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## Geomorphology: Changing the scholarly sources landscape with geology students

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# Geomorphology: Changing the scholarly sources landscape with geology students

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## Abstract

The STEM Librarian and faculty member teamed up to stage a library instruction intervention when the term paper sources students turned in at the beginning of the semester were wilted Wikipedia articles and limp corporate websites. Students were asked to write a term paper explaining the geomorphic processes that shaped a landscape of their choice using scientific literature. A mix of third and fourth years, students needed to spruce up critical thinking and evaluation skills. Students needed assistance knowing what type of information they were looking for and finding discipline-specific information and evaluating sources. Armed with ACRL Information Literacy Standards for Science, a shiny new LibGuide, and a hands-on classroom activity called "Scholarly or Not," the librarian taught students how to identify and prune away the popular sources and identify appropriate sources.

## Activity

### Instruction

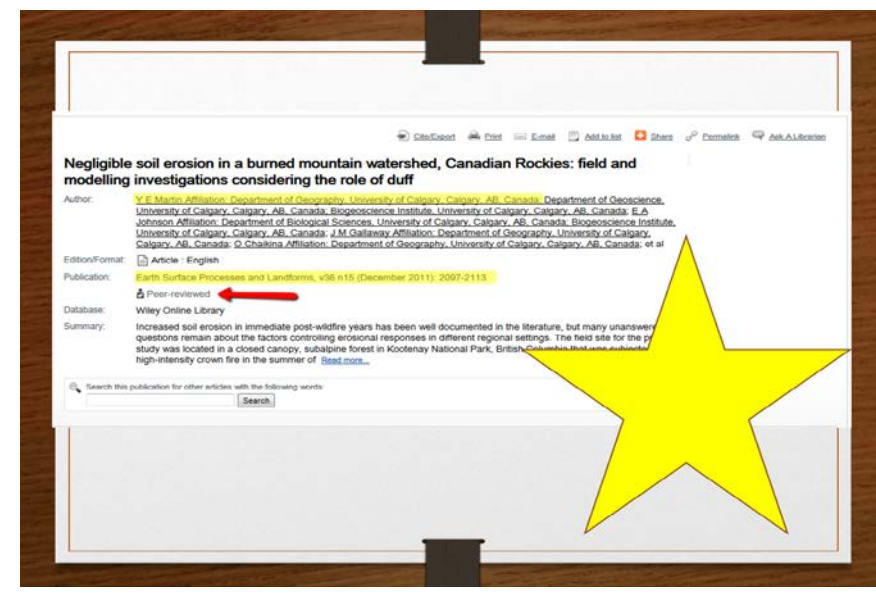
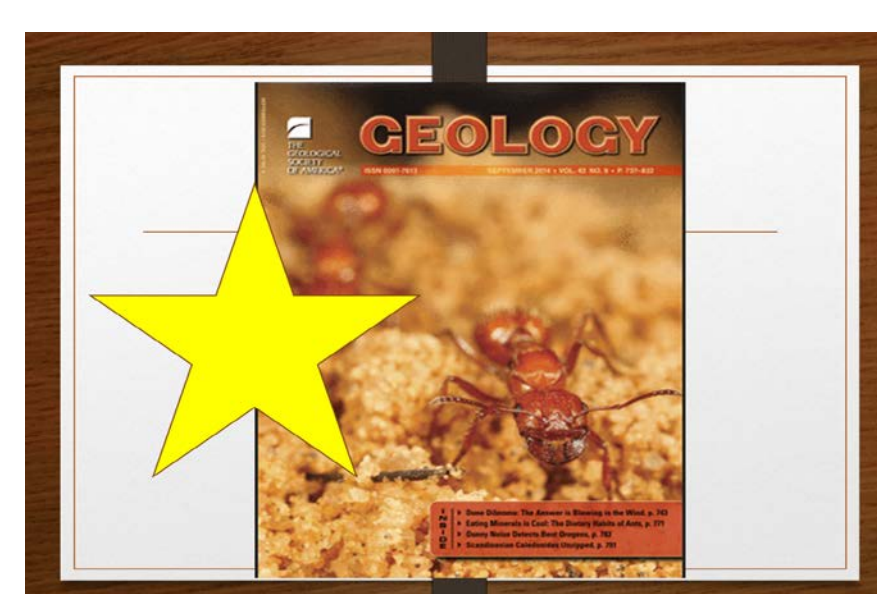
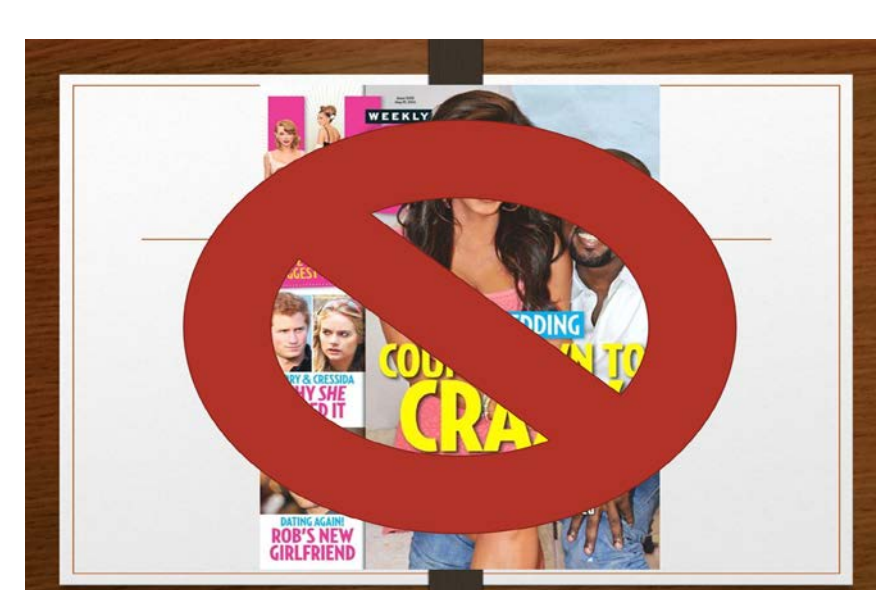
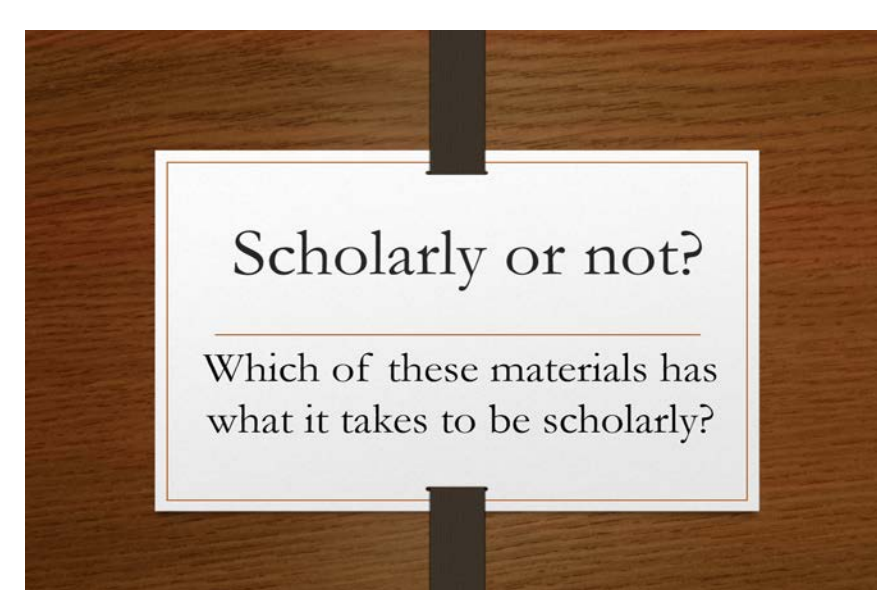
The class participated in an activity called "Scholarly or Not", which required students as a class to evaluate a source for appropriateness and building on their knowledge of the characteristics of what a "good" source might look like for this particular assignment. After each slide, there was discussion on when and where this source might be appropriate for information. Sources varied from tabloids to encyclopedias and self-published books. Screenshots of peer-reviewed items from the GeoRef Database were also included so students would know how to look for indicators of online scholarly sources.

### Student Learning Outcomes

- Student can name the parts of a scholarly source.
- Student can identify scholarly sources through critical thinking.
- Student can evaluate an information source for appropriateness to the assignment.

### Assessment Components

- In-class: The instructor and professor gaged whether students understood the differences through verbal feedback in the discussion.
- After class: A rubric was used to assess student assignments.



## Popular Sources Wasteland

### Topic Paper

- Location of choice plus three landscape features
- 8-10 bullet points of facts/information about their site
- At least 5 scholarly sources (max of 3 books)

Examples of student citations:

- "Introduction to Yellowstone". Yellowstone Net. Retrieved 2014-09-01.
- "Nature and Science". National Park Service. December 20, 2006.
- "Briney, Amanda. 2010. "Geography of Yosemite: Information and geography about Yosemite: Californias' most famous national park." Accessed Sept. 13, 2014. <http://geography.about.com/od/itedstatesofamerica/a/Yosemite-geography.htm>

### First Draft

- 2-4 pages of text with the goal of getting words/ideas onto paper in an outlined form
- Description of the location, a description of the geologic history of the site and the main geomorphic features
- 10 scholarly sources

Examples of student citations:

- Gries, J. P. (1996). Roadside geology of South Dakota. Missoula, MT: Mountain Press Pub.
- Sissakian, V. K. (2013). Geological evolution of the Iraqi Mesopotamia Foredeep, inner platform and near surroundings of the Arabian Plate. *Journal of Asian Earth Sciences*, 72152-163.

## Garden of Scholarly Sources

### Second Draft

- 4-6 pages of text where students construct their stories
- Describe the geomorphic processes that created the landscape features and use solid supporting evidence from sources
- 15 scholarly sources cited correctly

Examples of student citations:

- Royden, L. H., B. C. Burchfiel, & R. D. Van Der Hilst. "The Geological Evolution of the Tibetan Plateau." *Science*, 321.5892 (2008): 1054-058.
- Gill, J. R., Moore, Gw. W., Geolical Survey (U.W.), & U.S. Atomic Energy Commission. (1955). Carnotite-bearing sandstone in Cedar Canyon, Slim Buttes, Harding County, South Dakota. Washington, D. C.

### Final Draft

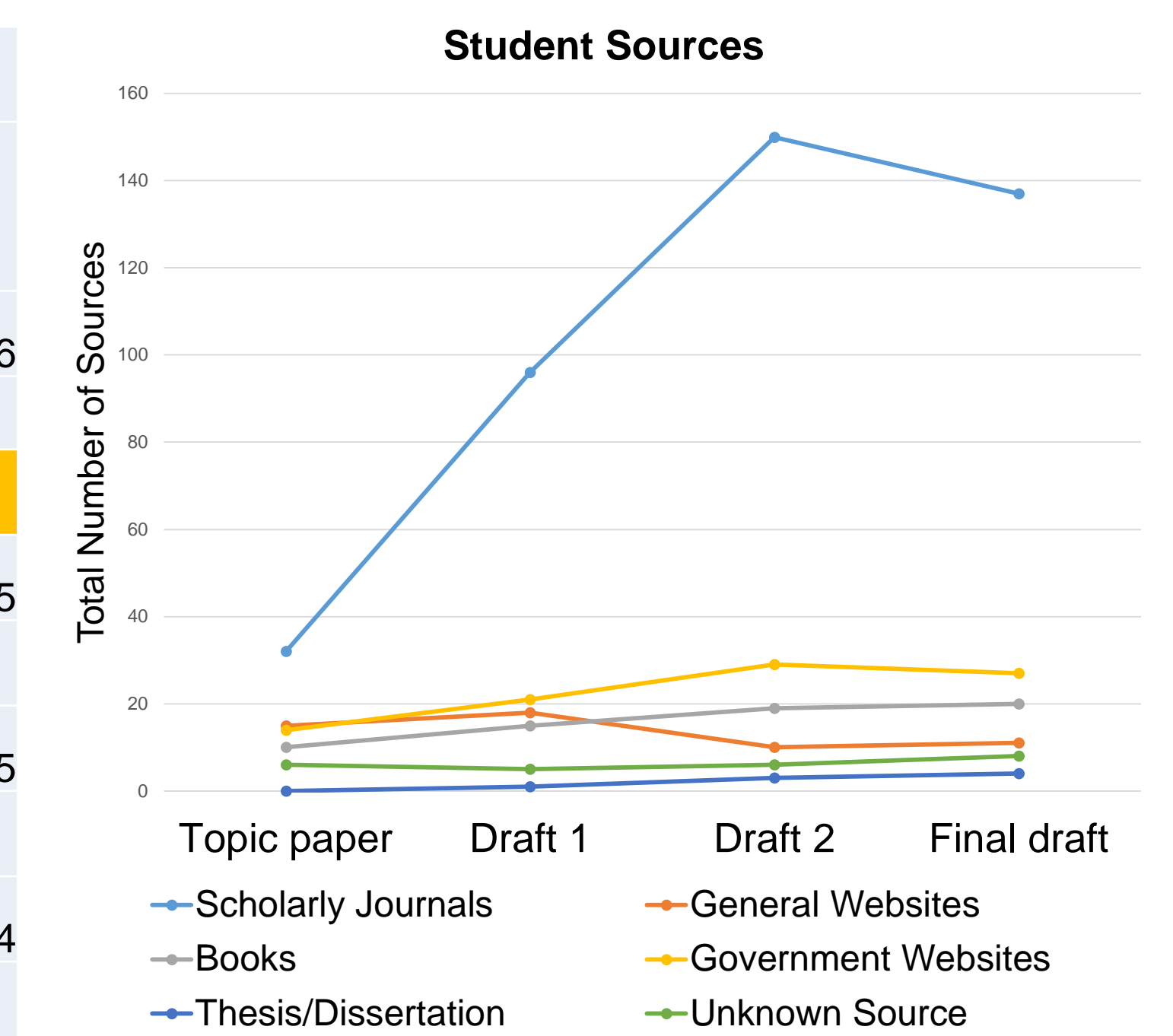
- Paper eloquently communicates an interesting story
- At least 15 scholarly sources cited correctly
- Included figures or photographs that supported the ideas presented in the paper

Examples of student citations:

- Othos, Linda, & Park, Stephen K. (2010). "Foundering Lithosphere imagined with magetotelluric data beneath Yosemite National Park, California. *Geosphere*. 8. 98-104.
- Cruikshank, Kenneth, & Aydin, Atilla. "Role of Fracture localization in arch formation, Arches National Park, Utah." (1994). *Geological Society of America Bulletin*. 106: 879-891.
- Lukens, W. E. (2013) Paleopedology and paleogeomorphology of the early Oligocene Orella and Whitney members, Brule formation, White River group, Toadstool Geologic Park, Nebraska. Master's thesis, Temple University.

## Results

Rubric Data	Student Skill Level			
	Expert	Advanced	Novice	Total
*Averaged scores				
Topic Paper	8	2.5	5.5	16
Goal: 80%	65.60%			
	Librarian Intervention!			
Draft 1	6.5	5.5	3	15
Goal: 80%	80.00%			
Draft 2	7.5	3	4.5	15
Goal: 80%	70.00%			
Final Paper	8	4	2	14
Goal: 80%	85.70%			



The librarian and professor independently assessed each student paper using the rubric. After each individual assessment, scores were averaged together to create the final scores in the Expert, Advanced, and Novice categories. Expert papers included at least 80% of the expected outcomes, advanced papers included 50-80% of the expected outcomes, and novice papers contained less than 50% of the expected outcomes. In each draft, the goal was to have 80% of students fall into the Expert or Advanced categories.

A second rubric was created to assess the sources students were using at the four different stages of writing, including the topic paper, the first draft, the second draft, and the final draft.

## Conclusion and Future Directions

### What worked:

- Identifying scholarly sources with specific examples in class
- Demonstrating how to access the library's resources
- Inviting "outside expert" to emphasize instructor's learning outcomes helped solidify the reasons for using library resources
- Feedback on multiple drafts through out the semester

### What needs work:

- More face time with librarian: office hours, consultations
- Clarifying assignment instructions for students
- Additional planning between librarian and instructor early on

## Select References

- University of Nebraska at Omaha, "University of Nebraska at Omaha STEM Strategic Plan," 2013. [http://www.unomaha.edu/stem/STEM\\_Strategic\\_Plan.pdf](http://www.unomaha.edu/stem/STEM_Strategic_Plan.pdf). [accessed November 28, 2014].
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- Jeanine M. Scaramozzino, "Integrating STEM Information Competencies into an Undergraduate Curriculum," *Journal of Library Administration* 50, no. 4 (2010): 315-333.
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