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Effect of Information Literacy Instruction on Students in the Revamped PHYS 3100 Course

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Introduction

Project Goal: Assess how effective information literacy instruction was in teaching PHYS 3100 students to use appropriate, college-level information sources when doing their pre-lab write-ups for PHYS 3100: Intro to Modern Physics labs

Rationale: PHYS 3100 Students need learn these skills because, unlike many physics labs that simply demonstrate the physical laws, PHYS 3100 requires students to approach the labs as a scientist approaches experiments, including investigating the problem ***before*** entering the lab. (PHYS 3100, ca. 2013). In order to do this effectively, students need consult appropriate scholarly information sources.

Methods

Information Literacy Instruction. One hour of in-person information literacy instruction to spring 2014 and fall 2014 PHYS 3100 students. Instruction included examples of appropriate information sources – scholarly science reference resources, physics textbooks on course reserve, and an online course guide – and discussion of ***why*** these sources were appropriate.

Data collection. At the end of the semester, lab instructors provided me with the background information sources students cited in their lab write-ups. In addition, in the last weeks of classes, I conducted focus groups with the students.

Citation analysis. I intended to used a rubric (adapted from Leeder, et al, 2012) to quantify the quality of the types of background information sources cited by the students. But, for preliminary analysis, have instead divided sources into "appropriate" and "inappropriate" categories.

Focus groups. I transcribed audio recordings of the focus group conversations, and compiled a list of themes from the discussion.

Results

Spring 2014 Labs *Inappropriate* Source Types	Pre-Instruc.	% Pre-Instruc.	Post-Instruc.	% Post-Instruc.	Total	% Total
Encyclopedia Britannica	0	0%	1	2%	1	2%
Hyperhpysics	0	0%	**6**	**14%**	**6**	**10%**
Lab manual - other college	**5**	**28%**	**19**	**45%**	**24**	**40%**
Lecture notes - other college	**4**	**22%**	0	0%	4	7%
Personal pages - college instructor/grad student	**2**	**11%**	1	2%	3	5%
Wikipedia	0	0%	1	2%	1	2%
Other	7	39%	14	33%	21	35%
Totals	18	100%	42	100%	60	100%

Spring 2014 Labs Appropriate Source Types	Pre-Instruc.	% Pre-Instruc.	Post-Instruc.	% Post-Instruc.	Total	% Total
Govt agency, science-related -- data and measurements	**4**	**19%**	6	4%	10	6%
Lab Manual	**4**	**19%**	**26**	**17%**	**30**	**17%**
Source on class LibGuide	**5**	**24%**	**62**	**39%**	**67**	**38%**
Textbook	**8**	**38%**	**45**	**29%**	**53**	**30%**
Other	0	0%	18	11%	18	10%
Totals	21	100%	157	100%	178	100%

Fall 2014 Lab A *Inappropriate* Source Types	Pre-Instruc.	% Pre-Instruc.	Post-Instruc.	% Post-Instruc.	Total	% Total
Encyclopedia Britannica	**1**	**20%**	**5**	**13%**	**6**	**14%**
Hyperhpysics	0	0%	**14**	**36%**	**14**	**32%**
Lab manual - other college	0	0%	3	8%	3	7%
Lecture notes - other college	0	0%	0	0%	0	0%
Personal pages - college instructor/grad student	0	0%	0	0%	0	0%
Wikipedia	**2**	**40%**	**9**	**23%**	**11**	**25%**
Other	2	40%	8	21%	10	23%
Totals	5	100%	39	100%	44	100%

Fall 2014 Lab A Appropriate Source Types	Pre-Instruc.	% Pre-Instruc.	Post-Instruc.	% Post-Instruc.	Total	% Total
Govt agency, science-related -- data and measurements	1	3%	0	0%	1	3%
Lab Manual	**4**	**12%**	**1**	**25%**	**3**	**10%**
Source on class LibGuide	**4**	**12%**	0	0%	**4**	**14%**
Textbook	22	67%	3	**75%**	**19**	**66%**
Other	2	6%	0	0%	2	7%
Totals	33	100%	4	100%	29	100%

Fall 2014 Lab B *Inappropriate Source Types*	Total	% Total
Encyclopedia Britannica	0	0%
Hyperhpysics	6	21%
Lab manual - other college	10	34%
Lecture notes - other college	1	3%
Personal pages - college instructor/grad student	1	3%
Wikipedia	0	0%
Other	11	38%
Totals	29	100%

Fall 2014 Lab B Appropriate Source Types	Total	% Total
Govt agency, science-related -- data and measurements	7	13%
Lab Manual	0	0%
Source on class LibGuide	29	54%
Textbook	12	22%
Other	6	11%
Totals	54	100%

Focus Groups.

- Those that used course reserves materials thought they were useful; many thought going to the library was inconvenient
- Preferred online sources, wanted more titles available
- Many had simplistic understanding of what info source types were appropriate for the course

Conclusions

- Main types of sources cited was fairly consistent between semesters and lab sections
- Variation in what types increased and decrease after info literacy instruction, including "appropriate" types
- Reinforcement by lab instructors may have a greater effect on student behavior than info literacy instruction

Lessons Learned

- Having a true control and experimental group in a normal classroom setting is difficult
- Assessing info literacy skills acquired within a lab assignment can be challenging
- Students may need concrete incentives in order make behavior changes worthwhile

References

Leeder, C., Markey, K., & Yakel, E. (2012). A faceted taxonomy for rating student bibliographies in an online information literacy game. *College & Research Libraries*, 73(2): 115-33.

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