

## Student Information Skills Assessment Upper Division Report

### INTRODUCTION

In Spring Quarter 2010, the Kennedy Library conducted a student information skills assessment at the California Polytechnic State University at San Luis Obispo. Information skills are a foundational component of the University Learning Objective (ULO<sup>1</sup>) of Lifelong Learning<sup>2</sup>. This survey was undertaken to gauge student competencies in information skills that have been identified as key to information literacy, and which are viewed as contributing to lifelong learning. Although the survey often focuses on library-related resources available to Cal Poly students, this is fully appropriate to the particular setting, for these library resources are provided to the students, and variously employed in developing written communication and critical thinking. An assumption often made in information literacy literature is that information skills internalized in this environment become transferable to other contexts. This is an assumption with which we concur. But we also feel that the use of library resources is only one component in the development of information skills, and should not be viewed apart from expertise in the wider range of information resources, and, more particularly, should be viewed as working synchronously with collegiate curricular assignments that nurture critical thinking and written communication skills.

The survey was designed to:

1. Assess Cal Poly student competencies in the set of skills identified by the Association of College and Research Libraries (ACRL)<sup>3</sup> as characterizing an information literate student. The information literate student can:
  - a. Identify a research question or thesis statement
  - b. Determine the information requirements for a research question
  - c. Identify a search strategy using a variety of resources
  - d. Locate and retrieve relevant information
  - e. Understand the ethical and legal issues surrounding the use of information

<sup>1</sup> University Learning Objectives website, <http://www.ulo.calpoly.edu/>

<sup>2</sup> Lifelong Learning website, [http://www.ulo.calpoly.edu/facultyandstaff/lifelong\\_learning.html](http://www.ulo.calpoly.edu/facultyandstaff/lifelong_learning.html)

<sup>3</sup> ACRL Information Literacy Competency Standards for Higher Education, <http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm>

2. Assess whether there is measurable progress in these competencies between lower and upper division students.
3. Assess whether a correlation exist between higher levels of competency and student participation in library instruction sessions.
4. Assess particular weaknesses in student competencies to inform steps for improving library support for student information skills and lifelong learning.

## **ABOUT THE SURVEY**

The scenario-based questions for this survey were designed to identify student competencies by measuring performance as aligned with specific Information Literacy Learning Objectives established by the Kennedy Library in 2009. Two surveys were administered: one for lower division and one for upper division students. The survey was administered from May 10 through June 11, 2010. Invitations to participate were delivered via email to 1,332 lower division and 2,905 upper division students. In addition, an open invitation was posted on the Kennedy Library website, and faculty and instructors who had previously brought students for library instruction were encouraged to announce the surveys to their current students. Approximately 2% of the responses came from these latter invitations, but the majority came from the email invitations. Without adjusting for these 2%, the lower division response rate to the email invite was 28% (367/1332) and the unadjusted upper division response rate was 20% (578/2,905). The high response rate was doubtless encouraged by the promise of cash prizes. After a summary of recommendations, this report presents detailed results and analysis of the upper-division survey.

## **SUMMARY AND RECOMMENDATIONS**

I. The results of the scenario-based questions indicate that 70% or more of the respondents were able to:

- (Q. 1) identify the most appropriate thesis statement for a paper
- (Q. 2) identify library databases as good tools for finding in-depth discussions of the topic
- (Q. 3) identify the library catalog (PolyCAT) as a good tool for finding books

- (Q.5) identify .edu and .gov sites as more credible domains for information on the web

In responses to the first three above questions, those who attended library instruction sessions scored significantly higher (75% vs. 64%; 80% vs. 72%; 77% vs. 73%).

**Recommendations:** *Although it is encouraging that attendees scored better than non-attendees, we should not be satisfied with a 70% overall average. We should, then:*

- a) In instruction, handouts and web presence, increase student exposure to library sessions, resources and tools.*
- b) Refine instruction to increase correct identification by students who do attend.*

II. Not surprisingly, students who attended library sessions showed more awareness of useful library resources and were more consistent in identifying:

(Q. 3) Link+ (the consortial book catalog) 54% vs. 40%

(Q.4) Databases useful for this scenario's topic (psychology:60% vs. 45%; education 56% vs. 49%)

(Q. 9) Find It – the feature that links to full-text (65% vs. 53%)

**Recommendations:** *Even though attendees had higher percentages, the 54-65% range should be improved. Same recommendations as number I, above.*

III. (Q. 5) A majority of attendees and non-attendees alike selected the most inappropriate response to a question concerning the broadest term relevant to the scenario topic. 39% overall selected the most inappropriate response.

**Recommendations:** Online tutorial and instruction should place more emphasis on breadth/narrowness of term selection.

IV. Both attendees and non-attendees had similar ratios of comprehension for two questions relating to the use of AND and OR in search queries.

(Q. 6) 55% overall recognized best answer for OR used in a Keyword search

(Q.7) 69% overall recognized best answer for AND used in a Subject search

**Recommendations:** *The questions were phrased without reference to the term Boolean, but aimed to determine if respondents knew what results use of AND or OR might yield in*

*different searches. Attendees and non-attendees responded in similar ratios, with attendees rating slightly higher (57%vs. 53%; 71 vs.67%) but the relative parity suggests that online searching may create a baseline of awareness for the function. Nonetheless, even 57-71% for attendees should be improved upon.*

V. On two questions, large percentages of attendees and non-attendees alike selected inappropriate answers from which can be inferred an inadequate mapping of resources to tools:

(Q.3) 43% identified Academic Search Elite as a good place to find books

(Q 10) Nearly 40% identified Link+ as a place to seek full-text of articles

**Recommendations:** *In instruction, handouts, and web presence, strive to create a clear mental mapping of the information landscape, and of resources to tools.*

VI. (Q. 12) Less than 50% of attendees and non-attendees alike correctly identified a particular citation as belonging to an article

**Recommendations:** *In instruction, handouts, and web presence, provide more tools/exposure to the components of a citation and citation comprehension.*

VII. (Q. 16) Only 14% of the respondents identified Zotero as a tool for citations.

**Recommendations:** *Zotero, or any subscribed bibliographic citation software (if purchased), should receive more emphasis in instruction, handouts, and web presence.*

## **DETAILED UPPER DIVISION RESULTS**

578 students responded to the survey: 52% Seniors, 42% Juniors, and 6% graduates. In the tables that accompany each question below, responses are divided into two categories: students who attended one or more library instruction sessions and students who did not attend any sessions. In the presentation of scenario-based questions an overall percentage-score is also included to reflect combined competence of the two groups. Red highlighting indicates best and preferred answers, while blue highlighting indicates inappropriate answers that were nonetheless selected by a high number of

respondents. Remarks are provided after any table that produces notable data or suggests where further interventions are warranted.

**Demographic Questions**

1. What is your current Cal Poly classification?

Classification	Attended		Did not Attend	
Senior	144	55%	117	45%
Junior	117	42%	163	58%
Graduate	16	43%	21	57%

2. In which College are you a student?

College	Attended		Did not Attend	
CENG	71	40%	105	60%
CAFES	60	60%	40	40%
CLA	50	53%	44	47%
CAED	39	59%	28	42%
COSAM	31	44%	39	56%
OCOB	26	37%	45	63%

*Analysis: CAFES (60%), CAED (59%), and CLA (53%) had the highest percentage of attendees. OCOB (26%), CENG (40%) and COSAM (44%) had the highest percentage of NON-attendees. Although this no doubt reflects disciplinary differences, this information should still be considered when selecting targets for increased library instruction.*

## 3. What is your gender?

Gender	Attended		Did not Attend	
Female	160	52%	150	48%
Male	115	44%	149	56%
Transgender	2	100%	0	0%

## 4. How many library instruction sessions have you attended since your arrival at Cal Poly?

Attended One or more		Did not Attend	
277	48%	301	52%

***Analysis: Less than half of upper division respondents attended instruction sessions. If the University Learning Objective of lifelong learning is truly served by such sessions, thought should be given to whether this number is acceptable, and if it is not acceptable, what measures can be taken to redress it.***

**Scenario Question**

*Underage drinking is an issue on college campuses. What are the causes, concerns, and proposed possible solutions to underage drinking among college and university students?*

1. Which of the following is the most appropriate thesis statement for your paper?

(choose one)

Statement	Attended		Did not Attend		Overall
College binge drinking and its psychological causes can be reduced through campus intervention programs	207	75%	193	64%	70%
High percentage of college students engage in binge drinking because they want to “look cool” or “fit-in”	32	12%	48	16%	14%
Alcoholism is a big problem	8	2%	17	6%	4%
Binge drinking in my college has resulted in the expulsion of two students	2	.07%	4	.13%	.1%

*Analysis: Students who attended library instruction (hereafter, “attendees”) sessions scored 11% higher than students who did not attend sessions (hereafter, “non-attendees”).*

2. Which of the following are the best tool(s) to find an in-depth discussion on the above topic? (check all that apply)

Best tool	Attended		Did not Attend		Overall
Library databases	221	80%	216	72%	76%
Library catalog	183	66%	190	63%	65%
Google scholar	163	59%	181	60%	60%
Wikipedia	20	7%	39	13%	10%
Google	7	3%	7	12%	3%
Interview Cal Poly officials, advising center, & students	4	1%	1	.03%	.5%
Online discussion boards	2	.07%			.07%

Red: Best Answers  
 Blue: Inaccurate answers that received high number of responses



*Analysis: 8% more attendees identified library databases as a “best” tool. The selection by 80% of attendees is the highest percentage for a best answer in the entire upper division survey. Even 72% of non-attendees selected this response.*

**3. Where would you look for books on this topic? (check all that apply)**

Book sources	Attended		Did not Attend		Overall
PolyCat	214	77%	221	73%	75%
Link+	150	54%	120	40%	47%
Academic Search Elite	124	45%	123	41%	43%
ERIC	50	18%	48	16%	17%
Google Books	1	.03%	1	.03%	.03%
Google	3	.10%	5	.16%	.13%

*Analysis: Nearly ¾ of all respondents selected PolyCAT, the online catalog for Kennedy Library. However, attendees scored 14% higher than non-attendees in appropriately identifying Link+, a consortial resource that vastly multiplies student access to materials. Unfortunately, both attendees and non-attendees inappropriately listed the database Academic Search Elite as a place to look for books on a topic (while this database has some books, it consists mostly of articles and other materials). The prevalence of this inappropriate response indicates that that further work needs to be done to clarify the proper association of document-types (articles, books, etc.) with the appropriate utilities (catalogs, databases, etc.)*

4. In which databases would you look for peer-reviewed articles for this topic?  
(check all that apply)

Databases	Attended		Did not Attend		Overall
PsycINFO	166	60%	134	45%	53%
ERIC	154	56%	146	49%	53%
Europa World Plus	24	9%	25	8%	9%
GeoRef	23	8%	23	8%	8%
Academic Search Elite	7	3%	12	4%	4%
Google Scholar	2	.07%	3	.09%	.08%
Article databases from library web site	8	3%	4	.13	2%
Google	1	.03%	0	0%	.03%
Interlibrary Loan	1	.03%	0	0%	.03%
PolyCat	2	.07%	2	.07%	.07%

**Analysis:** 15% more attendees (60%) versus non-attendees(45%) identified PsycINFO as an appropriate database, and 7% more of the attendees (56% versus 49%) identified ERIC. While the majority of attendees evidence a greater grasp of appropriate resources (60% for PsycINFO and 56% for ERIC) the number is still not entirely encouraging, and suggests that more steps should be taken to improve student ability to identify and select appropriate databases.

5. Think carefully about the terms below. Which is the **BROADEST** term that will **READILY** bring you results about underage drinking? (check one)

Broadest term	Attended		Did not Attend		Overall
Bulimia	116	42%	106	35%	39%
Alcohol Drinking Patterns	93	34%	98	33%	34%
Social Behavior	27	10%	43	14%	12%
Binge Drinking	12	4%	15	5%	5%

*Analysis: The greatest percentage of both attendees and non-attendees (42% and 35% respectively) selected the inappropriate response of Bulimia.*

*Percentages for the best answer (Alcohol Drinking Patterns) were much lower and nearly identical for both groups (34%, 33%). This inverse response suggests that greater emphasis should be given to conceptualization (broad vs. narrow, etc.,) of term-selection in instruction.*

6. Of the searches listed below, which will get you the **MOST** total results? (check one)

Most results	Attended		Did not Attend		Overall
Keyword Search: College students OR University students	157	57%	159	53%	55%
Keyword search: College students AND University students	75	27%	84	28%	28%
Subject search: College students AND University students	15	5%	17	6%	6%

*Analysis: Although 5% more attendees (57% versus 53%) selected the best answer, the majority in both groups selected the appropriate answer. This suggests perhaps that non-library use of search engines has created a baseline*

*awareness of Boolean functioning s (with no reflection of whether or not they know it goes by the name “Boolean”). Again, however, this baseline exists in a simple majority, and indicates ample need for improvement.*

7. The same searches are listed again here. Which will get you the FEWEST total results? (check one)

Fewest results	Attended		Did not Attend		Overall
Subject search: College students AND University students	196	71%	202	67%	69%
Keyword search: College students OR University students	37	13%	37	12%	13%
Keyword search: College students AND University students	15	5%	22	7%	6%

*Analysis: Again, 5% more of the attendees (71% versus 67% of non-attendees) selected the best answer, but the scores for both groups were significantly higher than on the related previous question. This suggests that even students who have NOT attended library instruction sessions understand that a subject search is more restricted, and that they have some fundamental understanding of the difference between a keyword and a subject search.*

**8. Which of the following features usually signal that a journal is scholarly and/or peer-reviewed? (check all that apply)**

Scholarly/Peer-reviewed	Attended		Did not Attend		Overall
Authors describe methodology and supply data used to support research results	181	65%	187	62%	64%
The presence of footnotes	161	58%	175	58%	58%
The presence of an abstract	124	48%	138	46%	47%
Written by paid journalists	23	8%	33	11%	10%
It is published weekly	19	7%	24	8%	8%
Comes from scholarly journal	6	2%	2	.06%	1%
It says peer-reviewed	5	2%	13	4%	3%

*Analysis: The three best answers were selected at similar ratios by both attendees and non-attendees.*

**9. You have located an ARTICLE in a library database but the full-text is not available in THAT database. What do you do next? (check all that apply)**

Full-text not available	Attended		Did not Attend		Overall
Click Find it	181	65%	160	53%	59%
Try google books	139	50%	138	46%	48%
Try link+	101	36%	95	32%	34%
Try google scholar	92	33%	111	37%	35%
Check with professor	1	.03%			.03%

*Analysis: 12% more attendees (65%) than non-attendees(53%) picked the best answer (Find it). Both groups, however, favored two inappropriate responses (Google Books and Link+) over a more appropriate response (Google Scholar).*

Red: Best Answers  
Blue: Inaccurate answers that received high number of responses

*(Link+ does not deliver articles, and Google Books does so only incidentally.) These responses suggest that further efforts should be focused on resolving student confusion over appropriate places to find books versus appropriate places to find articles. (The same problem as indicated by responses to scenario question #4.)*

10. You have located an article in a library database but have not found the full-text in ANY of the library databases. What do you do next to get the article? (check all that apply)

Full-text not available in any database	Attended		Did not Attend		Overall
Request the article through Interlibrary services	185	67%	184	61%	64%
Request the article through Link+	98	35%	119	40%	38%
Search PolyCat for the journal article	73	26%	71	24%	25%

*Analysis: 6% more attendees (67%) versus non-attendees (61%) selected the best response, but both attendees and non-attendees also selected two inappropriate responses in similar ratios (35% vs.40%/26% vs. 24%). As with scenario questions #4 and #9, more should be done to create a working model for students that matches types of resources (articles, books,etc.,) to the proper utility (Link+, databases, etc.) Though this recommendation is ostensibly limited and library-centric, it speaks to the larger information-skills issue of recognizing types of resources and knowing where/how to retrieve them, transferable to different information environments that students will encounter after graduation.*

11. If you searched the internet via Google for your topic but wanted to limit your results to the domain of the Internet most authoritative and relevant to this topic, would you limit your search to? (check one)

Credible web site	Attended		Did not Attend		Overall
.gov and .edu	201	72%	219	73%	73%
.gov	17	6%	9	3%	5%
.edu	14	5%	8	3%	4%
.gov and .com	9	3%	11	4%	4%
.com	2	.07%	5	2%	1%

*Analysis: Attendee and non-attendee scores were nearly identical in selecting the best answer (72%, 73%). The score reflects that a majority of students have an awareness of domain types, which in itself suggests the application of evaluative information skills in the Web environment.*

12. Examine this citation: Nicolai Rubenstein, "The beginning of Niccolo Machiavelli's Career in the Florentine Chancery," *Italian Studies* 9 (1956): pp 72-91. Is this citation for? (check one)

Citation is for?	Attended		Did not Attend		Overall
An article in a journal	133	48%	120	40%	44%
A chapter in a book	55	20%	75	25%	23%
A book	36	13%	38	13%	13%
An encyclopedia entry	18	6%	18	6%	6%

*Analysis: 8% more attendees (48%) versus non-attendees (40%) selected the one best answer. However, that figure itself represents less than 50% of the students. Clearly, more work needs to be done to address the recognition of types of documents via citation information.*

**13. In the same citation, what does the 9 stand for? (check one)**

9 stand for?	Attended		Did not Attend		Overall
Volume number	147	53%	143	48%	51%
Edition	73	26%	87	29%	28%
It doesn't stand for anything, it is part of the title	19	7%	20	7%	7%
Page number	3	1%	2	.06%	.5%

*Analysis: The scores here reflect similar ratios as the previous question (# 12) with the best answer selected by 53% of attendees and 48% of non-attendees. Again, the low overall score invites the same recommendation as question # 12. Also, the combined 28% who selected Edition suggests a lack of familiarity with one of the most basic citation formats.*

**14. Citations found in references, footnotes, or works cited lists are useful for research because (check one)****Choices:**

- a. If an article has been cited it is likely to be relevant to the topic
- b. You can search for that article to read and cite
- c. The cited article can lead you to more articles on that topic
- d. All of the above
- e. A and C

Citation?	Attended		Did not Attend		Overall
All of the above	172	62%	176	58%	60%
A and C	45	16%	39	13%	15%
If an article has been cited it is likely to be relevant to the topic	11	4%	21	7%	6%
You can search for that article to read and cite	8	3%	12	4%	4%
The cited article can lead you to more articles on that topic	3	1%	2	.06%	.5%



*Analysis: Similar scores for attendees and non-attendees, but still not as high as one might like to see..*

**15. As you are writing your paper, when you need help with a specific citation style you can consult (check all that apply)**

Citation style	Attended		Did not Attend		Overall
APA Manual	184	66%	178	59%	63%
The Owl at Purdue	159	57%	164	54%	56%
The Chicago Manual of Style	102	37%	103	34%	36%
Call Research Desk at the Library	89	32%	81	27%	30%
Roget's Thesaurus	21	8%	14	5%	7%
MLA handbook	5	2%	3	.09%	1%
Easybib.com	3	1%	4	.13%	.6%
Google	4	1%	0		1%
Online citation generator	4	1%	2	.06%	.5%
KnightCite Citation	2	.07%	0		.07%

*Analysis: Most of the answers provided to this question were preferred and not inappropriate. The emphasis on one or another appropriate answer possibly reflects the disciplinary backgrounds of students.*

**16. Which of these can be used to organize your research and create a bibliography?  
(check all that apply)**

Bibliography	Attended		Did not Attend		Overall
Endnote	136	49%	131	44%	47%
Refworks	113	41%	100	33%	37%
Zotero	41	15%	39	13%	14%
Scirus	20	7%	27	9%	8%

*Analysis: As with the previous question, preferred answers received the highest percentage of appropriate responses. However, the very low response rate to the bibliographic software loaded onto ALL library computers (Zotero) suggests that more work needs to be done in actively promoting bibliographic software, whether the open-source Zotero, or another software if a campus-wide license were to be acquired.*

**17. When is it ethical to use the ideas of another person in a research paper? (check one)**

Ethical?	Attended		Did not Attend		Overall
Only when you give them credit	211	76%	226	75%	76%
Only when you receive their permission	16	6%	9	3%	5%
It is never ethical to use someone else's ideas	11	4%	12	4%	4%
Only if you do not use their exact words	2	.07%	2	.06%	.07%

*Analysis: Attendees and non-attendees had nearly identical percentages in selecting the right response. This suggests that the campus has been effective in heightening awareness of ethical citation issues.*

18. If the Kennedy Library website crashed but the internet was still working, which of the following would be the best options for quality information that might be immediately available? (choose all that apply)

Best option when library website crashes	Attended		Did not Attend		Overall
Google Scholar	193	70%	194	64%	67%
LOC	104	38%	125	42%	40%
Directory of open access journals	96	35%	103	34%	35%
Pub Med Central	44	16%	43	14%	15%
Google books	20	7%	31	10%	9%
Other online libraries?	1	.03%	0	0	.03%

*Analysis: Similarity in both attendees and non-attendees responses to the correct answers.*

19. Imagine that this topic is of continued interest in your professional life. Which of the following would you use or consult to keep current? (check all that apply)

Professional Organizations	Attended		Did not Attend		Overall
Professional society	182	66%	172	57%	62%
RSS feeds	87	31%	96	32%	32%
Email alert	57	21%	57	19%	20%
Blogs	53	19%	42	14%	17%
Facebook	23	8%	27	9%	9%
XML helpline	13	5%	19	6%	6%

*Analysis: Attendees and non-attendees responses were similar and accurate for correct and in-correct answers.*

**20. In your time as a Cal Poly student, when you have needed information for your research, which of the following have you done? (check all that apply)**

Need information?	Attended		Did not Attend		Overall
Go to google	194	70%	201	67%	69%
Ask a friend	137	49%	137	46%	48%
Go to the library	84	30%	73	24%	27%
Consult my college librarian	71	26%	50	17%	22%
Go to "online chat" widget on the library web site	37	13%	36	12%	13%
Professor	12	4%			4%
Search polyCat or library database from library web site	28	10%			10%

*Analysis: Both attendees and non-attendees prefer to consult with Google and friends before turning to the library, which is not surprising and can be found confirmed in other studies. The Library, then, should not only be concerned to present the value of the academic resources it provides, but should also help students to improve their evaluative and retrieval skills in the environment of the open web.*