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The Role of a Competency Test in Supporting and Promoting the Integration of Information Literacy in the Undergraduate Curriculum at James Madison University

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<u>The Role of a Competency Test in Supporting and Promoting the Integration of</u>
<u>Information Literacy in the Undergraduate Curriculum at James Madison University</u>.

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The Library Instruction Program at James Madison University is a comprehensive, multi-faceted program that reaches students at two levels: basic instruction during the first year and advanced instruction in the major. This presentation will discuss our work reaching students at each of these levels, our online competency test and our collaborative efforts with faculty to further enhance our program. On a campus of 13,706 FTE, the Library Instruction Program at James Madison University reaches approximately 10,000 students each year, with about 3,000 completing Go for the Gold and some 7,000 receiving course-related instruction taught by fifteen liaison librarians. The Library Instruction Program begins in the freshman year with basic instruction in information literacy integrated into the General Education program using Go for the Gold, a web-based program with online exercises. This program is coupled with course- related assignments designed to give students experience in finding and evaluating information, employing the skills demonstrated in Go For the Gold. Librarians provide formal training to General Education faculty to insure successful integration of information literacy objectives into coursework. All first-year General Education students must pass an online Information-Seeking Skills Competency Test by the end of the year.

In the early eighties, reference librarians developed a self-paced, individualized library skills workbook that was used for all first-year students taking English 101. In the mid-eighties, the library instituted a library liaison program in which librarians from all departments within the library were assigned to work with academic departments to provide instruction, work with faculty to develop the collection, and communicate important information about collections and services. From the beginning of the liaison program, the goal of the instruction program has been twofold:

- To teach all beginning students basic library skills

- To teach all students in the major the sources and research strategies important to their field through course-related instruction performed by liaison librarians.

In the early nineties, JMU began planning a new General Education program, and librarians were a part of the planning process. The new competency-based curriculum included information-seeking skills as formally stated objectives. These objectives are:

- **Formulate and conduct an information search that includes a variety of reference sources, such as encyclopedias, library catalogs, indexes, bibliographies, statistics sources, government publications, and resources available on the Internet.**

- **Evaluate information sources in terms of accuracy, authority, bias, and relevance in written and oral contexts.**

These objectives became two of nineteen common objectives for basic skills courses in General Education. The basic skills are writing, communication, critical thinking, information-seeking, and technology. The General Education program consists of five clusters of objectives that cover important subject areas. Basic skills are taught in Cluster One and are considered to be foundational to the students' subsequent work in General Education and their major or preprofessional program. Once the information literacy objectives became an integral part of General Education, librarians and faculty wrote more specific skills information literacy skills. Using these specific local items as a basis, the library developed a web-based instruction program called Go for the Gold, which replaced the library workbook.

Go For the Gold is a series of Web-based instructional modules designed by the Carrier Library reference staff to introduce students to the services and collections in Carrier Library and to teach students basic information-seeking skills. The modules are organized in the following order:

Module 1 — Orientation to Carrier Library
Module 2 — An Introduction to the Information World
Module 3 — Searching an Electronic Database
Module 4 — Finding Information Resources: Using LEO: The Online Catalog, Locating Background Information, Books and Non-Print Media, Periodical Articles, Biographical Information, Primary Sources, Critical Reviews, Government Information, Statistical Information
Module 5 — Using Internet Sources
Module 6 — Evaluating Sources of Information
Module 7 — Information Ethics: Citing Sources and Fair Use
Module 8 — A Search Strategy for Research Papers and Speeches

Each module concludes with online exercises that are scored electronically so that students receive immediate feedback. Student scores for all eight sets of exercises are stored in a database that can be viewed by faculty. Go for the Gold has been refined and improved each year to reflect changes in the library, changes to online database, and to improve the quality of instructional delivery. This web-based instruction program is assigned to all first-year students taking introductory General Education courses and serves as the primary method of delivering information literacy instruction to the 3,000 students enrolled in Cluster One. This online program can be viewed at: <http://www.lib.jmu.edu/library/gold/modules.htm>

Along with development of the online program, the change to General Education also provided momentum for additional faculty collaboration and training. The new structure of General Education created interdisciplinary packages within each Cluster. The four packages of Cluster One are:

A: Writing, Communication, Critical Thinking
B: Writing, Communication, General Business
(Package C is still under development)
D: Writing, Communication, History
E: Writing, Communication, Introduction to Media Arts

The creation of these interdisciplinary clusters brought faculty together across departmental lines. In the changing seas of curriculum and technology, information literacy has provided a common ground for dialogue. The General Education office has facilitated this opportunity to integrate information literacy into the curriculum of Cluster One by providing yearly grants for faculty training.

Another core aspect of General Education, besides interdisciplinarity, is competency testing. James Madison University has been heavily invested in assessment efforts for many years, with faculty and staff in the Center for Assessment provide leadership and assistance with developing test. Librarians at JMU have assessed library skills of freshmen since late 1980s, originally using a multiple-choice paper and pencil test developed locally by reference librarians in consultation with assessment specialists. This test was administered to a random sample of students annually, and was revised and improved over the years to increase its reliability. In 1998, an online test in a web-based format with frames was developed. Using several questions from the paper and pencil test as a starting point, questions were added that require students to find answers in the online catalog, in databases, and on the Internet. Librarians composed test questions, with input from teaching faculty and assessment specialists.

Once the 53-item online test was developed, it was piloted during 1998-1999 on several hundred students gathered by random sample. Pilot test results enabled us to make revisions and improvements that increased reliability. The Information-Seeking Skills Test (ISST) became a required competency test for Cluster One students in 1999-2000; the 2000-2001 academic year was the second year of implementation

After the decision to make the ISST a competency test, the next step was to set a standard for passing. The Center for Assessment invited 12 faculty and librarians to participate in two half-day sessions to set a passing score for the test. Participants represented General Education, Carrier Library, Speech Communication, History, Business, and Writing. The group set two cut scores, one for "Meets the Standard" and one for "Advanced". Using the "Bookmark" procedure (Lewis, Green, Mitzel, Baum, & Patz, 1998), participants examined the 53 test items that had been ordered by difficulty according to examinee performance on the ISST during the 1998-99 academic year. Based on the judgments of participants, the recommended cut score for "Meets the Standard" is 42 correct items. For "Advanced," the recommended cut score is 48 items correct out of 53.

The ISST is administered in a secure testing lab, staffed by the campus Center for Assessment. The test resides on the Assessment server and is password protected. Students may come in as individuals and take the test, or General Education faculty may schedule whole classes to take the test at once. Students receive immediate feedback on their scores and sub scores.

Maintenance of the test itself is an ongoing responsibility shared by librarians and assessment staff. Questions that require students to apply knowledge by finding answers in online sources are particularly challenging to maintain, as answers may change as databases constantly add and drop records, and access to databases changes over time. Databases may also be down temporarily, interfering with students' ability to complete

the test. Proctors in the testing lab are usually the first to detect problems with questions, and they quickly communicate these to the librarian and assessment staff member who resolve them as quickly as possible.

Students who do not pass the ISST are offered the opportunity to attend small workshops led by librarians or meet individually with librarians for assistance. These sessions focus on the test questions that students most often miss:

1) Locating a journal article
2) Using Boolean operators
3) Understanding the difference between keyword and subject searching
4) Developing effective search statements
5) Identifying different types of citations

Librarians teaching these workshops incorporate instruction methods that address several learning styles, including demonstration, discussion, and having students write out search statements on a marker board before trying examples on the computers. Supporting materials included a map of the library, a list of library terminology, and a search statement worksheet.

Besides fulfilling its role as a competency test, the ISST also serves as a platform for subject area liaison librarians. The skills developed in Go for the Gold and tested with the ISST are reinforced and furthered in the major. Liaison librarians can assume students have a basic level of Information Literacy competency. This is significant for large gateway courses with research particular to a discipline. For example, COB 300 is a gateway course required of all business majors. High enrollment (700 students in Fall 2001), the specificity of the assignment (creation of a business plan) and limited class time devoted to library instruction (two fifty minute class sessions) make time of the essence. These sessions focus on the basics of business research with research basics woven in as review. Liaison librarians offer similar instruction in gateway courses for History, Health Sciences, English, Business, Psychology and Theater. Programs with specific research methods courses are another avenue for targeted instruction in the discipline and liaisons actively work with these courses. Having a basic program that tests first year students' knowledge of information literacy allows us to plan a more sophisticated approach to library research in the major.

The ISST also serves as a springboard for developing subject specific assessment tests. For example, Computer Information Systems 320 is an introductory course for computer and information systems majors that includes a research paper assignment on telecommunications trends. The majority of students in this class are transfer or older returning students who bypass General Education requirements. Most have limited information seeking skills and little experience in our library or with databases. This lack of skill was evident in papers that were less than satisfactory. The CIS faculty member and the liaison librarian worked together to redesign the flow of the assignment, building on basic research skills while focusing on particular sources for the assignment, the reverse of what happens in a gateway course. A test, designed by a librarian and based

on the ISST, is used to assess the research skills taught in this course. The liaison librarian also reviews student presentations and final projects.

Several liaison librarians have developed information literacy objectives for specific majors. The Information Literacy Test for Psychology is administered to psychology seniors during the Spring semester. This online test consists of 43 multiple choice items that measures knowledge in four areas: basic skills, database searching, Internet, and evaluation of sources. The Health Sciences and Health Services Administration majors take the Information Literacy Test for Health Sciences. This paper and pencil test is composed of 45 test questions and 15 survey questions. At this writing, other liaisons are developing objectives and assessment tools for major programs.

The incorporation of a competency test into our information literacy program for General Education has been an evolutionary process that has spanned more than a decade. Although the test was challenging to develop and is time intensive to administer and maintain, we have experienced significant benefits from this initiative. The relationship between the library and the General Education program has been strengthened. Liaison librarians and faculty are collaborating more closely than ever before on delivering instruction and designing assignments to further develop the skills measured by the test. Students, knowing they will be held accountable for learning important skills, are taking information literacy seriously. The resources we have put into the competency test and the liaison program have been well worth the outcomes for JMU students.

Acknowledgements

Reference

Lewis, D. M., Green, D. R., Mitzel, H. C., Baum, K., & Patz, R. J. (April, 1998). The Bookmark standard setting procedure: Methodology and recent implementations. Paper presented at the Annual Meeting of the National Council for Measurement in Education, San Diego, CA.

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Tier One: Instruction at the freshman level

General Education Objectives for Cluster One related to Information Literacy:

- Formulate and conduct an information search that includes a variety of reference sources, such as encyclopedias, library catalogs, indexes, bibliographies, statistics sources, government publications, and resources available on the Internet.

- Evaluate information sources in terms of accuracy, authority, bias, and relevance in written and oral contexts.

These objectives are part of the Cluster One curriculum via web based library instruction (online modules called Go For the Gold), library assignments given by Cluster One instructors, and are measured by the Information Seeking Skills Test.

Information Literacy Skills for General Education

Identify and locate the following services and collections in Carrier Library:

o Reference Desk	• Government documents
o Electronic Reference Area	• LEO
o Interlibrary loan/document express	• Media Resources
o Current and bound periodicals	

- Describe how information is organized in libraries.
- Given a need for a particular type of information (i.e. overview, research report, news), identify an appropriate type of source (i.e. encyclopedia, scholarly journal, newspaper).
- Characterize the quality of information found on the Internet vs. in libraries.
- Define the terms database, record, and field.
- Define 3 types of information databases: bibliographic, full-text, numeric.
- Determine the subject scope and years of coverage of a given database.
- Identify the main concepts of a research topic and generate a list of search terms.
- Build a search strategy using Boolean operators.
- Compare and contrast a free text search with a controlled terminology search.
- Define truncation, nesting, field-specific searching, and phrase searching.

- Use LEO to locate materials held by Carrier Library (including books, nonprint media, and government documents)
- Find relevant background information on a topic.
- Locate and effectively use the following types of information sources:

o Periodical Articles	o Critical Reviews
o News Sources	o Government Information
o Biographical Information	o Statistical Information
o Primary Sources	

- Define Internet, World Wide Web, browser, and Internet search engine.
- Locate a specific web site given an Internet address
- Conduct an Internet search on a given topic
- Compare and contrast a database search with an Internet search.
- Evaluate information using the following criteria:
  - o authority of the publisher, author, producer, etc.
  - o appropriateness of the date of publication or release of the item
  - o supporting documentation
  - o purpose of the work
  - o review process
- Identify the bibliographic elements essential for properly citing an information source
- Apply appropriate ethical guidelines to the use of information.
- Cite information sources using a standard bibliographic style.
- Define and apply an efficient search strategy for a research paper to include:
  - o Choosing a topic and identifying its main concepts.
  - o Narrowing the focus of the topic.
  - o Identifying appropriate reference books, indexes, and Internet sites.
  - o Using a variety of sources.
  - o Evaluating the sources for appropriateness and quality.

Tier Two: Instruction in the major

Librarian led instruction takes place in the major, in gateway courses and research methods courses. Liaison librarians assist departments in developing Information Literacy objectives in the major. Assessment efforts in the major are underway for some subject areas.

Carrier Library Instruction page, maintained by Lynn Cameron:

http://www.lib.jmu.edu/staffweb/ps/instruction/

Go For the Gold: http://www.lib.jmu.edu/library/gold/modules.htm

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