Faculty-Librarian Collaboration to Integrate Information Literacy and Assessment into an Economics Course

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What is Information Literacy?

A set of abilities requiring individuals to "**recognize** when information is needed and have the ability to **locate**, **evaluate**, and **use** effectively the needed information."

American Library Association (ALA) Presidential Committee on Information Literacy, 1989

An Information Literate Student Can…

- **Determine** the nature and extent of the information needed.
- **Access** needed information effectively and efficiently.
- **Evaluate** information and its sources critically and **incorporate** selected information into his or her knowledge base and value system.
- **Use** information effectively to accomplish a specific purpose.
- **Understand** many of the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally.

Association of College and Research Libraries (ACRL), 2000

Information Literacy in Higher Ed

- **Western Association of Schools and Colleges (WASC)** identified information literacy as one of the five areas of institutional assessment in *Situating WASC Accreditation in the 21st Century: Redesign for 2012 and Beyond* (2011).

- **Association of American Colleges and Universities (AAC&U)** created an *Information Literacy VALUE Rubric* to assess "a collection of work, rather than a single work sample in order to fully gauge students' information skills" (2010).

Information Literacy in Economic Education Journals

Journal Title	Articles on "Information Literacy"	Articles on "Critical Thinking"
American Economic Review	**None**	**None** (Felds, 2012 - "Problem Solving")
Journal of Economic Education	**1** (Eeckhoudt & Godfroid, 2000)	**6** (McGoldrick & Garnett, 2013)
Economics of Education Review	**None**	**2** (Saavedra & Saavedra, 2011)
International Review of Economics Education	**None**	None
Quarterly Journal of Economics	**None**	**1** (Carroll, Choi, et al, 2009)
Journal of Economics and Economic Education Research	**None**	**2** (Wood, Isabell & Wiant, 2010)

Information Literacy @ Fresno State

Strategic Plan for Excellence IV: 2011-15: Enhance the Student Learning Environment, Theme I

"The University will improve learning for its diverse student population by placing emphasis upon effective traditional teaching methods, innovative pedagogy and active learning through research experiences, internships, service learning, and learning communities/cohorts. We will accomplish this by promoting teamwork, academic rigor, learning assessment, personal inquiry, **INFORMATION LITERACY**, ethics, and problem solving."

Student Outcomes Assessment Plans **(SOAPs)**

Henry Madden Library SOAP

Goal B: **Information & Digital Literacy**

Outcomes:

- Librarians collaborate with faculty to embed information literacy into curriculum, courses, syllabi and assignments in order to enhance student learning.
- Librarians provide information literacy in a variety of contexts and employ multiple learning platforms in order to meet multiple learning styles.
- Student learning is enhanced with a variety of information literacy methods such as information literacy modules, face-to-face teaching, and other educational practices.

Department of Economics SOAP

Goals focusing on Student Learning:

- Economic competence
- Analytic competence
- **Critical thinking**
- Communication skills
- Application of economics
- Social awareness and responsibility

ECON 50: *Principles of Macroeconomics*

- Three-unit, introductory course in macroeconomics
- General Education (GE) course
- In-class lecturing with Blackboard and MyEconLab
- Three 50-minute lectures/week for 14 weeks
- Two sections (11-11:50 a.m. & 12-12:50 p.m.)
  - Each section consisted of 48 students in Fall 2013
  - Various majors
- 1,000-word writing assignment

Writing Assignment

A 1,000-word term paper discussing **pros and cons of raising the minimum wage in California**

- Requirements:
  - At least three pros and cons of the argument
  - At least three reliable economic sources (e.g. books, peer-reviewed economic journal articles, government documents) to support opinions
  - References in APA citation style
- Grading rubric provided

Student Demographics, Fall 2013

SECTION 11 [TREATED]	Freshman	Soph.	Junior	Senior	Total (Major)	%
Pre-Business	2	25	5	1	33	68.75%
Health Sciences	1	1	2	0	4	8.33%
Other Major	0	6	4	1	11	22.92%
Total (Year)	3	32	11	2	48	100.00%
%	6.25%	66.67%	22.92%	4.17%	100.00%	

SECTION 12 [NON-TREATED]	Freshman	Soph.	Junior	Senior	Total (Major)	%
Pre-Business	3	8	13	2	26	54.17%
Health Sciences	0	0	3	2	5	10.42%
Other Major	4	8	4	1	17	35.41%
Total (Year)	7	16	20	5	48	100.00%
%	14.58%	33.33%	41.67%	10.42%	100.00%	

Information Literacy Instruction & Assessment Plan

- Identified a set of six Information literacy learning outcomes for the assessment
- Created an information literacy instruction plan
- Scheduled four information literacy workshops throughout the semester (5-50 minutes/workshop)
- Assessment methods:
  - Pre-test/post-test evaluation
  - Writing assignment

Pre-Test/Post-Test Evaluation

- Two identical tests with 11 questions each were administered in both sections during the semester to assess student's level of competency in information literacy skills
- Pre-test given in the early stage of the semester, before any library instruction or research assistance was provided
- Post-test given on the last day of instruction
- Each test took approx. 10-15 minutes

Information Literacy Outcome 1

The student will demonstrate familiarity with the Fresno State Library's facility, resources, and services in order to become confident users of the Library.

Q. If you are searching for an article the Henry Madden Library does not have, you can get a copy through a library service called _____.

A. Google Library
B. Article Express
C. Interlibrary Loan
D. Webloan
E. Not sure

Information Literacy Outcome 2

The student will determine key concepts of research questions and analyze characteristics of various information sources in order to identify information necessary to complete research assignments in economics.

Q. If you are searching for most updated data on the unemployment rate in the United States, you are not likely to find it in _____.

A. Bureau of Labor Statistics website
B. EconLit database
C. Textbooks
D. Federal Reserve Bank of St. Louis's website
E. Not sure

Information Literacy Outcome 3

The student will understand research processes and formulate effective search strategies using various information sources in order to locate needed information in a timely manner.

Q. The topic you selected for your research paper is “Gross Domestic Product (GDP) and families,” and you decide to use a periodical database to locate related articles. To achieve the best results from the database, you try using “GDP and families” as your keywords. Unfortunately, you discover that this search yields far more articles that you can reasonably use. Which of the following suggestions would be your next best course of action to achieve a more manageable list of articles?

A. Use the same keywords “GDP and families” and perform a search in Google
B. Narrow your keywords to be more specific
C. Use “GDP” or “families” as separate keywords and perform a search for each
D. Not sure

Information Literacy Outcome 4

The student will evaluate validity and quality of the gathered information in order to choose the best sources for the research assignments.

Q. Which information is the most suitable for writing an academic paper that requires scholarly information sources?

A. An article from CNN.com
B. An article from *Journal of Applied Econometrics*
C. An anonymous blog post
D. A YouTube video
E. All of A – D

Information Literacy Outcome 5

The student will incorporate selected information into their knowledge base and utilize the information effectively in order to accomplish research assignments in economics.

→ Assessed by the writing assignment

Information Literacy Outcome 6

The student will demonstrate an understanding of plagiarism in order to conduct research and write research papers in an ethical manner.

Q. In considering the following article citation, what does 46(12) represent?

Smith, K. C. (2011). Effects of early childhood bilingualism and the languages used at home: Consequences for mind and brain. *International Journal of Applied Linguistics,* 46(12), 712-735.

A. The volume and the number of pages in the article
B. The volume and issue number of the magazine which contains the article
C. The year and issue of the article
D. The volume and starting page number of the article
E. Not sure

Information Literacy Workshops

Date	Topic Covered	Outcome	Time Spent (mins)
Sept 6	• Introduction to the economics librarian • Librarian's role & projected involvement in the coursework	1	5
Oct 2	Library resources, services, and facility	1	15
Oct 18	A hands-on session covering: • Characteristics of various types of information & information sources • Step-by-step research process and search strategies • Tips for critically evaluating information & information sources	2, 3, 4	50
Nov 25	• How to integrate selected information into writing • Concept of plagiarism and basics of the APA citation style	5, 6	15

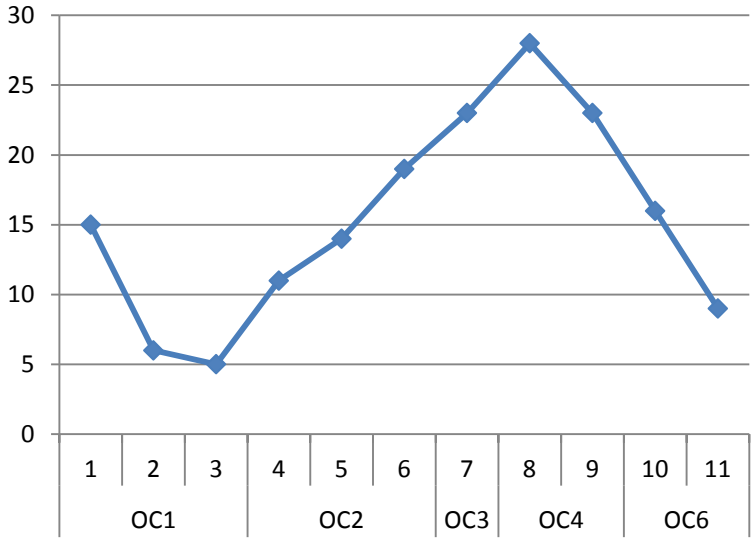
Pre-Test Results

Means of the pre-test scores:

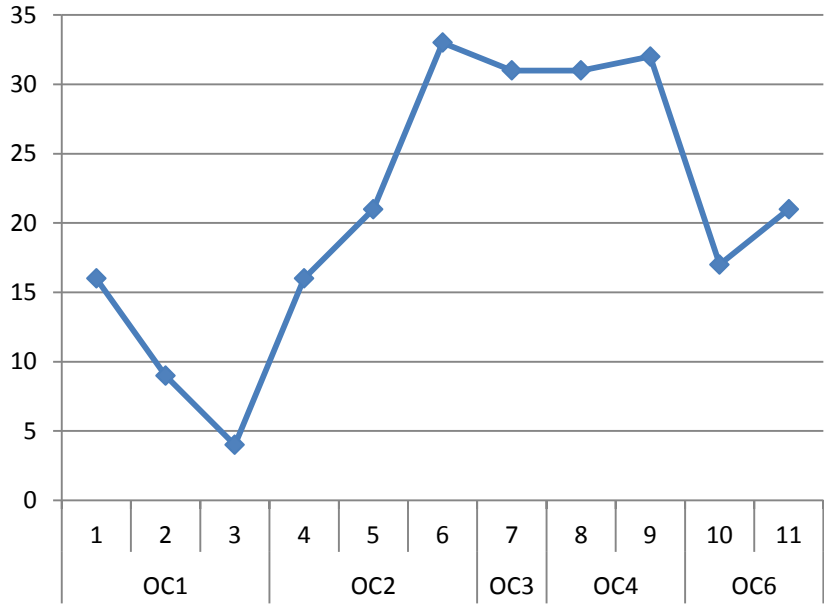
- Section 11 = **5.28**
- Section 12 = **6.24**

→ Section 12 is significantly higher

Section 11 = Treated



Section 12 = Non-Treated



Pre-/Post-Test Results

Question 1: Is the mean of the post-test score statistically higher than the mean of the pre-test score in <u>Treated Group</u>? ➔ **Significantly higher in post-test**

```
Paired t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
    POST |      32     7.28125    .2918046    1.650696    6.686111    7.876389
     PRE |      32     5.28125      .28125     1.59099    4.707637    5.854863
---------+--------------------------------------------------------------------
    diff |      32           2    .2579385     1.45912    1.473931    2.526069
------------------------------------------------------------------------------
     mean(diff) = mean(POST - PRE)                                 t =   7.7538
 Ho: mean(diff) = 0                         degrees of freedom =       31

 Ha: mean(diff) < 0           Ha: mean(diff) != 0           Ha: mean(diff) > 0
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000
```

Pre-/Post-Test Results

Question 2: Is the mean of the post-test score statistically higher than the mean of the pre-test score in <u>Non-Treated Group</u>? ➔ **Insignificant difference**

```
Paired t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
    POST |      37    6.513514    .2499899    1.520629    6.006511    7.020516
    PRE  |      37    6.243243    .2751069     1.67341    5.685301    6.801186
---------+--------------------------------------------------------------------
    diff |      37    .2702703    .2838195    1.726407   -.3053424     .845883
------------------------------------------------------------------------------
     mean(diff) = mean(POST - PRE)                                 t =   0.9523
 Ho: mean(diff) = 0                          degrees of freedom =       36

 Ha: mean(diff) < 0           Ha: mean(diff) != 0           Ha: mean(diff) > 0
 Pr(T < t) = 0.8263         Pr(|T| > |t|) = 0.3473          Pr(T > t) = 0.1737
```

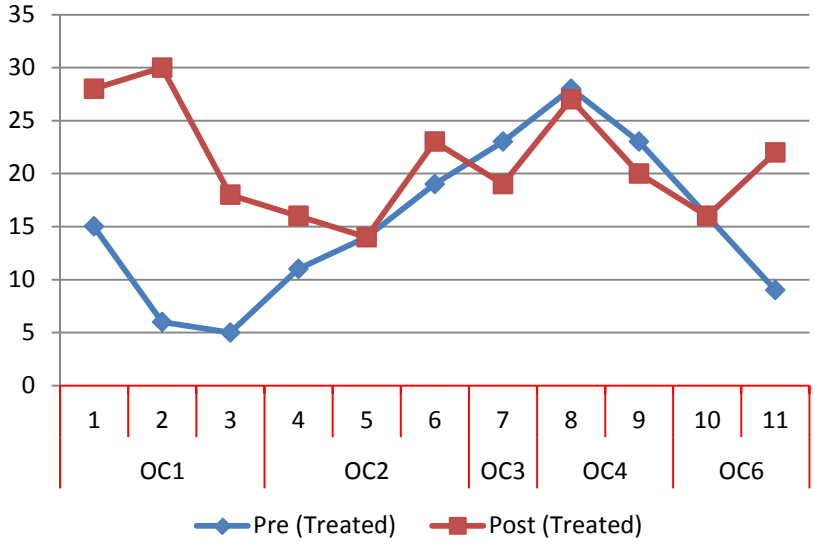
Pre-/Post-Test Results

Question 3: Is the mean of the post-score in Treated Group statistically higher than the mean of the post-test score in Non-Treated Group? ➔ **Significantly higher in Treated Group**

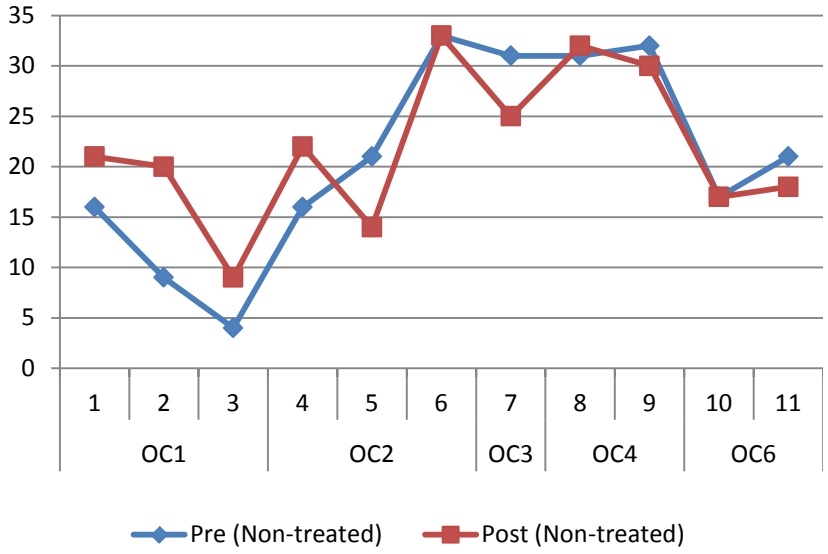
```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
 Class_12|      37    6.513514    .2499899    1.520629    6.006511    7.020516
 Class_11|      32     7.28125    .2918046    1.650696    6.686111    7.876389
---------+--------------------------------------------------------------------
combined |      69    6.869565    .1946788    1.617124     6.48109    7.258041
---------+--------------------------------------------------------------------
    diff |           -.7677365    .3819384               -1.530089   -.0053842
------------------------------------------------------------------------------
    diff = mean(Class_12) - mean(Class_11)                        t =  -2.0101
Ho: diff = 0                                     degrees of freedom =       67

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0242         Pr(|T| > |t|) = 0.0484          Pr(T > t) = 0.9758
```

Pre-/Post-Test Results



Treated Group



Non-Treated Group

Writing Assignment Results

Question 4: Is the mean of the writing assignment in Treated Group statistically higher than the mean of the writing assignment in Non-Treated Group?

➔ **insignificant difference**

Sections Mean	Section 11 (Treated Group)	Section 12 (Non-treated Group)
PRE-Test	5.28	6.24
POST-Test	**7.28**	6.51
Research Calculator (Total 5 points)	4.69	5.00
Writing Assignment (Total 45points)	**41.94**	40.68
% Overall Course	77.48	**82.29**

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Conclusion

- Pre-test/post-test evaluation showed that there was significant improvement in information literacy competencies in Treated Group
- Writing assignment results did not support the pre-test/post-test results
- Results of the assessment study in Spring 2014 were consistent with Fall 2014

Further Discussion

- Explore and develop information literacy instruction more fully into economic education
- Administer longitudinal studies and overall assessment of student learning outcomes
- Establish greater collaboration at the department, college, and university-levels to integrate information literacy into the curriculum
- Ensure library's further involvement in this effort