Learning by Teaching: Student Presentations of Databases

Sheril J. Hook and Jill I. Tyler

The Environment

The University of South Dakota is a small mid-western university with an undergraduate population of approximately 5,600 students. The Fall 2000 incoming class was just over 1,000 students. USD recently revised the general education requirements, which resulted in the inclusion of a basic course in Speech Communication. Additionally, a 1999 mandate from the Board of Regents required the six Regental institutions to develop a program for information technology literacy. The University of South Dakota decided to go beyond that mandate to develop a full information literacy program. The first phase of this program was to design and implement an information literacy component at the freshman level and to develop a tool for assessing information literacy competency at the end of a student's first year. The competency tool will be piloted in the Spring 2001 semester. Currently, the instruction librarians work with first-year students three times: 1) through participation in a 1-credit earning, pre-semester orientation geared toward preparing students to succeed in an academic environment; 2) through the English Department, which already required that all sections of English 101 allow one class session for library instruction, and 3) through the Speech Communication Department which began requiring in spring 2000 that all sections of SPCM 101 include a graded library instruction session.

In this paper, we will outline the required, graded information literacy component in Speech Communication 101. We will illustrate how this program is an example of a constructivist approach to learning and contains some characteristics of situated learning. Our discussion will include both the resistance to and acceptance of our model by librarians, teaching assistants, and students.

Overview of Speech Communication 101

Emphasis in the basic course in Speech Communication is placed on group decision-making and learning. It is taught in a constructivist manner, which focuses on students gaining understanding of an issue through constructing knowledge, rather than rote memorization of facts. Students are given assignments that allow them to work collaboratively, to explore alternative ideas through dialogue, and to find

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and investigate information in order to think critically and offer solutions to an issue or problem.[1] Early in the semester, students are divided into groups of 5–6 individuals and given guidance and practice in critical thinking and group problem-solving skills. Later, each group identifies an issue or problem of importance to them, identifies the audience, and analyzes the rhetorical situation. As a team, each group is expected to investigate and research the issue, and together come to conclusions about how this issue should be approached or solved. Each group prepares a full presentation to the class to persuade other students that the group's course of action should be followed. Over the course of the semester, students individually prepare and deliver three formal persuasive presentations. They prepare one presentation as a group as the final project of the semester. The group library assignment and speech is the final project of the semester.

Overview of Information Literacy Component in SPCM 101

When developing the information literacy component, we looked for library instructional models that incorporated small group work. Our project evolved from an activity developed by Kari Bero at the University of Washington for use in a Speech Communication class.[2] The first portion of the group assignment is the information literacy component, which is described as a group problem-solving project and presentation that allows the students to develop responsible knowledge. After identifying a topic and purpose, the students are instructed to complete a comprehensive and critical search of their subject area. Each group schedules a one-hour appointment with a reference librarian who guides the group through an exploration of print and electronic resources. The major focus, however, is on using electronic resources. During the time with the librarian, the students develop, implement, and modify search strategies: They use Boolean logic and synonyms to broaden and narrow topics; they understand how phrases and truncation work in various interfaces; they identify useful resources and begin to understand how starting with one or two really good sources can lead to many others by examining the cited references; and they learn how to find the cited references by using a number of tools (the library catalog, a database detailing where journals are indexed full-text, etc.). Everyone in the group is expected to participate: One of the group members is designated to type in the searches; another is designated as note taker; another retrieves articles from the stacks. The librarian is part of the group and observes the interactions, guiding the search when necessary and ensuring that the group demonstrates an understanding of the complexity of locating and evaluating information. Sometimes the librarian leaves for 5 minutes or so to allow the group to work out details.

After the group has worked with a librarian, they spend additional time in the library to continue looking for information and they prepare a 10-minute presentation for their classes on one of the vendors/databases they used. No two presentations by students in the same class cover the same vendor. Each presentation focuses on the rationale for using that tool, and various search strategies the group used. Students include examples of successful keyword searches, the use of Boolean logic, truncation, and phrase searching. They also comment on frustrations and discoveries during the research process. A librarian and the course instructor are present during these sessions to ask questions of each group and of the class. At the time of their presentation, each group submits a 2–3 page paper outlining other tools used for finding information, describing, for example, the print tools they used. The presentations indicate whether or not the students are comfortable with the language of search expressions and the process of searching. Enculturation is an essential element in situated learning. In our program, students are given the opportunity to learn the process (i.e., ritual) of searching, and the language (i.e., symbols) used in searching through social interaction, collaboration, and presentation. Research shows that if a learner enculturates the language and ways of thinking in a culture, then they will be able to acquire the knowledge so that they can use it again at a later date.[3]

The Time It Takes

Now, just in case you're wondering how many 1-hour sessions are scheduled, we'll tell you: There are 20 sections of SPCM 101 per semester with 30 students in each, with 5–6 groups per section. A quick tabulation tells you that we have between 100–120 1-hour sessions. These sessions are conducted over a 4-week period. There are 9 teaching librarians at USD. So, we each have roughly 11 small-group sessions per semester. In addition, one librarian also observes the class sessions when the students present the databases. These sessions are usually covered by 3 of the librarians, rather than 9. There is also the time it takes to prepare the TAs, to schedule the rooms for presentations and to schedule the 1-hour small group sessions, and to work out any difficulties encountered during the semester. This is all rather time-consuming; however, the majority of librarians have expressed a lot of enthusiasm for this program. Plus, we

have observed that we have not had to repeat this information at the reference desk when we find these students in the library working on other projects as often as we find ourselves repeating information that was delivered in a traditional 50-minute presentation (whether it was a presentation involving active learning strategies or not). Conceivably, if the program works in a true situated learning environment, then this kind of training would require less time repeating the basic skills and knowledge needed to find information because those skills would have been acquired by the students if they have learned them in an authentic setting that involved collaboration, practice, reflection, and articulation of those skills.[4]

Ideally, Everyone Comes Prepared

To prepare the librarians for the small group sessions, we discuss the goals of the library session and the manner in which the sessions should be conducted—active learning in an authentic environment that allows the students to articulate a problem and resolve it through coaching and modeling. As facilitators and experts, our goal is to make the reference desk less intimidating and to enable students to learn. Librarians understand it is not only their responsibility to model their skills, but to be enthusiastic, approachable, and willing to offer guidance, not only on this project, but also on all research opportunities.

To prepare the teaching assistants for the information literacy component of their classes, we lead a 2-hour session that includes the handouts the students will receive and offer advice on how to assign databases, a discussion of why it is important to link the assignment with the problem-solving project and presentation the students will be giving. They also attend a series of meetings with the Speech Communication Coordinator include the development of goals, expectations, and procedures (see Appendix A) for introducing and implementing the library assignment.

To prepare the students for completing the project, in class discussion of goals and class dialogue is used. Four handouts are used: the library assignment that explains the purpose and provides the contact information of two librarians (see Appendix B), a worksheet (see Appendix C), a handout on search lingo (see Appendix D), and a guide to using search expressions in a number of databases (see Appendix E).

Evaluations

Student completed evaluations (see Appendix F) for the Spring and Fall 2000 semesters. We are generally pleased with the results. One of the key responses on the student evaluations reflected the library's climate of instructional service. Many students commented on how friendly and helpful the librarians were and how they felt less intimidated to ask questions. 54% agreed that because of this assignment, they had a more positive attitude toward using the library. In addition, reference librarians have observed an increase in the number of students who bring a friend into the library and sit down to show them how to find information from a database, which seems to indicate that they have taken some sense of ownership over that knowledge. At least, they own it enough to help a classmate or friend. 88% of students said they used research databases to find article on their topics. For students who had already taken English 101, which has a library component, the students were split 50/50 on whether they felt the sessions were redundant. However, 95% of students did not use information from books and several students commented that they would like to use more "than just the databases." We will assess their skills during the Spring semester of 2001, but for now we have their perceptions and the final products of their research.

Attitudes, Difficulties, and Small Successes of Librarians, Teaching Assistants, and Students

For the most part, the librarians have expressed satisfaction and enjoyment with the sessions. Many of the librarians commented that they preferred these sessions to the traditional 50-minute sessions. The sessions were enjoyable partly because each group was different and had a real topic, one on which they would give a speech. An important discovery and difficulty was that our skills, both as librarians and as teachers, varied in ways that there were inconsistencies in 1) how the students were learning the material (e.g., at least one librarian was reported to have sat in the chair and conducted every search without allowing the students to do this for themselves), and 2) what the students were learning about various interfaces (whether phrases were automatic, truncation symbols for an interface, etc.). The students brought both of these problems to our attention through their evaluations and presentations. In the first problem, the students were disappointed with their librarian taking over and reported their dissatisfaction to their TAs. To remedy the problem, more training was provided to the librarians on the goals of the 1-hour session and how the students were supposed to be learning the material. In the second problem, the disparities were apparent from the student presentations because the observing librarian heard

information that was inconsistent with her knowledge of the interface. To remedy the problem, a handout was created that included the most often used vendors/databases and illustrated how various search expressions worked within them.

Although teaching assistants, who are responsible for teaching the bulk of the SPCM: 101 courses, were generally positive, we did encounter initial resistance from some of the teaching assistants. We heard comments like, "This is a Speech class, so, why should we teach research skills?" and "Students can't learn how to be librarians." Much of this resistance, however, was due to the fact that the teaching assistants themselves, most in their first year of graduate study, were unfamiliar, and even intimidated by the search processes their first-year undergraduate students were learning. After the first semester, teaching assistants learned a great deal about effective search strategies, and the value of information literacy instruction in an introductory communication classroom. Subsequent semesters have seen greater enthusiasm and support for the project. Teaching assistants have reported that students are using a greater variety of credible supporting materials, and that student work has improved in all the course assignments. Further, teaching assistants admit that they are more aggressive and confident in using electronic resources in their own research.

The students' reactions are mixed: they range from comments such as "It was okay," to telling Jim Abbott, the University president, that "The library assignment is the most valuable dimension of the speech communication course." Not surprisingly, the groups that were least prepared and who saw the project as unrelated to their other coursework had the least interest and stayed with the librarian for the minimal amount of time. When the librarians realized that these students were not engaged and were urgent to get out of the library, they talked with the students and found them to be annoyed with their TAs for requiring what they perceived to be busy work. The few students in this situation with whom we spoke perceived that the TAs were wasting their time.

Our success with students came from working with those students who understood the assignment as it was intended, that is, an opportunity to do effective, relevant research necessary to prepare a persuasive presentation on the topic they were interested in exploring for their small group course project. Their presentations were mixed. Some students did a fantastic job, while others seemed confused by what they were supposed to demonstrate. However, when the students who seemed confused were queried by the librarian or the classroom teacher, they often were able to demonstrate their skills in manipulating the databases. We concluded that learning had been accomplished, even if the ability to integrate and re-create varied from student to student and from group to group.

Additional Positive Outcomes

1. More complementary collaboration exists among English, Speech, and the Library's research instruction staff, which included opening a Communication Center (for help with writing/speaking/research) in the library.

2. Librarians were asked to play a major role in new student orientation.

3. A group was formed at the request of the Vice President for Academic Affairs, and led by research instruction staff, and charged with the development of a campus-wide assessment tool for information literacy to supplement the information technology literacy assessment tool.

4. Money was provided to the library to fund a new full-time line for an Instructional Services Librarian.

Concluding Comments

For me, as a librarian, the most valuable attribute of this program is being able to work with students in small groups to meet a real research need. To stand in front of a classroom and talk about how to revise a search is very different from revising a real search. The time we spend with students isn't easy, and it isn't rote; there's nothing structured about it. While it might not be a pure example of situated learning, in that, the students might not work with librarians again under an apprenticeship model, it certainly opens the doors and invites them to return to work with us at the reference desk or in individual consultation. My hope is that with this program we have set the stage for students to see their research requirements as complex problem-solving projects. If we continue to facilitate their exploration of topics, they we will be able to find, evaluate, use, and appreciate the rich and diverse information environment throughout their lifetime.

For me, as a teacher and Coordinator of the basic course in Speech Communication, the most valuable aspect of this program is the students' appreciation of the diversity and credibility (or lack of credibility) of information that is available to them. As students become willing and able to identify, evaluate, and use information effectively, they become more powerful advocates and are better able to make decisions, promote and defend ideas, solve problems, and develop policies.

As we begin to see changes in the skills students bring with them to college, based on K–12 instruction or other

factors, and as we encounter changes in technology, and as we assess students and receive feedback from them, we will modify our program. Although, one aspect we enjoy tremendously and do not want to see missing from any program we create is face-to-face interaction with students, which is an essential component of situated learning.

Notes

1. For a discussion on the development of cognitive theory and examples of constructivism, see Bruce A. Marlowe and Marilyn L. Page, *Creating and Sustaining the Constructivist Classroom.* (Thousand Oaks, Calif.: Corwin Press, 1998).

2. Kari J. Bero, "Basic Tools and Unique Strategies in a Speech Communications Class," In *Empowering Students; Hands-on Library Instruction Activities*, ed. Marilyn P. Whitmore (Lancaster, Penn.: Library Instruction Publications, 1996), 25–31.

3. John Seely Brown, Allan Collins, and Paul Duguid, "Situated Cognition and the Culture of Learning," *Educational Researcher* 18, no. 1 (1989): 32–42.

4. Jan Herrington and Ron Oliver, "Critical Characteristics of Situated Learning: Implications for The Instructional Design of Multimedia October," 1997, <http://www.cowan.edu.au/lrn_sys/educres/article1.html> (December 21, 2000)

APPENDIX A

SPCM: 101 Library Assignment

This research assignment is designed to allow your group to discover the vast and diverse research environment available to you as speakers and scholars at the University of South Dakota. You will be expected to explore a wide variety of resources and databases as you navigate and organize an effective search for information.

The first portion of the group project is to conduct a comprehensive and critical search of your subject area. Your goal is to conduct a team-based exploration of the large number of print and electronic tools available. Make an appointment to work with a reference librarian (Monday - Friday from 8 am to 5 pm; Saturday from 10 am to noon, and from 2 pm to 5 pm, or Sunday from 2 pm to 5 pm). You must make an appointment in advance. A librarian's signature is required. The reference librarian will facilitate your development and implementation of a search strategy and your investigation of a variety of information resources.

The goal of your research is to develop responsible knowledge. You should identify the main areas, major issues, chief authorities, latest developments, and any particular information that relates to your group's topic. As you are searching, you should critically evaluate evidence according to reliability, expertise, objectivity, consistency, recency, relevance, access, and accuracy. You should also be narrowing your focus and articulating your specific purpose in speaking.

Each team should submit a 2–3 page, typed report on the research topic. The report should describe the tools you used to gather information, the rationale for using each tool, and some of the search strategies your team used. Include examples of successful keyword or subject searches, the use of Boolean logic, and comments on your frustrations during the research process.

In addition, each group will prepare a 10-minute presentation for your classmates on the #3 database (see group worksheet). The presentation should include search strategies that yielded results, how you evaluated the information you found, and finally, how your colleagues can conduct a rigorous search through the information environment through the use of technology. Your goal for this presentation is to help your audience learn how to use this database. These presentations should be practical, useful guides for your fellow students. The paper and presentation together are worth 50 points to your group.

Appointment: _____

Reference Librarian's Signature: _____

Please feel free to contact the following two librarians if you have questions:

Steve Johnson, 677-5629, skjohnso@usd.edu, 134D, I. D. Weeks Library
Charlotte Fowles, 677-6614, cfowles@usd.edu, 131B, I. D. Weeks Library

Appendix B

Teacher Expectations

Divide your class into groups of 5–6 individuals early in the semester. Use these groups as you work through other course material (workshop groups, in-class activities, etc.) in the first half of the semester.

By October 4th or 5th, give the groups their library assignment. Guide them through the identification of their topic, general purpose statement (to persuade) and specific purpose statement. Encourage them to undertake a crucial issues analysis. You should fill in the #3 (and possibly #4) databases. Do not duplicate the vendor in each section. Each group in the class should have a different database. Stress that they need to make an appointment with a reference librarian during the times listed on the assignment sheet (between October 16 and November 15).

Fill out the attached sheet, listing the names of group members, their topic, and indicating which database each group will be investigating. Turn this sheet into Jill, who will turn it into the reference desk.

Schedule Room 205 in the library for your class time any time in early November for the first group presentation. Evaluate the groups on their ability to inform their audience about the database(s).

APPENDIX C

Research Worksheet

Topic

General Purpose

Major Concepts - Crucial Issues Analysis

Resources To Search

1. LEXIS-NEXIS Academic Universe database

Link to this database from the library's web site. Click on Full-Text Databases and then LEXIS-NEXIS.

2. Statistical Abstracts of the United States, 1998.

Held in ready reference HA202.U54x 1998 (right behind the reference desk.)

3.

4.

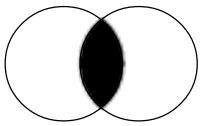
Limitations (language, dates, formats) Truncation (* ? + !)

APPENDIX D

Search Expressions and Library Lingo

Boolean Logic—search operators AND, OR, NOT that allow you to broaden or narrow searches by adding terms to or subtracting terms from a search strategy.

AND

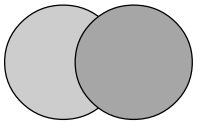


Cars and air pollution
Finds records in which both terms exist. Limits your searches by requiring several words to be present in a document in order for that document to be retrieved. Typically, you would use 2-3 concepts (terms) in a search.

OR

Cars or automobiles
Finds records in which either term exists. This operator is used mostly to combine synonyms. Use as many synonyms as possible and nest them.

NOT



Cars not motorcycles
Finds records in which the term "cars" exists, but the term "motorcycles" does not. Use this operator sparingly.

Synonym—a word that has the same or nearly the same meaning. Combine synonyms with the OR operator (e.g., angry or mad or upset).

Nesting—the use of parentheses around search terms that allows the database to search for those terms before searching other terms. Use nesting when you combine synonyms with the OR operator:

(sports or athletics) AND (teens or teenagers or adolescents)

Phrase Searching—a search that retrieves documents with two or more words appearing next to each other in a specified order (e.g., global warming, rather than global and warming). Many systems require the use of proximity operators (e.g, w for with, adj for adjacent) in order to search for phrases. See the handout "Database Search Expressions" for more guidance on using proximity operators.

Truncation—use a truncation symbol when you want to find any number of words that have the same prefix or root, or for finding plurals. It's a way to broaden a search. For a list of truncation symbols for each database, see the "Database Search Expressions" Handout.

The search **advert!** would find records with these words: **advertised, advertisement, advertising**, etc.
The search **teenager!** would find records with **teenager** or **teenagers**

Prepositions and articles (parts of speech)—don't use these in search strategies. If you're looking for information on industrial pollution in the United States, then your search strategy would look something like this:

industrial pollution and (U.S. OR United States OR America)

Not this: Industrial pollution in the united states

APPENDIX E

Database Search Expressions

Database Vendor Databases	Boolean	Phrases	Truncation	Wildcard	Proximity
ABC-CLIO America: History and Life Historical Abstracts	and, or, and not	No: Boolean "and" is automatically inserted between search terms; must use quotation marks to retrieve phrases: search examples: "tax reform" "new economic policy"	*	? use one ? for each unknown character	Not available
Current Issues Sourcefile	and, or, and not	Yes—automatic	*	? use one ? for each unknown character	Use these in combination: within, word, words before, of, after search examples: hot within 2 words before cold orange within 2 words of juice
EBSCOhost Academic Search Elite Business Source Premier Clinical Reference Systems Ensco Online Citations ERIC Health Business FullText Health Source Plus	and, or, not	Yes—automatic	*	? use one ? for each unknown character	Nn, Wn n=any number N (near)=any order W (within)=order specified Search example: tax n5 reform finds tax reform as well as reform of income tax
FirstSearch (partial list) Art Abstracts Biology Digest Dissertation Abstracts EconLit Education Abstracts Humanities Abstracts WorldCat	and, or, not	No: Boolean "and" is automatically inserted between search terms; use W or N between words W (with)=order specified N (near)=any order search examples: nursing w research overview n 1996	+ for simple plurals example: dog+ finds dog or dogs * for additional characters. example: advert* finds advertising, advertise, advertised	? using one ? will find all unknown characters # Using one # will find a single unknown character	Wn, Nn n=any number, 1–25 W (within)=order specified N (near)=any order Search examples: nursing w3 research special n2 education

InfoTrac Expanded Academic ASAP General Business File ASAP General Reference Center Gold Health Reference Center	and, or, not	No: searches for words within two words of each other in either order; use w1 to match exact phrase w=within search example: civil w1 war	*	? ! use a ? for one or each unknown character ! for exactly one or no unknown characters	Nn, Wn n=any number N (near)=any order W (with)=order specified Search example: Shared w3 values (proximity operators cannot be nested)
LEXIS-NEXIS Academic Universe Statistical Universe	and, or, not Hyphens, slashes, parentheses are treated as spaces: replace them with a space Search Example: 401(k) should be entered as 401 k	Yes—automatic	! Automatically searches for plurals; when you want to specify singular or plural forms, use the search command singular or plural before the term Search example: singular (william)	* Use a * for each unknown character	W/n, pre/n, W/p W/s n=any number, 1–255 W=within, any order p=paragraph, s=sentence pre=order specified **To specify capitalization use:** caps (Apple) nocaps (law) allcaps (AIDS)
SilverPlatter Biblio of Native North Americans ERIC GeoRef GPO MLA Bibliography PsychINFO	and, or, not	No: use adj to match exact phrases adj=adjacent to search example: special adj education	*	? use a ? for one or no unknown characters	adj, near, with adj=next to in order specified near=any order, same sentence with=both search terms must be in a single field
PALS (SDLN) library catalog multiple databases	and, or, not Use OR first in a search strategy; nesting is not available	No—not available. This system automatically inserts a Boolean “and” between search terms.	#	? use a ? for one word or letter or unknown letter or word	Not available

APPENDIX F

Results of Student Perceptions of Library Project; 819 total responses Spring and Fall Semesters 2000—all results expressed in percentages

1. My attitude toward using the library is more positive due to the research assignment in Speech Communication. (mark one)

☐ Strongly Agree	☐ Agree	☐ Neutral/Undecided	☐ Disagree	☐ Strongly Disagree
4	**54**	**21**	**14**	**7**

2. My attitude toward using the library is more positive because of my group's interaction with a reference librarian. (mark one)

☐ Strongly Agree	☐ Agree	☐ Neutral/Undecided	☐ Disagree	☐ Strongly Disagree
5	**49**	**29**	**10**	**7**

3. I found the group interaction portion of the library assignment to be helpful. (mark one)

☐ Strongly Agree	☐ Agree	☐ Neutral/Undecided	☐ Disagree	☐ Strongly Disagree
10	**53**	**18**	**10**	**9**

4. I found the group presentations on vendors/databases to be helpful. (mark one)

☐ Strongly Agree	☐ Agree	☐ Neutral/Undecided	☐ Disagree	☐ Strongly Disagree
7	**33**	**25**	**24**	**11**

5. I prefer to discuss my research-related problems with my classroom instructor rather than the library instructor or the librarians at the reference desk. (mark one)

☐ Strongly Agree	☐ Agree	☐ Neutral/Undecided	☐ Disagree	☐ Strongly Disagree
5	**35**	**30**	**25**	**5**

6. As a student, I found the library sessions to be: (mark one)

☐ Of no value	☐ Of little value	☐ Of about average value	☐ Valuable	☐ Very valuable
7	**7**	**21**	**53**	**12**

7. When I actually began researching my speech and group project, I found that: (mark as many as apply)
   - ☐ **0%** I had forgotten everything covered in the SPCM library assignment and reports
   - ☐ **4%** I felt overwhelmed
   - ☐ **32%** I asked the librarian for additional help
   - ☐ **90%** I felt comfortable doing my own research and needed little help from my instructor or a librarian
   - ☐ **82%** I felt comfortable doing my research without any help from my instructor or a librarian

8. I used the library catalog to find books on my topic: (mark one) Yes **2%** No **3%** I didn't use books **95%**
9. I used research databases to find articles on my topic. Yes **88%** No **12%**
10. I need additional instruction in using databases. Yes **33%** No **67%**
11. I need further help in finding nonelectronic research material. Yes **48%** No **52%**
12. Answer only if you have taken library instruction components in both SPCM:101 and ENGL:101.

Only 33% responded to these questions

I found the library instruction components to be redundant in the two courses. Yes **50%** No **50%**

I found the library instruction in SPCM **74%** ENGL **26%** **(some cited recency)** (circle one) to be more valuable.

13. To improve the library sessions offered to Speech Communication classes, I recommend:

_____

_____

_____

_____