2006-677: FACULTY LIBRARIAN PARTNERSHIPS FOR INFORMATION FLUENCY INSTRUCTION: PLANNING AND PRELIMINARY ASSESSMENT

Alysia Starkey, Kansas State University-Salina

Beverlee Kissick, Kansas State University-Salina Head of Libraries

Judith Collins, Kansas State University-Salina

Jung Oh, Kansas State University-Salina

Faculty librarian partnerships for information fluency instruction: planning and preliminary assessment

This paper provides guidelines for writing effective information fluency assignments, derived from face-to-face collaboration with faculty/librarians from two regional universities. The authors show a planning matrix for keying information fluency assignments to university, TAC of ABET Criterion 2, and program outcomes. Examples of preliminary attempts to gather indirect measures of students' information fluency indicators are described, drawing on work from both institutions.

Information fluency is a term adopted by the authors as a substitute for the more familiar term, information literacy (IL), which "may be seen as using information technology; as a combination of information and technology skills; as acquiring mental models of information systems; as a process; as an amalgam of skills, attitudes and knowledge; as the ability to learn; or as a complex of ways of experiencing information use"¹. In addition, information literacy is a vital new area of teaching scholarship.

This paper describes the characteristics of effective research assignments that encompass the broader sense of information literacy as knowledge acquisition and management, with related sub-skills. The authors, in discussions with faculty and librarians at another regional university, reviewed various definitions of information literacy and concluded that the terms imply a negative: those who do not qualify as information-literate are then "illiterate," a word with significant social stigma. Further, the term "literacy" implies that the capability, once acquired, is in some manner an attribute of the individual. The linguistic term, "fluency," borrowed from second-language acquisition, is adopted throughout the remainder of this paper as more appropriate.

Information fluency reflects the process of acquiring a proficiency by degrees, as part of an ongoing process, where "fluency" is relative to the context in which performance occurs. Approximations of a second "language" must be practiced, as new proficiency is gradually acquired. In the remainder of this paper, the authors use the words information fluency, rather than information literacy, to refer to a constellation of abilities in the use of information systems. We first:

(a) refer to TAC of ABET accreditation Criterion 2 to demonstrate the process of faculty/librarian teamwork in a mechanical engineering technology information assignment, then

(b) share examples of early assessment practices from two higher-education institutions

TAC of ABET stands for the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. Their criteria provide evaluation guidelines for a number of engineering and engineering technology programs, ensuring quality in higher education through the review of faculty, institutions, and educational practices. Criterion 2 is drawn from Program Outcomes, addressing a broad range of knowledge or skills students should acquire from their respective programs to attain educational objectives² (appendix 5). The TAC of ABET Criterion

2, which includes mastery of knowledge, communication, lifelong learning, and professional responsibility learning outcomes, overlaps with Association of College and Research Libraries Information Literacy Competency Standards for Higher Education, shown in Table 1. (The IL competencies are defined by the Association of College and Research Libraries, as a guide to higher education in teaching and assessing the performance indicators of five comprehensive standards of IL, shown in appendix 1).

Educational research has shown the lack of information fluency skills in students graduating from post-secondary education: "Evidence is rapidly mounting that students cannot select appropriate sources of information, do not understand the structure or purpose of different sources of information, and cannot critically evaluate the information they retrieve"³.

In 2001, faculty/librarian collaborators at X University at Y, including a chemistry professor, an English professor, and two librarians, met regularly to learn more about information fluency, and to coordinate instruction across the English curriculum, including technical writing. This faculty/ librarian group applied for a regional fellowship in 2005, to support collaboration on research or teaching projects and expand networks of professional colleagues at other regional institutions. Two University of X instructional and one subject librarian (chemistry) participated, as well as two teaching faculty, one from English and one from American Studies.

The resulting discussions, spanning three half-day meetings over the course of fall semester, 2005, have been rich with scholarship and inspiration for faculty and librarians who participated. Our discussion revealed a challenge and an opportunity: faculty have not utilized resources of collaboration with their instructional and subject librarians to integrate information fluency instruction into course learning outcomes, and to assess information fluency at the course level. The next section of this paper describes an example of faculty-librarian collaboration with a mechanical engineering technology faculty member to design an information assignment.

Developing assignments keyed to course, program, and accreditation outcomes

Effective research assignments share characteristics across curriculum, as described in the article, "Promoting information literacy through a faculty workshop"⁴. An effective research assignment (unlike generic assignments often found in university 101 or first-year writing courses)

- Originates from subject matter.
- Shows students the purpose of research (and its benefits to them).
- Emphasizes analysis over answers, (immersion in the professional debates).
- Assists students with planning their research (before and during information retrieval).
- Is progressive, with opportunities for feedback at stages (from a variety of sources: instructor, peers, librarians).
- Discusses the process itself, (not just the project), to encourage transfer of strategies and skills to upper division courses.

Partnering with a subject or instructional librarian requires the faculty member to communicate clearly about the specific assignment, its rationale, learning outcomes, and plans for assessment.

In addition, for program, college, and university-level assessment, the incorporation of multiple levels of outcomes allows faculty to key the identified learning outcomes on their syllabi and assignments to selected institutional and accreditation goals.

An example from a mechanical engineering technology course in Material Strength and Testing shows the librarian starting the process by orienting the first planning meeting to relevant department, college, university, and accrediting agency outcomes:

Department: Engineering Technology Outcomes:

The department of Engineering Technology has written its student learning outcomes in five categories, A-E. The faculty/librarian team selected four outcomes that the instructor's assignment could encompass:

Ability to be life-long learners

Ability to write clear and effective technical reports, proposals, and business correspondence

Awareness and understanding of the impact of technology on society Ability to practice professional ethics and social responsibility

Faculty included aspects of the college mission that their assignment could support: "successful lifelong careers", and "leadership", highlighted below. (The connection between information fluency and the knowledge managers of the future is described in the *Human Resource* journal, 2002)⁵.

College: Mission Statement

The Mission of the College is to . . . provide knowledge of lasting value to students, industry, the academic community, and society. . . providing diverse opportunity for our students to excel in Engineering Technology and Aviation undergraduate education. We strive to prepare our graduates for **successful life long careers** and to provide **leadership** in the Engineering Technology and Aviation industries.

Faculty identified several university-level outcomes that could be supported by the assignment.

University Outcomes

Knowledge.

Students will demonstrate a depth of knowledge and apply the **methods of inquiry** in a discipline of their choosing, and they will demonstrate a **breadth of knowledge** across their choice of varied disciplines.

Critical Thinking.

Students will be able to **interpret information**, respond and adapt to changing situations, make complex decisions, solve problems, and evaluate actions.

Communication. Students will be able to **communicate clearly and effectively**. Diversity. Students will demonstrate the awareness, understanding, and skills necessary to live and work in a diverse world.

Ownership of Learning.

Students will demonstrate the inclination to be life-long learners, a concern to become and remain well informed, the ability to retrieve and manage information appropriately, open-mindedness regarding divergent worldviews, and a willingness to reconsider and revise their own views when warranted.

Personal and Professional Development.

Students will **practice professional ethics**, demonstrate personal and social responsibility, provide leadership in interactions with peers, and work effectively as team members.

Accrediting body: TAC of ABET Program Outcomes:

2.a appropriate **mastery of knowledge**, 2.g ability to **communicate** effectively, 2.h recognition of the need for, and ability to engage in **lifelong learning** 2.i ability to understand **professional and ethical responsibilities** 2.j **knowledge** of contemporary professional, issues.

The Association of College and Research Libraries provides competency standards for higher education, as well, showing the crucial role of information competencies in all of the highlighted learning outcomes above, "Information literacy is a key component of, and contributor to, lifelong learning . . . considered by several regional and discipline-based accreditation associations as a key outcome for college students⁶ (appendix 1).

Table 1 shows the process of mapping department, university, information fluency and accrediting agency outcomes to the design of the assignment. The matrix illustrates the planning stages, which can generate steps for students to complete in performing the assignment, as shown in the far right column.

Librarian Assignment Objectives, Criterion, and Outcomes

Faculty Objective	Department Learning	University	Student Process
	Outcomes	Learning	
		Outcomes	
You want students to learn about the importance of design, professional practices, cost of failures etc. Your goal is to have them select a particular engineering disaster, investigate it and provide a written report of what they have learned.	B.4 ability to be life-long learners, C.1 ability to write clear and effective technical reports, proposals, and business correspondence, D.2 awareness and understanding of the impact of technology on society, and E.2 ability to practice professional ethics and social responsibility	-methods of inquiry -breadth of knowledge -interpret information communicate clearly and effectively -inclination to be life- long learners, a concern to become and remain well informed, the ability to retrieve and manage information appropriately,	Collaboration with a librarian to get started, research conducted using books, electronic databases, and the Internet, interpret results and comprehensively present in a written report.
	ACRL Standards	ABET Criteria	

Table 1: Planning map, mechanical engineering technology assignment

(Association of College and Research Libraries		
Standard 2, Performance Indicator 2.d constructs a search strategy using appropriate commands Standard 3, Performance indicator 1. a-c reads text, restates concepts in own words, quotes appropriately	2.a mastery, 2.g communicate effectively, 2.h lifelong learning, 2.i professional and ethical responsibilities, 2.j knowledge of issues,	

(For the full assignment generated by the matrix, see appendix 2). The "Faculty Objective" column communicates the shared understanding of the goals of the assignment for faculty and librarian. The identification of outcomes aids the planning process, allowing for deletion of some as the planning progresses, and the drafting of specific assignment requirements to target key desired outcomes. The assignment was introduced in 2005, and will require revisions with follow-up in 2006. No results are available at this time.

After a planning matrix has been developed, a Writing Center can add their expertise in guiding the research/writing process, assist students with planning their research (before and during information retrieval), and offer feedback at a range of faculty-or student-identified stages.

Faculty/librarian partnerships can also build assessment possibilities into the planning stages of an assignment, for example, what data will be gathered, and how?

Assessing information fluency

This section shares examples of preliminary assessment efforts. The central question is, "Do students have the technical, conceptual and critical thinking skills of information [fluency] to succeed in their profession?"⁷ The "best practices" for assessing a student process like secondary research can be time-intensive, for example:

- Portfolio assessment including steps from brainstorming
- Interviews with students at each stage of research process
- Summative assessments of work completed, including oral defense
- Observing students and monitoring their work as they search and retrieve⁸

For practical reasons, collaborators have used confidence intervals, an Annual Library User Survey, and annual database reports, all less time-intensive approaches, to gather precursor indicators of information fluency at student, course, and college levels. The group offered a confidence interval survey in 2 classes, technical writing and chemistry (appendix 3). Students self-report their confidence level, when faced with a secondary research task. Confidence intervals are often constructed as Likert 1-5 scales, offered pre- and post- instruction. The English survey in an upper-division technical writing course was offered in 2005, (n = 48) before instruction. Students are mixed majors in engineering technology, aviation, and business programs. The confidence interval scores were so high, however, that the survey needs to be redesigned and reoffered in 2006. No post interval was given, pending these revisions to the offering in 2006.

We learned, for example, that 89% of students in the technical writing course agreed/strongly agreed that they could: "access quality, professionally reviewed, unbiased materials in my discipline necessary to conduct research on technologies, industries, and companies" (question 1.1 appendix 3). Yet, students had not had any instruction in the databases specific to the writing/inquiry demands of the course. Google ranked very high as a "first choice" for research, second only to "talking with other people."

When asked in question five to name which main campus library databases they had used, 94% of students reported they had never used main campus library databases (where the business and economics databases are housed) yet students reported they were confident they could "conduct a thorough analysis of a technology's development and future (question 1.2): 87.5% agree/strongly agree. Students believe they could conduct a description of a company's overview and primary activities (question 1.3), 77% agree/strongly agree. Yet, the technical writing faculty knows that students could not adequately perform those tasks without using main campus library databases to meet learning objectives for high-quality, critically evaluated information.

Finally, only 39% of students had used the "Librarians Index to the Internet," a compilation of quality links for academic research purposes, offered at our library's electronic resources page. Possibly, technical writing students believe that the skills they developed in lower-level expository writing will transfer to the demands of the technical writing course. This is a positive educational attitude; however, it may provide a false sense of confidence when students face a new rhetorical and information requirement.

The chemistry faculty offered a pre-instruction confidence survey this year, and plans to offer a post-survey, for example, where students are asked to articulate their search paths when given an information assignment, to describe the criteria used to evaluate the quality of information to be consulted for appropriate databases. If required, they will meet with a librarian to reflect on their learning experience. The technical writing instructor will revise her 2006 confidence interval pre-instruction survey offering as well, to gain qualitative information on students' retrospective assessments of previous confidence.

The faculty/librarian group has also explored the practice of offering advanced information fluency instruction to upper division students at their point of need in a universally-required technical writing course. Just-in time instruction is reported to increase student interest, and is widely recommended as a "best practice"⁹. User statistics supplied by library database resource providers (such as Infotrac, Business and Company ASAP) from the years before and after information fluency instruction (which began in 2002) have been compiled. Results show a significant increase in database use, college-wide, from 2002 when the group began meeting, planning, and implementing instruction, to 2005, the most currently available figures.

Table 2 shows the numbers of retrievals and searches for the most used conglomerate database, Infotrac, with a break-out of its highly used database, Expanded Academic Index. Expanded Academic Index archives journals in aviation, air cargo, aviation maintenance, business, computing, and some engineering. Librarians and faculty speculate that much of the increase in Infotrac overall, and Expanded Academic in particular, results from their three-year partnership.

Infotrac			Expanded		
			Academic		
	Retrievals	Searches		Retrievals	Searches
Feb 2002	47	756		25	488
Feb 2005	238	1458		149	1039

Table 2: Reported database use, college wide, 2002, 2005

Figure 1 illustrates a dramatic increase in database use, comparing year 2002 to 2005. Infotrac overall increased from 756 to 1458 searches; Expanded Academic Index Searches grew from 400 to 1039, a significant increase. These numbers show a change in student research behaviors (enrollment remained steady throughout the time period), and they are an indirect suggestion that



Figure 1: Increase in database searches, 2002, 2005

instruction has had an effect.

Instruction by librarians and faculty in information fluency assignments increased throughout the time period in several English composition courses, as well as an introductory chemistry, and technical writing course.

Technical writing faculty have partnered with librarians to improve students' use of professional journals, and have sought to document attainment of stated course learning outcomes in information fluency, shown below:

- Specific rhetorical strategies for composing, formatting, and revising work-place documents.
- Information literacies based on specific writing scenarios: Defining the need for information

Accessing needed information effectively and efficiently by identifying appropriate discipline-specific subscription databases

Evaluating critically the sources of information

Incorporating the selected information into knowledge base and value system Using information effectively in a rhetorical situation, to accomplish a specific purpose

Accessing and using information ethically, without plagiarism (drawn from the ACRL criteria, appendix 1).

While the ACRL provides specific performance indicators for each of the five standards, some indirect data can provide useful profiles of student database use.

Figure 2 shows the decrease of the internet as student first-choice research preference in the technical writing course, and an increase in subscription, high-quality databases from 2004 to 2005.

The category, "main" refers to main campus resources, including databases not offered at the X University at Y campus, such as technology, business and industry databases. No instruction was offered consistently in this aggregation of databases until 2005.



Figure 2: Tech writing students' first choice of research

The data shown in Figure 3 result from a survey administered to technical writing students only. The databases used for that course are specified in this chart more completely than Figure 2, where again 2004 is compared to 2005. These figures are gathered from an Annual Library User Survey, (appendix 4), where question 6 asks about specific database use. The survey is offered in print at the library check-out desk, and provided to faculty for their students to complete during class sessions.

Faculty return the surveys they administered to the library, where they are tallied. The upper-division technical

writing course offers the survey in a different color of paper, allowing the separation of that data from college-wide results.

Question 6, Annual Library Survey (2004):

Which of the following electronic resources have you used in the past 6 months, either in the library or from another campus workstation?

- \Box College of X library catalog \Box Other library catalogs
- □ LexisNexis Academic □ InfoTrac
- □ Opposing Viewpoints □ CQ Researcher
- Applied Science & Technology Index
- Librarians Index to the Internet

Kansas Library Catalog
 OCLC FirstSearch
 SIRS Discoverer

The pattern of database use follows from the course's major assignment to define an issue in students' fields, then write an annotated bibliography, staging to an analytical report, breaking the issue into its component features, based on information from high-quality sources. "Lexis Nexis Academic" contains business and industry journals, company profiles, and industry profiles. Infotrac provides Expanded Academic Index, a compilation of professional and academic journals including the economics of various industries. "Main technology" was added to the 2005 survey, and refers to the Science and Technology compendiums of databases, including IEEE E-Village, and computing resources. Issues and Controversies, Other Business, and Main Technology categories were also added to the 2005 survey.



Figure 3: Technical writing student use of databases

The chart reveals an appropriate distribution of use to achieve the Criterion 2 outcomes in communicating effectively, and knowledge of professional issues.

This form of assessment provides a "thumbnail" sketch of database use, not a demonstration of information fluency, however combined with an examination of students' annotated bibliographies, the technical writing instructor perceives an increased use of discipline-specific databases and overall improvement in quality of information used in the analytical reports comparing 2002 to 2005.

APA citation conventions require students to name the database where they retrieved a journal article, making it convenient to tally the databases used for the inquiry undertaken by the student. The instructor can also estimate the appropriateness of students' selected information sources to the question they have chosen to research, specific to their majors.

The actual incorporation of the information into the students' own rhetorical purposes, synthesizing disparate information sources as they write the analytical report, can also be observed qualitatively. One new assignment feature this year asked students to log their visits to various databases, describe which were useful, and track the keywords they employed. Librarian and faculty partnerships will next year consider appropriate means for documenting indicators of information fluency through bibliographic examination.

For an example of graduate-level assessment, the University of X Librarians, in a graduate chemistry course, conducted a detailed case study of students' research behaviors, pre- and post-instruction.

Two subject librarians cooperated with faculty to instruct first year graduate students in a masters chemistry programs, beginning by assessing the students' skills in a one-on-one interview, then recording descriptive notes based on students' behavioral responses as they search for information. Significant growth in skill was observed and documented after instruction, with the students enrolled in the Bibliography of Chemistry course¹⁰.

Conclusions

Existing structures of writing-across-curriculum programs and general education courses lend themselves to supporting broad efforts in information fluency instruction. ACRL Information Literacy Competency Standards for Higher Education provide clear guidance for planning and implementing effective assignments. At the same time, the challenge of graduating information-

fluent students is significant, and the process of assessing information literacy will require substantial cooperation from teaching faculty who are willing to partner with librarians. Librarians are prepared and enthusiastic about working with faculty. The authors conclude with these notes from a non-librarian on the importance of information fluency to education:

- Library education should nurture the independent capability of the learner; these experiences should contribute to the composing of a new professional life.
- Students can make appropriate, skill-expanding choices among useful and challenging tasks; making the choice is part of the learning.
- Mature critical thinking and design skills come through various and sometimes unexpected experiences.
- If bibliography is an art as well as a skill, students should be prepared to develop their work as artists do, over time and with the critical suggestions of others¹¹.

⁵ Knowledge management: taming the information beast. (2002). *Human Resource*, 1(11), 15-16.

⁶ Information literacy competency standards for higher education. (2000). *The Association of College and Research Libraries*. Retrieved November 29, 2004 from http://www.ala.org/acrl/comstan.html.

⁷ Iannuzzi, P. (1999). We are teaching, but are they learning: accountability, productivity, and assessment. *Journal of Academic Librarianship*, 25(4), 304-5.

⁸ Hunt, F., Birks, J. (2004). Best practices in information literacy. *Libraries and the Academy*, 4(1).

⁹ Malenfant, C., Demers, N. (2004). Collaboration for point-of-need library instruction. *Reference Services Review*, 32(3), 264-273.

¹⁰ Emde, J., Emmett, A. (2004). Assessing information skills in the real world: the good, the bad and the literate" *Brick and Click Libraries: An Academic Library Symposium, 4th Annual 2004*, 83-89. Retrieved 21 November 2005 from https://kuscholarworks.ku.edu/dspace/handle/1808.

¹¹ Carr, D. (2005). Information resources in the humanities. Course syllabus. University of Maryland. Retrieved 14 January 2006 from <u>http://nova.umuc.edu/~kelley/webb/carr3.html</u>.

¹ Bruce, C. (August 2000). Information literacy programs and research: an international review, *Australian Library Journal*, 49, 209-218.

² Criteria for accrediting engineering technology programs. (November 2004). *ABET Technology Accreditation Commission*. Retrieved November 29, 2004 from http://www.abet.org

³Leckie, G., Fullerton, A. (January 1999). Information literacy in science and engineering undergraduate education: faculty attitudes and pedagogical practices. *College and Research Libraries*, 60(1), 9-29.

⁴Werell, E.L., and Wesley, T.L. (1990). Promoting information literacy through a faculty workshop. *Research Strategies*, 8(4), 172-180.

Information Literacy Competency Standards for Higher Education The Association of College and Research Libraries <u>http://www.ala.org/acrl</u>

An information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

Mechanical engineering technology course in material strength and testing

Assignment: Engineering Disaster Resources: Library Internet searches, books, magazines, newspapers, databases, journals, conference proceedings

The purpose of this assignment is to learn about importance of design, professional practices, cost of failures, etc. You will select a topic, investigate it, and provide a written report of what you learned. This will involve web searching and library searching.

Pick an example of an engineering failure or disaster of some type, preferably which has occurred in the last ten years. Your report analysis for this failure should include the following:

- The procedure you used to gather information.
- What failed
- Why it failed
- Possible preventive actions
- Who was at fault, and why
- How did lack of professionalism or conscientiousness lead to this failure?

Include a listing of references:

- Library: list one or two books
- List magazines
- Newspaper articles (one regional case = bonus 5 points)
- Web page links, minimum 5 links

Document any key word search terms in addition to engineering failures, engineering disasters.

Write a two-page summary report in MS word.

Technical writing course confidence interval, pre-instruction

Question 1

1.1 I am confident that I can access quality, professionally reviewed, unbiased materials in my discipline necessary to conduct research on technologies, industries, and companies.

Strongly Disagree		0 (0%)
Disagree	I	0 (0%)
No Opinion		5 (10.42%)
Agree		25 (52.08%)
Strongly Agree		18 (37.5%)
N/R	1	0 (0%)

1.2 I am confident that I can conduct a thorough analysis of a technology's development and future prospects.

Strongly Disagree		0 (0%)
Disagree		1 (2.08%)
No Opinion		4 (8.33%)
Agree		28 (58.33%)
Strongly Agree		14 (29.17%)
N/R	1	0 (2.08%)

1.3 I am confident that I can conduct a description of a company's overview and primary activities.

Strongly Disagree		0 (0%)
Strongly Disagree		0 (0 %)
Disagree	1	1 (2.08%)
No Opinion		10 (20.83%)
Agree		27 (56.25%)
Strongly Agree		10 (20.83%)
N/R	L	0 (0%)

1.4 I am confident that I can structure and organize research that I have done to provide a basis for a report in my discipline, using professionally reviewed materials.

Strongly Disagree	0 (0%)
Disagree	1 (2.08%)
No Opinion	7

	(14.58%)
Agree	29 (60.42%)
Strongly Agree	11 (22.92%)
N/R	0 (0%)

1.5 I am confident that I can draw on information from a variety of sources: business, government, commercial, and more.

Strongly Disagree	I	0 (0%)
Disagree	I	0 (0%)
No Opinion	-	3 (6.25%)
Agree		29 (60.42%)
Strongly Agree		16 (33.33%)
N/R		0 (0%)

1.6 I am confident that I can edit and revise an analytical report draft to keep it focused, concise, and clear, while being complete.

Strongly Disagree	1	0 (0%)
Disagree	-	2 (4.17%)
No Opinion		7 (14.58%)
Agree		30 (62.5%)
Strongly Agree		9 (18.75%)
N/R	1	0 (0%)

1.7 I am confident that I can use groupware in a team setting to deliver an assigned product on time, in a professional manner.

Strongly Disagree		1 (2.08%)
Disagree	-	2 (4.17%)
No Opinion		6 (12.5%)
Agree		24 (50%)
Strongly Agree		15 (31.25%)
N/R	I	0 (0%)

1.8 I am confident that I can present my research findings and recommendations to a business audience in a concise, clear, and professional manner.



Question 2

I have used the Librarian's Index to the Internet to find information in my field

yes		14 (29.17%)
no		34 (70.83%)
N/R	I	0 (0%)

Question 5

I have used the following Main campus library databases:

Question 6

Rank the following resources in order of your preference when assigned a college research project:

6.1 Google or other internet search browser

1		21 (43.75%)
2		8 (16.67%)
3		10 (20.83%)
4	-	5 (10.42%)
5		4 (8.33%)
N/R		0 (0%)

6.2 Print materials in the library (encyclopedia, reference books)

1	10 (20.83%)
2	14 (29.17%)
3	10 (20.83%)
4	10 (20.83%)

5	_	4 (8.33%)
N/R	I.	0 (0%)
6.3 Print materials at home (magazines)	
1		1 (2.08%)
2		13 (27.08%)
3		9 (18.75%)
4		17 (35.42%)
5		8 (16.67%)
N/R	I.	0 (0%)
6.4 Library databases (oppos	sing view points, first search)	
1		11 (22.92%)
2		7 (14.58%)
3		12 (25%)
4	_	9 (18.75%)
5		9 (18.75%)
N/R	I.	0 (0%)
6.5 Talking with other people	۶.	
1	-	5 (10.42%)
2		6 (12.5%)
3	_	7 (14.58%)
4	_	7 (14.58%)
5		23 (47.92%)
N/R	I	0 (0%)

Information Literacy Assignment: Survey CHM 110 (General Chemistry) Please answer each question by marking in the box which you consider as best answer.

1.	I am	R first year stud	dent R so	phomore	R junior	R	senior
2.	I'm taking CHM 1	10 as R Science elect	ive R re	quired prer	equisite	R	other
3.	I have viewed "Bas	sic Library Instru R most module	nction" in K-S s (4+) R so	tate Online me (2-4)	course: R at least one	R	none
4.	I have taken Librar	y In-Service lect R Expository w	ture from othe oriting R hu	er courses, f imanity cou	for example, arse	R	other
5.	Mark component(s)	to be considered R Library Instru R Critical Thin R Ethics	d as "Informatuction king	tion literacy R Com R Com R Com R Lifel	y": (mark all rele- puter Literacy munication ong Learning	evar	nt answers.)
6.	How much did you requires searching	expect to do wr	iting assignme HM 110 cour	ent that se?			
		R very	R somewhat		R not very	R	none
7.	I am comfortable to	search informat R very	ion when an i R somewhat	nstructor de	oes not give refe R not very	ren R	ces none
8.	I am comfortable to	evaluate the we	b resources:				
		R very	R somewhat		R not very	R	none
9.	I am comfortable to	evaluate the we R very	b resources. R somewhat		R not very	R	none
10. I am comfortable to use database for my assignment effectively.							
		R very	R somewhat		R not very	R	none
11.	I am comfortable to	use my source v R very	with proper ci R somewhat	tation.	R not very	R	none
12. I agree that lectures on databases and advanced internet search							
would be beneficial for my undergraduate learning experience.							
		R very	R somewhat		R not very	R	none
13	13 I agree that class periods designated for lecture for Information Literacy						
	in Chemistry course were worthwhile.						
		R very	R somewhat		R not very	R	none

Appendix 4 Annual Library User Survey

The only way that we know how we're doing is if you tell us! We value your input, and want to find out your opinions regarding the library, its resources, and the services we provide. You should be able to complete this survey in 5-10 minutes. You do not need to reveal your identity.

Please answer each question by marking in the box next to the choice which you feel best reflects your opinion.

Feel free to add any additional comments or observations in the space provided.

General Information

1. Are you?

□ KSU Faculty/Staff □ KSU Student □ Reciprocal borrower (SAVTS, KWU, etc.) □ Community user

If you are a student, please indicate your major department

□Aero □Engineering Technology □Arts, Science & Business □Non-Degree Seeking Other

2. How often do you visit the K-State at Salina Library? □ Once or twice a semester Daily U Weekly □ Monthly □ Never

Library Resources

3. How often do you use or look through our printed subscriptions to magazines, journals, and newspapers?

Daily	Weekly	Monthly	• Once or twice a semester	Never
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- 4. How often do you use, look at, or check out our books, videos, DVDs or audiocassettes? U Weekly Daily □ Monthly • Once or twice a semester □ Never
- 5. Do you use the 30 library computer workstations for any of the following? (CHECK ALL THAT APPLY)
- □ Searching for items in a library catalog Using other computer software □ Searching for magazine or newspaper articles Checking e-mail U Word processing □ Playing computer games □ Surfing the internet in general \Box Using the scanner(s) • Searching the internet for specific information □ Laser/Color printing • Other
- U Working on class assignments
- 6. Which of the following electronic resources have you used in the past 6 months, either in the library or from another campus workstation?
 - □ K-State at Salina library catalog □ LexisNexis Academic (Hale) □ Kansas Library Catalog □ Other library catalogs □ InfoTrac OCLC FirstSearch Opposing Viewpoints CO Researcher □ SIRS Discoverer Librarians Index to the Internet □ Issues & Controversies • Other databases □ Applied Science & Technology Index (Hale) □ Other Hale Library resources
- 7. Have you ever used interlibrary loan to borrow items if K-State at Salina Library didn't have what you needed? **Q** Yes □ No

If not, why? Couldn't find what I wanted Didn't want or need to

□ Takes too long/couldn't wait □ Other _____ □ Didn't know how

8. Using a scale of 1 to 5, please rank the following resources in order of research preference: (1 most important research tool and 5 least important research tool) *Use each number only once.*

____ Print Materials _____ Internet _____ Electronic Databases _____ Librarians/Faculty _____ Hale Library

- 9. How satisfied are you with our resources? (print, nonprint, computers, TV, DVD's, videos, etc.)
 □ Extremely satisfied □ Very satisfied □ Moderately satisfied □ Somewhat satisfied □ Not at all satisfied
- 10. What does the term "information literacy" mean to you. (Mark all that apply.) □ Library Instruction □ Computer Literacy □ Critical Thinking □ Communication □ Ethics □ Lifelong Learning

Library Services

- 11. Are the current library hours adequate to your needs?
 - [When classes are in session: Monday-Thurs. 8 AM to 11:30 PM / Friday 8 AM to 5 PM / Saturday 1 to 4 PM / Sunday 6 to 9 PM] Yes, the hours of operation are fine
 - □ No, I'd like to see the following additional or different hours _____
- 12. How helpful is the library staff, including student workers, in assisting you with your information needs?
 □ Extremely helpful □ Very helpful □ Moderately helpful □ Somewhat helpful □ Not at all helpful
- 13. Which of the following library activities have you done in the past 6 months? (CHECK ALL THAT APPLY)
 - Checking out book(s)
 - Using library Reserves
 - □ Reading newspapers and magazines
 - Using library materials in house
 - U Working as a group in the library
 - □ Studying alone in the library
 - Using the library computer workstations
 - □ Watching television
- □ Photocopying materials
- □ Attending a library orientation or in-service with a group (in the library or classroom)
- □ Receiving one-on-one help from a library staff person
- Requesting a search on a particular topic
- Consulting about a library assignment
- Recommending items for purchase by the library
- □ Other _____

14. How often do you ask a member of the library staff for assistance?

	- - - - - - - - -	r	-
- Every	/ fime i	i need heir)
	time i	i need neip	,

Sometimes; I usually try to figure things out myself

Rarely; only once in a whileNever

15. How timely was the library staff in assisting you if you need	ed help?
Helped me right away, every time	□ I had to wait only briefly
before being helped	
\Box I had to wait a little while, but the service was good	I began to get impatient
before being helped	
□ The wait was too long	□ Other

16. How comfortable and welcoming do you find the atmosphere and environment in the Library?

□ Extremely comfortable/welcoming □ Very comfortable/welcoming □ Moderately comfortable/welcoming □ Somewhat comfortable/welcoming □ Not at all comfortable/welcoming

17. How respectful and aware is the library staff of cultural differences/diversity?
□ Extremely respectful □ Very respectful □ Moderately respectful □ Somewhat respectful

□ Not at all respectful

18. Overall, how satisfied are you with our services?

□ Extremely satisfied □ Very satisfied □ Moderately satisfied □ Somewhat satisfied □ Not at all satisfied

19. What do you see as the library's: Strengths

Weaknesses Opportunities Threats

Additional comments:

Technology Accreditation Commission of the Accreditation Board for Engineering and Technology

Criterion 2. Program Outcomes

a. an appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines,

b. an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology,

c. an ability to conduct, analyze and interpret experiments and apply experimental results to improve processes,

d. an ability to apply creativity in the design of systems, components or processes appropriate to program objectives,

e. an ability to function effectively on teams,

f. an ability to identify, analyze and solve technical problems,

g. an ability to communicate effectively,

h. a recognition of the need for, and an ability to engage in lifelong learning,

i. an ability to understand professional, ethical and social responsibilities,

j. a respect for diversity and a knowledge of contemporary professional, societal and global issues, and

k. a commitment to quality, timeliness, and continuous improvement.