for gains.

One explanation for the difference in gains for the seniors between the acquiring information standards and the standards that address critical thinking may be the reinforcement of the strategies in accessing data and determining the amount of information needed during first year library instruction in combination with Freshman Seminar course information. It appears that the freshman obtain the information but have not, by senior year, demonstrated being able to fully integrate the information in order to critically evaluate the sources obtained, incorporate the information into their



own knowledge base in order to apply the information to a variety of practical or applied situations or assignments, and then use the information to its full advantage for a specific purpose.

One possibility for improving the scores for the seniors in *ACRL's* Standards 3 and 4 may be integrating discussions, assignments, and tests regarding information literacy skills into the general education and major courses throughout the four-year curriculum. This would allow the students to increase their capacity to use the knowledge gained and therefore increase their ability to apply the skills to various situations and practical implementations. The statement from the MSCHE 2003 publication entitled *Developing Research & Communication Skills: Guidelines for Information Literacy in the Curriculum* cannot be overstated.

“Information literacy training can deepen and improve basic general education skills...weaving information literacy instruction explicitly into specific disciplines enables students to place essential skills in the context of their majors, because each discipline has its unique approach to information, critical thinking, and evaluation. This may be done seamlessly throughout a course or as an explicit and minor component of a course (Middle States Association of Colleges and Schools et al, 2003)”

Information Literacy instruction is a University-wide initiative to produce information literate graduates.

### **Limitations of the study**

Limitation in the study included the following:

- The three participating institutions used varying methodologies to administer the *Information Literacy Assessment*. This limitation deterred The University of Scranton Weinberg Memorial Faculty from comparing their data with that of the other institutions.
- The *Information Literacy Assessment* instrument continues to be developed. The wording of several questions has been refined after another item analysis.
- Using two different cohorts of students. The 2004 freshman were compared with the 2004 seniors. The purpose of participation this year was to begin to gather some baseline data. A comparison could not be made within a single cohort. The plan in the future is to pre-test a sample of incoming freshman students and then post-test the same sample in their senior year to assess information literacy skills.
- Minimal demographic data was collected. The plan for the next administration is to add more demographic questions such as an identifier, major, school, etc.

## **Future Steps for Incorporating Information Literacy into the Curriculum**

- Prepare a Power Point presentation to use to explain the results of the Information Literacy Assessment. **Completed.**
- Present to the Library Advisory Board an overview of the Information Literacy Assessment. The Library Advisory Board is made up of representatives from each academic department. **Completed.**
- Schedule meetings with Deans Conferences to present the results of the Information Literacy Assessment. **Pending.**
- Schedule a Brown-Bag lunch to show the results to the faculty who volunteered their classes for the Information Literacy Assessment. **Pending.**
- Schedule a Brown-Bag lunch to show the results to any faculty member who is interested in the results of the Information Literacy Assessment. **Pending.**
- Prepare an article for the Library's Spring Newsletter regarding the assessment results. **Completed.**
- Fall 2004 the Weinberg Memorial Library awarded six stipends to faculty who will be collaborating with selected library faculty in embedding information literacy into certain courses. At the end of each project, there will be a written report explaining the process and insights encountered. **Ongoing.**
- Spring 2006 a panel discussion of those who participated in the projects. This will be a school-wide presentation. **Pending.**
- Meet with Terry Mech and a representative from Marywood University to discuss wording of questions and develop a standardized administration process. **Completed.**
- Participate in the University of Scranton Pilot Assessment Plan. **Ongoing.**
- Develop an action plan for the Weinberg Memorial Library Information Literacy Program. **Ongoing.**
- Partner with Faculty in developing student learning outcomes on information for their courses. **Ongoing.**
- Repeat the Information Literacy Assessment in Fall 2005. **Pending.**

## References

Associated Colleges of the South. Information Fluency Definition. Retrieved February 10, 2005 from [http://www.colleges.org/~if/if\\_definition.html](http://www.colleges.org/~if/if_definition.html)

Maughan, P.D. (2001). Assessing information literacy among undergraduates: A discussion of the literature and the University of California-Berkeley Assessment Experience. *College & Research Libraries* 62(1), 71-85.

Middle States Association of Colleges and Schools: Commission on Higher Education. (2003). *Developing research & communication skills: guidelines for information literacy in the curriculum*. Philadelphia: Middle States Commission on Higher Education.

Middle States Association of Colleges and Schools: Commission on Higher Education. (2002). *Middle States Commission on Higher Education's Characteristics of Excellence in Higher Education*:

The Association of College and Research Libraries. (2000). *Information Literacy Competency Standards for Higher Education*. Chicago: The Association of College and Research Libraries.