
“Students as Scholarly Researchers”: using assessment to integrate information literacy into the freshmen curriculum

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Outline

- A brief history of the project
- What was learned along the way
- What we've done
- Assessment results (so far)
- Next Steps

Brief History

- 3.091: Introduction to Solid State Chemistry
 - Core chemistry course
 - Over 500 students enroll each fall
 - Quizzes and exams, no homework

- 3.093: Information Exploration – Becoming a Savvy Scholar
 - Fall 2006
 - [3.093 page on OCW](#)
 - Pre/post self-confidence surveys
 - Assignments and research logs
 - Video tutorials and feedback
 - Card sorting exercise

HOW IS THIS SCALABLE?

Friday, September 19, 2008

Results or what I learned

- At least 50% of assignments were turned in (assumed completed) after 10pm.
- Students used wikipedia, but not as a source itself.
- Students still aren't too comfortable with citing, even with RefWorks.
- When doing lit reviews, doubt the actual papers were read.
- Not the best at following directions?
- At beginning of semester
 - 10/12 used wikipedia or google first. Only a couple actually cited wikipedia.
 - 7/12 tried barton or vera.
- End of the semester
 - still referring to wikipedia for quick background info.
 - 10/10 used library resources (though not always the best one).
 - Still some confusion about how Vera works.

Results or what I learned

- Pre/post self confidence surveys showed a significant difference in confidence
- Students seemed OK with video tutorials, with minor edits
- When surveyed at the end of spring semester: “I’m only recently discovering how useful the class was, now that I have begun to use vera/barton more regularly to review current research in my field for my UROP and other projects.”

3.091: Fall 2007

- Meetings
 - Newly assigned staff from the Teaching and Learning Lab (TLL)

- Results
 - The “treatment” was defined
 - Videos
 - Mentioned in lecture
 - Pre/post surveys
 - Includes self-confidence survey used in 2006
 - Administered by the TLL
 - 3 homework assignments, turned in and graded by the TAs
 - Answers provided for TA grading
 - Model answers posted (part of the “treatment”)
 - Longitudinal study
 - Survey 3.091 students as they continue their academic careers

Were the videos watched?

libraries.mit.edu
Content Drilldown
 /tutorials/video/classes/3.091/

Aug 30, 2007 - Dec 15, 2007
 Comparing to: Site



15 URLs were viewed a total of 2,570 times

Content Performance

Pageviews	Unique Pageviews	Time on Page	Bounce Rate	% Exit	\$ Index	
2,570 % of Site Total: 0.21%	2,142 % of Site Total: 0.24%	00:03:36 Site Avg: 00:01:41 (114.63%)	38.10% Site Avg: 56.42% (-32.48%)	18.48% Site Avg: 40.61% (-54.49%)	\$0.00 Site Avg: \$0.00 (0.00%)	
URL	Pageviews	Unique Pageviews	Time on Page	Bounce Rate	% Exit	\$ Index
/articlestopic/	620	483	00:03:30	27.78%	15.00%	\$0.00
/webofsci/	456	374	00:04:36	58.82%	24.56%	\$0.00
/citationtracking/	397	329	00:05:13	58.82%	30.98%	\$0.00
/googlevsdatabases/	315	277	00:03:12	20.00%	11.43%	\$0.00
/fulltext/	267	226	00:03:55	18.18%	16.48%	\$0.00
/barton/	180	155	00:02:05	12.50%	16.11%	\$0.00

3.091 Assessment – TLL results

■ High School Usage

- The **majority of freshmen arrive at MIT unprepared to conduct scholarly research**. They seldom used their high school or public libraries, had minimal experience with online research tools, and primarily relied on Google for searches. The data highlight the **need for students to gain an awareness of the importance of scholarly research skills** and have the opportunity to develop them in a meaningful context.

■ Beliefs about Scholarly Research Skills

- Students strongly support including scholarly research skills in 3.091. They believe the **skills are valuable for freshmen to learn and will be relevant to their academic work at MIT**.

3.091 Assessment – TLL results

■ Impact

- Students reported that the *Scholarly Researcher* curriculum had an impact on their online search skills in terms of awareness, usage, and increased effectiveness. Students indicated that **as a result of the scholarly research training they are more aware of the large number of resources they can access online, more likely than before to use the library's online research tools to identify relevant materials, and more able to function effectively as a researcher.** Students reported gains at statistically significant levels in 15 of the 18 library skills.
- At the end of the semester, 42% reported using research tools (online library databases) during the semester for class assignments other than 3.091. In addition, 29% indicated use of such tools to look up articles unrelated to MIT class assignments. Given that pre-survey responses suggested that many first semester freshmen possessed limited knowledge of online skills, these usage responses are encouraging: **during the semester, students had begun to apply what they learned.**

3.091 Assessment – TLL results

Table 1

Study Behavior Related to Learning the *Scholarly Researcher* Content

Number of recommended tutorials watched*	Time spent viewing video tutorials prior to completing assignment*	Time spent on <i>scholarly research</i> problems**
Never watched: 36%	0 minutes: 21%	15 minutes: 16%
Watched a few: 32%	15 minutes: 56%	30 minutes: 34%
Watched 50% or more: 32%	30 minutes: 12%	45 minutes: 17%
	45 minutes or more: 11%	1 hr. or more: 31%
36% (150/416) reported they never watched the recommended videos, yet only 21% (88/481) reported zero minutes viewing video tutorials. The discrepancy may be due to ambiguity in the wording.		**39% reviewed solutions to the scholarly research problems

3.091 Assessment – TLL results

Table 2
Beliefs about Scholarly Research Skills
Profile of Scale, Scale Items and Relevant Non Scale Items

Scale and Scale items	N	Mean (SD)
<i>beliefs about scholarly research skills scale (coefficient alpha = .87)</i>	415	5.48 (1.08)
15d I believe the scholarly research skills I learned will be useful during my undergraduate experience.	417	5.67 (1.31)
15e I believe knowing scholarly research skills will be of value beyond my academic work.	418	5.46 (1.33)
15f I believe scholarly research skills are valuable skills for freshmen to learn.	418	5.72 (1.26)
15g Knowing how to conduct scholarly research plays an important role in one's ability to think critically as a student.	417	4.88 (1.52)
15h Knowing how to conduct scholarly research plays an important role in one's professional life in judging the credibility of information.	417	5.67 (1.26)
Relevant Non Scale Items		
15a I see the value of introducing scholarly research skills into 3.091.	418	5.13 (1.59)
15b As a result of the scholarly training, I gained an appreciation for primary sources.	418	4.60 (1.70)
15c I believe the scholarly research skills I learned will be relevant to my academic work at MIT	418	5.73 (1.30)

What we learned

- Students support learning about the libraries/information in 3.091
- Learning these skills in 3.091 has had an impact on their online search skills
- Contradiction in data
 - Strong beliefs and impact, but less enthusiastic about instruction and learning experience
 - Important to learn, but not that exciting

What we learned

- “...scholarly research skills can be successfully integrated into a fast paced, content specific course” like 3.091

Interesting tidbits from performance task grading

- Used Wikipedia or other encyclopedias as starting point, didn't cite that as a source
- Searched Google for “find articles” or “mit libraries”
- Use databases that are familiar, regardless of topic
 - Examples: jstor, ProQuest
- For some, assumptions are made.
 - “I figured a medical organization would have written on this, so I searched for a medical organization”
 - “this author's name came up, so I thought he must be an expert and I searched just for him”.

What's next?

- Permanent inclusion in 3.091
 - Not an add-on, part of the syllabus
 - Continue with pre/post surveys to compare data
 - Update videos
- Approach other core chemistry class – spring/summer 2009
- Longitudinal study
- Pilot for assessment of library instruction in undergraduate classes

Questions?
