Unraveling the Research Process: Social Bookmarking and Collaborative Learning

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Abstract

This assignment is designed to leverage the social bookmarking site, Diigo, to capture the social, collaborative, and participatory nature of research. Over the course of the semester students collaboratively bookmark a variety of research sources (experts, organizations, reports and other formal/informal sources) in the class library before critically analyzing and evaluating connections between sources and their contribution to the academic conversation. This allows students to develop a sense of the dynamic and collaborative nature of inquiry, while also training students to negotiate multiple streams of information, to think critically about information and to draw connections and meaning from information to inform personal contributions. Regular reflective prompts develop student ability to self-assess personal growth, an essential element of learning in the 21st century academic environment as well as civic, personal, and work settings.

Keywords

Diigo, Information Literacy, Research Assignments, Reflection, PLE

Discipline/Academic Areas Addressed

The assignment may be applied to any discipline in which research and inquiry are core. The assignment was originally designed for a first year writing course focused on sustainability.

Instructional Purpose

The research paper is a common rite of passage in the academic world. While students are typically successful at amassing information sources, many grapple with new conventions of academic discourse and the synthesis of these foreign concepts into their own writing. Furthermore, research assignment guidelines that focus on the number or type of sources can lead students to view information as an object, and to conceive of research as a bounded, static product rather than grasping the dynamic and collaborative nature of inquiry.

Social bookmarking sites such as Diigo can help shift the focus from a final product to the experience of inquiry, as well as repositioning research as active dialog. Firstly, Diigo enables the quick and easy bookmarking of the various informal conversations that lead to formal scholarship. Students' exposure to conversation in context (blogs, tweets, discussion) breaks down academic barriers by helping their understanding of research as an active conversation. This focus on the context also means that students can provide much more purposeful critical evaluation of sources rather than following teacher imposed criteria. Secondly, the participatory nature of social bookmarking in the class Diigo library mimics the interconnected nature of research and the social construction of knowledge. By enabling students to work collaboratively and draw on other students' work and expertise, research becomes more active and meaningful. Finally, the social nature of Diigo means that students are curating a set of

topical resources within a community as one would in civic, social, or academic environments. This provides an audience beyond the teacher, making research activities more authentic.

Student Learning Outcomes

1. As a result of exploring multiple information sources, students will be able to identify formal and informal modes of knowledge creation.
2. As a result of evaluation, students will be able to interpret the strengths and weaknesses of their information sources.
3. As a result of contributions to the class Diigo library, students will be able to categorize, combine and compile information sources for collaborative knowledge sharing.
4. As a result of reflective writing, students will be able to appraise their information seeking processes.
5. As a result of web research, students will be able to summarize their research topic.

Pre-requisite Skills and Knowledge

The only skills necessary are the Web browsing skills commonly possessed by college students.

Step-by-Sep Directions

Directions are mapped to AASL Standards: American Association of School Librarians. 2007. "Standards for the 21st- Century Learner."
http://www.ala.org/aasl/files/guidelinesandstandards/learningstandards/AASL_Learning_Standards_2007.pdf (accessed March 11, 2012).

1. First class session.

a. Goals and directions for the first class period.

- Students will pursue an inquiry project in order to expand their course content knowledge. (1.1.1)
- Students will draw from prior background knowledge in order to pose new questions to frame inquiry. (1.1.2)
- Students will monitor their information seeking habits in order to adjust as needed and to seek help when needed. (1.4.4)

b. Class activity.

- Class will choose a research interest within the broad course topic.
- Teacher will facilitate a discussion about information origins, discovery, and evaluation. The teacher will invite students to recall prior information seeking experiences, such as choosing a college or university to attend. The class will discuss where students gathered information: parents, friends, advisors, counselors, online, guidebooks, university information, orientations etc. Student will be discuss the distinctions of information source types (during this experience): people, online materials, print materials, experience.
- Students will be introduced to the project stages and the reflection

exercises attached to each stage. Students will create a Google document for the reflective essays.

c. Out-of-class activity.

- Students will use their own knowledge and search strategies to start gathering background information on the research topic.
- Students will compose the first reflective essay, using the guidelines in Appendix A in the Supplemental Materials. Essay can be evaluated using the rubric in Appendix B'

2. Second class session

a. Goals.

- Students will pursue an inquiry
- Students will execute web searches on the topic in order to demonstrate independence while choosing information sources. (1.2.2)
- Students will explore a range of resources, including social media, in order to investigate a range of perspectives and information about their topic. (1.2.3)
- Students will add resources to Diigo Class Library in order to participate in knowledge sharing and to demonstrate productivity in group work. (3.1.2; 3.2.3)

b. Class activity.

- The teacher will guide students through a sample search in Google Scholar. The teacher will model identifying a core article, tracking author affiliations, related sources, and online conversations. The teacher will collect resources in Diigo. The teacher will emphasize how collaborative collection will help the class to extend their knowledge and to draw connections between materials.
- Students will search the community library in Diigo to see example sites, tags and group interaction on their topic.
- Students will join the class Diigo group and download the Diigolet button to their web browsers.
- Students will then work in groups to bookmark and tag some sample sources in the class Diigo group. (Tags can be evaluated using the rubric in Appendix B.)

c. Out-of-class activity.

- Students will bookmark at least 3 experts on their topic, 3 article sources, 3 informal sources (blogs, tweets, forums) and 1 organization or community interested in the topic prior to the next class session.
- Students will add tags appropriate to the type of source as defined in the class session (people_topic, articles_topic, organizations_topic, blogs_topic, microblogs_topic). Students may also choose to add their own tags.
- Students will compose the second reflective essay, using the guidelines in Appendix A in the Supplemental Materials. Essay can be evaluated using the rubric in Appendix B.

3. Third class session

a. Goals.

- Students will generate evaluation criteria in order to maintain a critical approach to information sources. (1.2.4)
- Students will collaborate with peers in order to extend their own inquiry process. (3.2.2; 3.2.3)

b. Class activity.

- Students explore the links and tags of peers in class Diigo library.
- The teacher will prompt students to discuss information seeking experiences and strategies and the different sources collected.
- Students will work in groups to discuss how they evaluate sources and what criteria they apply. Groups will present their recommendations to the class. The class will consolidate all recommendations and develop a final list of criteria to be applied to the group library of sources. The criteria list can be evaluated using the rubric in Appendix B

c. Out-of-class activity.

- Each student is assigned to evaluate and annotate 3 of the group library sources (must not be one she/he collected) using the class defined criteria.
- Students will add evaluation text and responses to the Diigo group bookmark in the description field. Students will receive additional credit for adding notes and annotations directly to the online source.
- Students will compose the third reflective essay using the guidelines in Appendix A in the Supplemental Materials. The essay can be evaluated using the rubric in Appendix B'

4. Fourth class session

a. Goals.

- Students will present an information source in order to demonstrate application of evaluation criteria. (3.2.1)
- Students will assess their information seeking process in order to revise strategies for future learning expeditions. (1.2.5-7)

b. Class activity.

- Students will present one of the evaluated sources (3-5 minutes).
- The class will discuss how the sources informed their knowledge about the topic as well as how the sources interacted with the others (supported, contradicted, extended).
- Students will create mindmaps (online or paper) in order to illustrate the connections or contradictions between sources
- The class will discuss expectations for the final assignment.

5. Final assignment.

a. Goals.

- Students will enter into authentic conversation with information sources.
- Students will demonstrate confidence in presenting their learning.

b. Activity.

- Students may choose to write an in-depth analysis of two sources, OR

contribute to the online discussion by responding to 2 blog posts or online articles, OR interview two specialists in the field (in person or virtually) and create a profile of the individual and analysis of the interview transcript.

Approximate Time Required

The assignment uses four class periods (90 minutes) with additional student time out of class. The classes do not need to be scheduled sequentially; in fact the authors suggest integrating the assignment deeply into the course and using the process to inform the broader course content. Activities could also be condensed into three periods, depending on the level/prior experience of the class.

Required Resources

Personal Technology Tools

- Diigo <http://www.diigo.com/>
- Google docs <http://docs.google.com/>

Documents

- Reflection template (see Appendix A in Supplemental Material)
- Rubrics (See Appendix B in Supplemental Material)

Technology

- Laptop /Device
- Internet

Diigo education account: <http://www.diigo.com/education>

Google docs account: <https://docs.google.com/>

Variations on the Basic Theme

Discipline variations. The assignment could be adjusted for any field of study or discipline which would benefit from collaborative aggregation and evaluation of sources. The types of sources collected could be adjusted to fit the area of study, for example: data sources, multi media sources, interviews, conference proceedings, market reports etc. Students could be encouraged to investigate, join, and contribute to Diigo groups through tagging and discussion features of Diigo.

Technology variations. Diigo was chosen as the social bookmarking tool for this assignment but there are a number of alternative technology options, including: Evernote, Symbaloo, or Netvibes. Google docs was chosen for the assignment because of the perceived utility of this tool beyond the class assignment. However, there are a number of other online document sharing technologies available.

Final assignment. The culminating assignment could also be changed to capture the course objectives.

Observations & Advice

The stages of the assignment are intentionally structured to slow the process of inquiry in order to invite student reflection on the nature of research. Specifically, we hope that students will discover the elements of conversation between sources, whether they are formal publications or informal online discussions. The assignment also aims to demonstrate research as a mode of learning and discovery; therefore, greater emphasis is

placed on exploring, drawing connections, and reflecting than on a final statement or conclusion.

The assignment provides the opportunity for students to explore tools and methods of investigation that work to support their learning. If students discover a new tool or a new connection, teachers are encouraged to remain flexible and open.

The assignment requires time devoted to instruction on Diigo and Google Docs as well as individual student troubleshooting. However, the exposure to these tools will serve students in future academic, work and personal situations. When choosing tools for the assignment, teachers should consider the applicability to other situations as well as the stability of the technology and any privacy implications.

We suggest assigning approximately 25% of the course grade to the assignment. Students should be graded on their contribution and engagement with the process (see Appendix B) in addition to the culminating assignment.

Recommended Readings

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Supplemental Material

Appendix A: Reflective Template

Essay 1:

- How have you sought information for research previously?
- What habits will you change for this project?
- When might you need help? Where will you seek assistance?
- What do you already know about your research topic?
- What questions do you have about your topic?
- What more do you need to know?
- Where might you discover this information? Who might be engaged in the conversation?

Essay 2:

- Where did you begin searching?
- What changes did you make to your initial search in order improve results?
- What prompted you to make that change?
- Did you learn new search strategies from your teammates?
- What do you still need to learn about your topic?
- What are the gaps/ weaknesses in the sources you have collected?

Essay 3:

- What surprised you the most about your peer suggestions for evaluation criteria?
- What was your most significant contribution to the evaluation criteria discussion?
- What difficulties did you encounter while applying evaluation criteria?
- How did your opinion of the sources change during evaluation?
- How might you change the evaluation criteria for future use?
- While evaluating, what connections between sources or ideas did you discover?

Appendix B: Class Rubrics:

[Insert table xx here]

Creating and using the Diigo social bookmarking network

	Exemplary (4)	Accomplished (3)	Developing (2)	Beginning (1)
Content added (Class 2)	Adds appropriate sources in a	Adds mostly appropriate sources in a	Adds a few appropriate sources to	Does not add any appropriate

	variety of formats to the group	variety of formats to the group	the group but with little attempt to provide variety	sources that relate to the topic
Tags added (Class 2)	Adds group tags appropriately to information sources	Adds tags appropriately to majority of information sources	Add tags to information sources, but not always appropriately	Does not add tags appropriately to information sources
Content Evaluation (Class 3)	Adds evaluation criteria and annotations to 3 links in Diigo library; all criteria were applied to sources	Adds evaluation criteria to 2-3 links in Diigo library; evaluation criteria not fully or appropriately completed	Adds evaluation criteria to 1-2 links in Diigo library; evaluation criteria not fully or appropriately completed	Does not add complete or appropriate evaluation criteria for links

Reflection on research process

	Exemplary (4)	Accomplished (3)	Developing (2)	Beginning (1)
Reflective essays (x 3)	Coherent, focused reflection that develops thoughtful connections between class, homework and self-analysis. Shows in-depth engagement with the topic.	Fairly focused reflection where connections are made between class, homework and self analysis yet may remain undeveloped. Shows moderate engagement with the topic.	Descriptive reflection that displays some connection between class, homework and self-analysis. Shows passing engagement with the topic.	Unfocused reflection that displays no connection between class, homework and self-analysis. Shows little engagement with the topic.

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