Does Information Literacy Education Change Attitudes?

Student Affective Responses re Library-based vs. Web-based Research Before & After an Information Literacy Course

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LUC, October 10, 2008
Does IL Educ. Change Attitudes?

A research summary:

Introduction
Literature Review
Hypotheses
Research Design
Data Analysis
Results
Conclusions
Next Steps

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Introduction

Root Motivators for the Affect Study:

- Information Literacy Teaching & Reference Work
- BA in Psychology

Awareness & concerns about:

- # of students who do not receive IL instruction
- discrepancies between faculty expectations & students actual skills
- culture shock for Freshmen & others
  - new expectations from faculty re school work
  - new kind of library: physically, electronically
  - living arrangements away from home & parents

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RESEARCH & LIBRARY ANXIETY—Highlighted Authors

- Constance Mellon, Collins, & Young – Mid-late 1980’s –
  “It’s the stupidity, stupid.”
- Carol Kuhlthau & George Kelly’s “Personal Constructs” or
  “Groovy Thinking”
- Jane Keefer Likens Students to Jerome Bruner’s Rats
- Onwuegbuzie & Jiao, 2000s—numerous articles, a book
- Bostick’s Library Anxiety Scale
I. CONTRAST OF START- AND END-OF-COURSE

A. Library-Based Research Affect

All Students
Female vs. Male
By Class
By Age

B. Web-Based Research Affect

II. CONTRAST OF LIBRARY-BASED AND WEB-BASED AFFECT

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Sample hypothesis (1):

I. CONTRAST OF START- AND END-OF-COURSE

A. Library-Based Research Affect

All Participants

Null: Regarding student answers to the 6 affect-related questions as applied to Library-based research, no significant difference is discovered between start- and end-of-course means, when grouping all participants.

Alternative: Regarding student answers to the 6 affect-related questions as applied to Library-based research, end-of-course means are discovered to be significantly greater than start-of-course means, when grouping all participants.

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Sample hypothesis (2):

I. CONTRAST OF START- AND END-OF-COURSE

B. Web-Based Research Affect

Female-Male Participants

*Null*: Regarding student answers to the 6 affect-related questions as applied to Web-based research, no significant difference is discovered between sexes for either start- or end-of-course means.

*Alternative*: Regarding student answers to the 6 affect-related questions as applied to Web-based research, a significant difference is discovered between the sexes for either or both start- and end-of-course means.
Sample hypothesis (3):

II. CONTRAST OF LIBRARY-BASED VS. WEB-BASED AFFECT

Age of Participants

Null: Regarding student answers to the 6 affect-related questions as applied both to Library-based and Web-based research methods, no significant difference is discovered based on age with respect to the methods, in either or both of the start- or end-of-class-of-course administration.

Alternative: Regarding student answers to the 6 affect-related questions as applied to Library-based and Web-based research methods, a significant difference is discovered based on age with respect to the two methods, in either or both of the start- or end-of-class-of-course administrations.
Research Design / Data Collection

- Spring term, 2007
- Students in LSU’s LIS1001, 1 credit-hour IL course
- 80-85 students in final data analysis
- Demographics:
  - Freshmen plus;
  - Ages 18-24, modal = 19;
  - More females
- Questionnaire survey: 2 Likert scales, identical questions
- 6 questions explored web- & library-based research affect
- Start- & end-of-course data collection
LIKERT SCALE INSTRUMENT for …

LIBRARY-BASED. You are first asked to answer questions about your experience with library-based information research **ONLY**. You will be asked about Web-based research later.

In each row, place an ‘X’ in the column below that best describes your TYPICAL or USUAL feelings when performing library-based information research, ranging from the extreme on the left to the extreme on the right.

<table>
<thead>
<tr>
<th>LIBRARY-BASED</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Your feeling/ experience:</strong></td>
<td></td>
<td></td>
<td>Medium or Neutral</td>
<td></td>
<td>Your feeling/ experience:</td>
</tr>
<tr>
<td>1. Anxious or worried about your skill/ ability at finding the info you need</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Quite confident of your skill/ ability</td>
</tr>
<tr>
<td>2. Anxious or worried because of time/ deadline pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Time/deadline pressure does not bother you when you perform information research.</td>
</tr>
<tr>
<td>3. Bored or very uninterested</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Highly interested</td>
</tr>
<tr>
<td>4. Intense dislike for seeking library-based information resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enthusiasm</td>
</tr>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>--------------</td>
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<td></td>
<td></td>
<td>Enthusiasm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The process of searching for library-based information is very difficult.</td>
<td></td>
<td></td>
<td>Process: very easy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Obtaining the results I need is very difficult.</td>
<td></td>
<td></td>
<td>Results: very easy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CALCULATIONS & STATISTICS

- Means for individual students (of the 6 questions in each set)

- **Means for categories:**
  - All
  - By Gender
  - By Class
  - By Age

- Mean differences for categories, comparing Library & Web responses.

- Start-to-end mean differences for both research modes, for each student category.

- T-tests for statistical significance of differences.
Results

All students
By gender
By class
By age
Library and Web Means, All Students, Start & End

World wide web

WEB

LIBRARY

World wide web

WEB

LIBRARY

START

END

Difference
WEB
LIBRARY

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% Web > Library Differences, All Students

Start

14.74

End

7.76

Gap Decrease = 6.98 %

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% Positive Increases, Start-to-End, All Students, Library and Web

Web Research

Library Research

WEB Increase is NOT Statistically Significant

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Means by Gender
Range is 0-5

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start-LIBRARY</td>
<td>3.24</td>
<td>3.09</td>
</tr>
<tr>
<td>End-LIBRARY</td>
<td>3.47</td>
<td>3.49</td>
</tr>
<tr>
<td>Start-WEB</td>
<td>3.64</td>
<td>3.71</td>
</tr>
<tr>
<td>End-WEB</td>
<td>3.74</td>
<td>3.76</td>
</tr>
</tbody>
</table>

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% Differences: Web > Library, by Gender, at Start & End

- Female Start: 7.99
- Female End: 5.35
- Male Start: 12.41
- Male End: 5.38

Gap - Females - Decreased: 4.6%
Gap - Males - Decreased: 12.7%

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% Increases, Start to End, by Gender, Library & Web

* ONLY the Male/Library difference is statistically significant.
Means by Class

<table>
<thead>
<tr>
<th></th>
<th>Freshmen</th>
<th>Upper Classmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start-LIBRARY</td>
<td>3.18</td>
<td>3.19</td>
</tr>
<tr>
<td>End-LIBRARY</td>
<td>3.41</td>
<td>3.42</td>
</tr>
<tr>
<td>Start-WEB</td>
<td>3.68</td>
<td>3.65</td>
</tr>
<tr>
<td>End-WEB</td>
<td>3.59</td>
<td>3.80</td>
</tr>
</tbody>
</table>
% Differences, Web > Library, by Class

- Freshmen - Start: 9.83%
- Freshmen - End: 3.62%
- Upper Class - Start: 9.05%
- Upper Class - End: 7.70%
% Differences, Start to End, by Class, for Library & Web

Classes showed NO significant differences, start-to-end, in either Library or Web Research.
% Differences, End > Start, by Age, for Library & Web

- **AGE 21-24**
  - Library: 27.69%
  - Web: 10.05%

- **AGE 20**
  - Library: 14.77%
  - Web: 0.74%

- **AGE 19**
  - Library: 6.34%
  - Web: -0.59%

- **AGE 18**
  - Library: 4.18%
  - Web: 2.80%

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Library - Web Mean Differences, Null Hypotheses Disproved?

YES, * except:
Ages: 18 Start; 19 End; & 20 End

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Start - End Mean Differences, Null Hypotheses Disproved?

YES: ALL, Library

YES: Male, Library

All others: NO

YES: Ages 21-24, Library

FRESH / UPPER AGES: 18, 19, 20, 21-24

GENDER

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Conclusions

1. Significant difference in positive affect exists between Web-based and Library-based research, when looking at the start and the end surveys, separately. Specifically, the gap between the two research modes decreased, in almost all cases, after taking the course. Significant differences were found via paired t-tests, thus disproving the null hypothesis, for: All Students, Females and Males, Freshman and Upper Classmen, and all Age groups except three out of eight instances. The three were: age 18 start, age 19 end, and age 20 end.

Over all, students started with a strong preference for web research and, while the reduced gap indicates a significantly increasing degree of positive regard for library research in most instances, web still remains on top.

With respect to the LIS1001 course, this data suggests that the course is making a positive affect difference for library research. For All Students, the gap dropped 46.6%.
2. The mean differences between end and start for each research mode, library and web, show that positive affect for library research increased more than positive affect for web research, which is in accord with the results in 1.

This change would seem reasonable in light of the fact that the course focuses on teaching library research skills, spends little time on web research, and moreover contrasts the value of library over web research for scholarship.

Number of All Students at start was 91, number at end was 102. This difference was taken into account by using independent t-tests for start-versus-end data. They were required due to the fact that individuals could not be matched. Had individuals’ responses been matched, (a) the numbers would have been the same, equaling 91 or less; and (b) it would have been easier to demonstrate statistical significance.
Conclusions

3. The only statistically significant start-to-end differences determinable, therefore, were: Library for All Students, Library for Males, and Library for Ages 21-24. As non-significance means more or less static results, this means that Web did not significantly change for any group; nor did Library significantly change for Females, Freshmen or Upper Classmen, or Ages 18, 19, or 20. Thus, the changes in All Students were accounted for mainly by Males and Ages 21-24.

4. Gender distinctions. The difference between females and males was rather startling with respect to the change in web over library, from start to end. The decrease in gap for males was 12.7%, while that for females was only 4.6%.

Numbers of females at start and end, respectively, were 48 and 50. Numbers of males were 36 and 48, respectively. Thus, the genders were balanced at the end, if not quite at the start. Of the four data combinations, independent t-tests found only the male-library differences significant.
5. Class distinctions. Because freshmen were the outstandingly large class and numbers in other classes were small, students were divided simply between freshmen and upper classmen. Numbers of Freshmen at start and end, respectively, were 44 and 57. Numbers of Upper Classmen were, 48 and 61, respectively.

Looking at end-over-start changes for each research mode, this division of students did not indicate start-to-end, significant differences for either Library or Web research modes. [ ]

Relook at the numbers. Note that the web went negative. From 0.22 to -0.09 is a 140.9% drop!!]

However, gap decreases between Web over Library at start versus Web over Library at end, show the Freshmen drop as 63.3% while the Upper Class drop was only 15.6%.
5. Age distinctions. This analysis will be revisited. In any case, the numbers in each age group are fairly small, which means that expectations of validity are reduced.
1. ID participants (anonymously) in Start Survey to pair with End Survey.
Next Steps

1. Write up related article based on qualitative data (self-generated affect terms) collected in same surveys.

Possibilities for continuing/enhancing this work:

2. Repeat the survey:
   a. to compare results from a different year.
   b. to include online students.
   c. to include students who have not taken the course.
   d. to validate questions by pairing these with the LAS.
   e. to bolster the numbers from classes and age groups.
The End