

SAVVY MARINE BIOLOGY RESEARCHERS FROM THE GROUND: ACRL IL STANDARDS!

Valeria E. Molteni

Academic Liaison Librarian (Sr. Assistant Librarian)
Martin Luther King, Jr. Library
One Washington Square, San Jose, California, USA, 95192-0028
00-1-408-808-2023
Email: <mailto:valeria.molteni@sjsu.edu>

Abstract: At SJSU, the Martin Luther King, Jr. Library instruction sessions are based in the ACRL Information Literacy Standards for Higher Education. The instruction librarian group is divided into different disciplines and departments. The following paper describes the experience of the Academic Liaison Librarian for the Biological Sciences Department and how the librarian integrates the ACRL (Association for Academic and Research Libraries) IL standards for Science and Engineering/Technology across the different courses. The paper presents a process of developing lesson plans in conjunction with teaching faculty that map to the goals and outcomes of ACRL Information Literacy indicators.

Keywords: information literacy, biology, library instruction, college students.

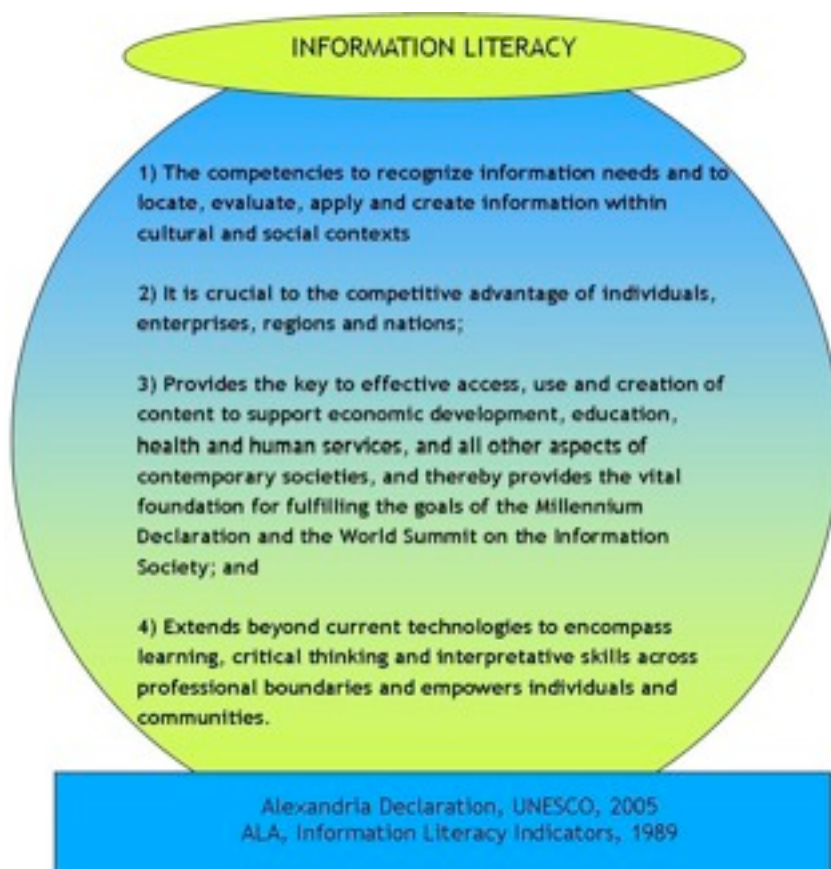
San José State University is an urban university located in San Jose, California, United States. The University has 31,280 students; 1,685 faculty; 4,043 bachelor's degrees; and 2,311 master's degrees (SJSU, 2010). SJSU is part of the California State University system, which, with its 23 campuses, 417,000 students, and 46,000 faculty members, is one of the largest institutions of public higher education in the nation.

The Martin Luther King, Jr. Library at San José State University is a unique combination of both academic and public library. Opened seven years ago, this library serves the diverse populations of the city of San José, California as well as the university community. The Martin Luther King, Jr. Library is a library where the Public and University Libraries converge; it is a complex which is now houses in one facility a Library containing both the main branch of San José Public Library and the San José State University Library. It is in this building that both communities, the public and the academic, share together a facility dedicated to lifelong learning for all members of both the public and the University communities alike. The building has 8 floors, 6 classrooms, 36 meetings rooms, 1.9 millions items and 5 Special Rooms (Beethoven Center, California Room, Children's Room, SJSU Special Collections and Steinbeck Center), and one Multicultural Center.

At the SJSU library (the Martin Luther King, Jr. Library), library instruction sessions have been based on the ACRL Information Literacy Standards for Higher Education, and the instruction librarian group has been divided into different disciplines and

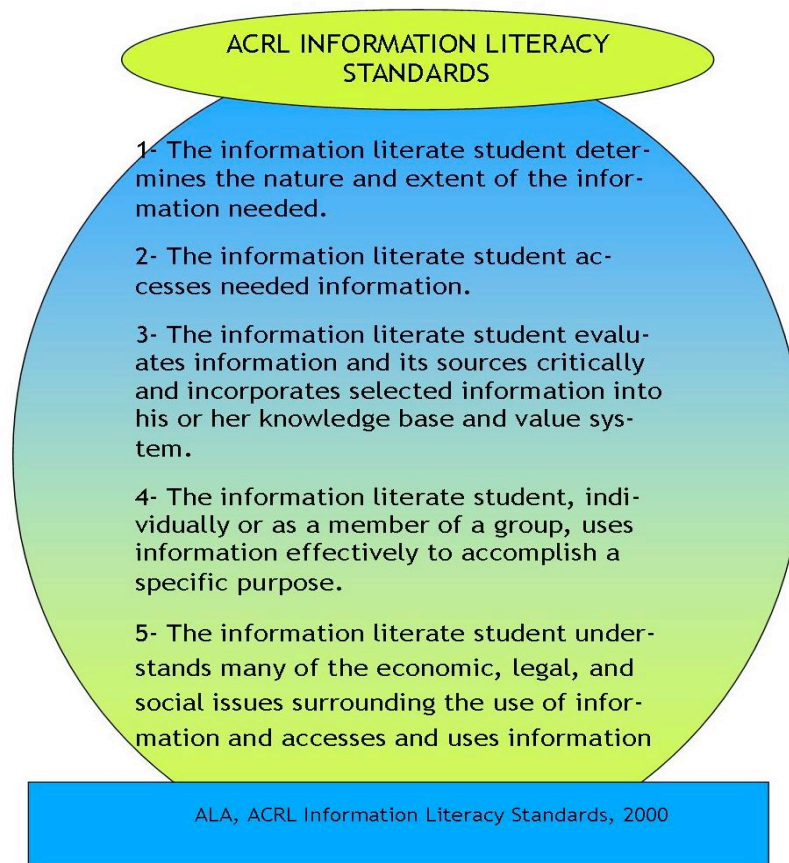
departments. The standards have their origin in 1989, when the American Library Association (ALA) first formally defined Information Literacy. The concept of Information Literacy is linked with the development of the concept of lifelong learners. Information literacy is an intellectual framework for the developing of skills related to understanding, finding, evaluating, and using information in order to satisfy the need and the production of new knowledge. You can establish an analogy of the skills that you develop through Information Literacy with the skills that you develop when learning to read a map and developing an understanding of longitude and latitude. If you can determine where you are, you can reach your destination through a journey. In a similar way, if you orient yourself through information literacy skills, you will be ready for a continuous lifetime of learning, no matter your age or situation may be.

Graphic 1 shows the four principles of the concept of Information Literacy. These principles were defined by the ALA (1989) and confirmed later by UNESCO at the Alexandria Declaration (2005).



Graph 1.

In 2000, the Association of Academic and Research Libraries (ACRL, a division of ALA) delineated the existing standards and their attendant indicators. This delineation defined five standards and their subsequent indicators (Graph 2). The principal goal of information literacy has been the development of critical thinking, research skills, and lifelong learning among university students. The same standards later were adopted in a number of other countries around the world—such as Spain, Australia, Brazil, and Mexico (UNESCO, 2007).



Graph 2.

During the last twenty years, academic librarians have been taking an active role in the teaching process (Bennett, 2009). The teaching of information literacy skills is a complex practice, where the ultimate goal is to influence the student's life through the acquisition of a certain level of information knowledge so that they will be able to apply it at any given time in their careers or lives. In the case of academic libraries, teaching students how to locate, analyze, and use information is critical. According to the ACRL's

Information Literacy Competency Standards for Higher Education (2000), “developing lifelong learners is central to the mission of higher education institutions. By ensuring that individuals have the intellectual abilities of reasoning and critical thinking, and by helping them construct a framework for learning how to learn, colleges and universities provide the foundation for continued growth throughout their careers, as well as in their roles as informed citizens and members of communities.” Moreover, information literacy is “common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning” (ACRL, 2000). As a result, this concept is related to the process where a student makes the change from being a receiver of information to becoming a producer of knowledge, where the student decides to begin actively learning instead of just passively existing in the classroom.

Mainly, there are two styles to teach information literacy skills across the university curriculum: Integrated and non-integrated instruction. In the first, the librarian has an active collaboration with the teaching faculty through the semester. Usually in this model, the librarian and the member of teaching faculty develop assignments that correlate with the course syllabus through the semester offering students the chance to participate and receive extra credit. In non-integrated instruction, the librarian has similar involvement with the teaching faculty, but this participation is not an essential component of the course. Generally, the librarian offers a one-shot workshop which is tailored to the course syllabus and to the course research assignment.

As it was indicated above, at the SJSU King library information literacy skills are taught by the Academic Liaison Librarians. Their subject areas have been organized by the SJSU departments. The experience described in this paper is related to the Department of Biological Sciences. This department offers nine different BA's (Biological Sciences, Biological Sciences [Preparation for Teaching], Nature Science [Preparation for Teaching], Nature Science [Concentration in Biodiversity Stewardship], Biological Sciences [Concentration in Conservation and Organismal Biology], Biological Sciences [Concentration in Marine Biology], Biological Sciences [Concentration in Microbiology], Biological Sciences [Concentration in Molecular Biology], Biological Sciences [Concentration in System Physiology]); three minors (Biological Sciences, Biological Sciences with Preparation for Teaching and Science) and five different masters (MA, Biological Sciences; MS, Biological Sciences, Concentration in Organismal Biology, Conservation, and Biology; MS, Biological Sciences, Concentration in Physiology; MS, Biological Sciences, Concentration in Molecular Biology and Microbiology and MS, Biotechnology). Undergraduate students in biology prepare for graduate work, for laboratory and field research and technical work, for health professions, and for K-12 teaching, while graduate students prepare for careers in specialized scientific areas and in community college teaching. The research component is very important in the curriculum of this department, and so the students need to develop their research skills at an early stage of their university career.

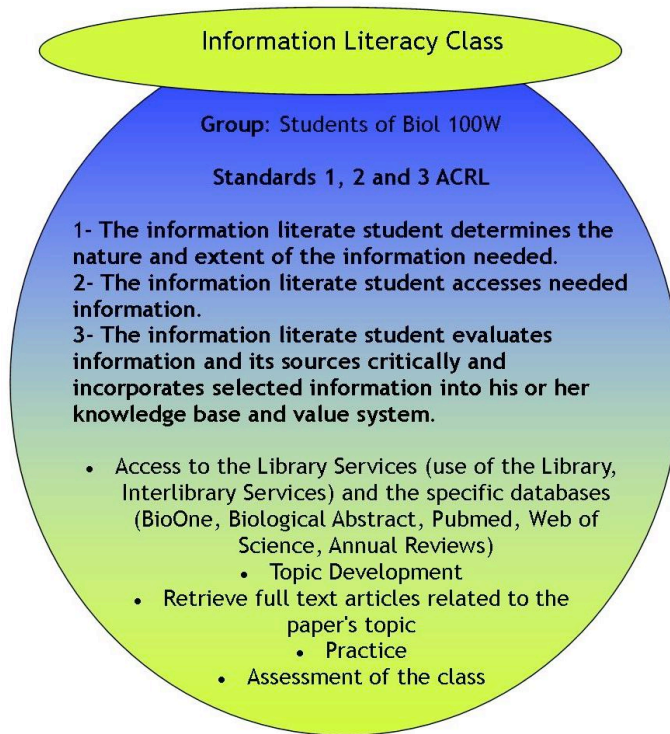
The format of the library instruction class session is very diverse at SJSU King Library: it may last from 50 to 120 minutes; it may consist of a one-shot workshop; it may be a solo

performance; or it might be co-taught with a colleague. The librarian must be proactive and provide outreach to the Department of Biological Sciences faculty in order for these LI classes to succeed. This outreach could be in a formal (e-mail, meetings) or in an informal setting in the beginning (University events), followed for a formal meeting where the librarian decides with the teaching faculty the exact structure that the library instruction will take. In addition the librarian listens to and elaborates on the professor's insight and opinion about the concepts that will be explained during the class. The planning and delivery of Library Instruction class sessions not only include designing a lesson plan related to each syllabus and a conversation with the teaching faculty, but also additional follow-up contacts with them, in order to ensure the full use of the King Library Information Resources and to obtain additional insights for future classes.

Usually the format selected is 75 minutes for the undergraduate courses and 120 minutes for the graduate courses for one-shot LIs. In these, the librarian contacts the professor with a final outline of what will be covered in the class. The librarian always assigns the students a brief activity that offers them a hands-on opportunity. In addition, the librarian has designed instructional materials to act as aids to the sessions. In many of them, despite the advanced level of the class, the level of computer literacy level of the students needs the added support of something written - the old technology of print on paper. This print material helps establish a nexus between the oral description and the visual descriptions of the computer screens and smart boards, and they also suggest several ways to contact the librarian for a follow up. During the academic years 2009-2010 the librarian gave Librarian Instruction sessions in the following courses in the Biological Sciences Department: Biol100W (Writing course, mandatory, various sections) and Biol202 (Research Theory for Graduate Students).

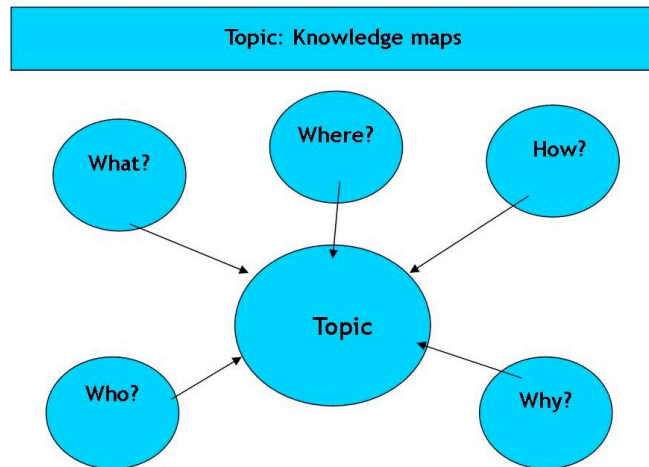
The lesson plans of the different library instruction sessions are based on ACRL's Information Literacy Competency Standards for Higher Education (2000), which the librarian can tailor to the standards to the different syllabuses. Since the ACRL Standards not only give clear guidelines but also performance indicators and outcomes, it is very easy to establish the contents of the class and further evaluations.

Graph 3 shows an example of the lesson prepared for a Library Instruction Session for Biology100W. As mentioned, this class has a writing and research component and it is mandatory. Therefore, the students have to write papers during the semester or a final paper at the end of it. Thus, they have to become familiar with the research tools (databases, access to full text articles, and interlibrary loan services) that the SJSU King Library offers. The librarian selected the first three standards (there were a total of five) because these were the ones that reflected the contents of a typical session.



Graph 3.

Regarding Standard 1: The information literate student determines the nature and extent of the information needed. To fulfill this standard the librarian decided to explain the concept of Topic Development and to retrieve several full text articles related to the student's topic. During the session the concept was clarified through verbal explanation, as well as SJSU King Library tutorials and handouts. Graphic 4 is an example of a visual aid and was used to help students understand the concept of specify their topic. This aid is included in the handout and it is explained in detail during the session.



Graph 4.

In addition, the librarian orchestrated at least 15 minutes of practice in order to give the students some hands on experience and an opportunity to retrieve information related to their research interests.

Standard 2 says “The information literate student accesses needed information effectively and efficiently.” Since this guideline is about access, the librarian explains what Access to Library Services means (use of the Library, use of Interlibrary Services) and certain specific databases (BioOne, Biological Abstracts, PubMed, Web of Science, Annual Reviews).

In order to achieve the content of Standard 3, “the information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system;” so the librarian incorporates 15 to 25 minutes of practice, where the students not only retrieve information related to their topic but also evaluate this material.

To conclude, librarians have a very important tool to formalize lesson plans for Library Instruction sessions across the curriculum: ACRL’s Information Literacy Competency Standards for Higher Education (2000). These guidelines are not only a crucial aid for the librarian instructors but also a tool to share with the teaching faculty as a structure to formalize not only one session but also the whole course during the semester.

The main goal of information literacy is the formation of lifelong learners, and especially in the university the development of lifelong researchers. It is pivotal for the academic librarian to not only be capable of understanding the meaning of these guidelines but also to integrate these into the numerous lesson plans of the Library Instruction sessions.

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