

1. Introduction

Today's academic librarians invest an ever increasing amount of time and energy in library instruction, and much of this is devoted to "one-shot" instruction sessions aimed at teaching undergraduates to use library resources effectively. Most librarians use traditional lecture and demonstration methods of instruction in these one-shot sessions, despite current research in the professional literature which recommends the use of active learning techniques or online tutorials to teach undergraduate research skills.¹ Those of us who lead one-shot sessions know that students are often bored and not engaged by traditional lecture and demonstration methods. The current generation of undergraduates has grown up with technology and they exhibit different learning styles and educational expectations than previous generations. Students are more oriented toward images than text and prefer a customized learning experience, where they can learn experientially and from each other.²

In the proposed two-year research project, we seek to determine what works best for presenting material on a common element of a one-shot session for lower division undergraduates – the use of a general multidisciplinary database: in this instance, Academic Search Complete. We will examine four standard methods of library instruction for effectiveness and student preference: (1) the online tutorial, (2) online videocast, (3) active learning / discovery learning as part of a group exercise, and (4) lecture and discussion. We will use a standard Kolb Learning Style Inventory to determine the distribution of primary learning style among student participants. We will develop a post-instruction test to determine the effectiveness of each instruction method (overall and for each learning style), both in immediate post-instruction test scores and in retention of information for six months. And we will use formative evaluation techniques (such as those employed in focus groups) to document additional aspects of instructional effectiveness and preference. Focus groups have been widely recognized as research tools useful for drawing out anecdotal evidence, and we plan to use these to supplement and enhance the quantitative data we obtain from the other parts of the study. Rick Johnson, a senior consultant with UCSB's Office of Instructional Consultation, suggested the inclusion of focus groups as a part of our study.

This study aims to measure both student cognitive outcomes and student preference. Student cognitive outcomes – how much each student learns and retains as the result of instruction – will be measured by giving students a test immediately following instruction and also by re-testing them six months following instruction. The data from the cognitive outcomes part of the study will allow us to determine which methods of instruction are most effective in teaching students how to use the database, and if any of the methods offers a better retention rate over the others. In addition to measuring which method is most effective, we are also interested in finding out which method(s) students prefer. We are curious whether there will be a correlation between the way students like to be taught and the instruction method that is most effective in terms of student learning and retention. If there is a difference between the method that works the best

¹ Hollister, C. V., & Coe, J. (2003). Current Trends vs. Traditional Models: Librarians' Views on the Methods of Library Instruction. *College & Undergraduate Libraries*, 10(2), 49-63.

² Dede, C. (2005). Planning for Neomillennial Learning Styles. *Educause Quarterly*, (1), 7-12. Manuel, K. (2002). Teaching Information Literacy to Generation Y. *Journal of Library Administration*, 36(1-2), 195-217.

and the one which students prefer, this could have interesting ramifications for librarians working in the one-shot library instruction setting.

Our study aims to correlate student cognitive outcomes and student preference to student learning style, as measured by the Kolb Learning Style Inventory. Although this adds a degree of complexity to our study design, we feel that this helps us obtain a more complete understanding of what works best for the broader range of students learning within the one-shot setting. The combination of empirical data about what the students learn and retain, subjective information on student preferences, and the formative information we gather from students focus groups – these will help us to see the big picture. As Bonnie Gratch-Lindauer writes, “learning is complex and multidimensional ... the use of multiple instruments/methods is recommended to try and capture learning from different dimensions – cognitive, behavioral, and affective.”³ Our study seeks to measure and closely consider those cognitive, behavioral and affective dimensions of learning.

Kolb Learning Style Inventory (LSI)

In 1984, David Kolb, Professor of Organizational Behavior in the Weatherhead School of Management at Case Western Reserve University, published a book called *Experiential Learning: Experience as the Source of Learning and Development*. According to Kolb, the Learning Style Inventory (LSI) “has been used to help learners understand the learning process and their preferences for kinds of educational experiences, and to help teachers explore their preferences in designing them. The LSI has been especially useful when trainers and participants use it to develop a shared understanding of the goal of the training and each party's contributions to it.” The Kolb Learning Style Inventory, version 3.1 – the latest revision of the original LSI – is different from other tests of learning style used in education because it is based on learning and development.

Kolb's experiential learning theory sets out four distinct learning styles which *can* be viewed as a four-stage learning cycle. In this respect, Kolb's model offers both a way to understand an individual's different learning style, while also offering an explanation of a cycle of learning that applies to us all. In this cycle of learning, immediate or (1) *concrete experience* provides a basis for (2) *reflective observation*. These observations and reflections are assimilated and distilled via a process of (3) *abstract conceptualization*, producing new implications for action to which the learner can apply (4) *active experimentation*, creating new immediate or concrete experiences – and the cycle goes on. Ideally, a person would engage each stage of learning equally, but Kolb notes people tend to prefer one learning style over the others (although research suggests that our propensity to reconcile and successfully integrate the four different learning styles improves as we mature).

An individual's learning style can be viewed as the product of two pairs of variables, dialectically opposed on two crossing axes. A typical presentation of Kolb's experiential learning model (see Fig. 1) shows an east-west axis called the Processing Continuum (how we

³ Gratch-Lindauer, B. (2003). Selecting and Developing Assessment Tools. In E. F. Avery (Ed.), *Assessing Student Learning Outcomes for Information Literacy Instruction in Academic Institutions* (pp. 22-39). Chicago: Association of College and Research Libraries.

approach a task) crossed by a north-south axis called the Perception Continuum (our emotional response, or how we think or feel about it). On the left extreme of Processing Continuum the learner favors Active Experimentation (doing) over Reflective Observation (watching) – as found on the right extreme of the Processing Continuum. On the top extreme of the Perception Continuum, the learner favors Concrete Experience (feeling) over Abstract Conceptualization (thinking) – as found on the bottom extreme of the Perception Continuum. Thus, both the way we grasp or perceive experience and the way we process or transform experience into something meaningful and usable defines our learning style.

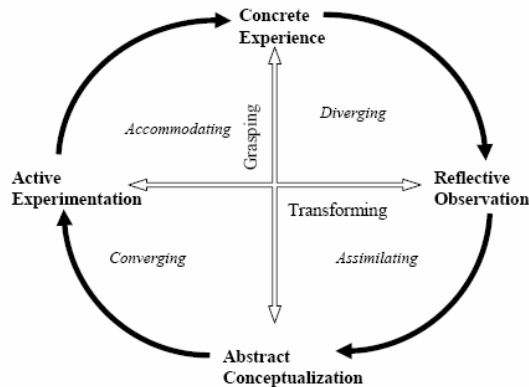


Fig.1 Experiential Learning Cycle

The field of education has produced the largest number of studies on LSI, predominantly in higher education. Using Cronbach's alpha and test-retest reliability studies, studies have shown that there is internal consistency regarding reliability for the LSI. Validity research on LSI 1 (dating from 1971) to LSI 3 (dating from 1999) totals well over 1,000 studies. One of the most recent studies⁴ supports prior research validating LSI 3.1's internal reliability of scales.

Library Instruction at UCSB

Librarians at UCSB currently utilize all four methods of instruction that we propose to study, but our one-shot instruction tends to lean heavily on traditional lecture and discussion. A typical 50-minute one-shot covers use of Pegasus – our local online catalog, Melvyl – the catalog of all ten University of California libraries plus the libraries of a few more institutions, and one or two indexes or databases. After introducing these sources, the instruction librarian encourages students to get some hands-on experience with the catalogs and databases before leaving the library classroom. Students are given handouts that cover search strategies appropriate to the subject at hand, and that cover Boolean search operators, truncation, limits and phrase searching. In quarter-long, one-unit library instruction courses, some instructors supplement lecture and discussion instruction and active learning exercises with videocasts and online tutorials. Most instructors utilize in-class group exercises, and some employ group homework assignments.

⁴ Kayes, D. Christopher. (2005). Internal validity and reliability of Kolb's Learning Style Inventory version 3 (1999). *Journal of Business and Psychology*, 20(2), 249-257.

UCSB Libraries Mission Statement

The UCSB Libraries select, acquire, manage, provide access to, deliver, and preserve information for the campus community to facilitate teaching and research. The Libraries support the faculty, students, and staff in their scholarly pursuits by providing timely, expert, and personalized services, and by leveraging the resources of all the UC libraries. The UCSB Libraries adapt and focus services and collections to anticipate and meet the changing needs of the University. The Libraries provide an environment conducive to study and learning, enriching the scholarly community.

2. Need for the Proposed Research

We searched ERIC and Wilson's Library Literature and Information Science Full Text databases for studies evaluating effectiveness (in terms of cognitive outcomes) or student preference for each of the four different instruction methods within the academic library setting. The majority of current articles on instruction methods in the library literature are anecdotal accounts of how a teaching strategy was implemented or how it worked in the classroom. Of the empirical studies to date that evaluate the effectiveness (in terms of cognitive outcomes) of different library instruction methods, most have examined either a single method⁵ or have compared just two methods of instruction.⁶ No studies have comprehensively compared the four methods we propose to study.⁷ The majority of studies analyze the effectiveness of web tutorials versus

⁵ Lindsay, E. B., Cummings, L., Johnson, C. M., & Scales, B. J. (2006). If You Build It, Will They Learn? Assessing Online Information Literacy Tutorials. *College & Research Libraries*, 67(5), 429-445. Maness, J. M. (2006). An Evaluation of Library Instruction Delivered to Engineering Students Using Streaming Video. *Issues in Science and Technology Librarianship*, (47). Retrieved January 23, 2008 from <http://www.istl.org/06-summer/refereed.html>.

⁶ Beile, P. M., & Boote, D. N. (2004). Does the Medium Matter? A Comparison of a Web-Based Tutorial with Face-to-Face Library Instruction on Education Students' Self-Efficacy Levels and Learning Outcomes. *Research Strategies*, 20(1-2), 57-68. Churkovich, M., & Oughtred, C. (2002). Can an Online Tutorial Pass the Test for Library Instruction? An Evaluation and Comparison of Library Skills Instruction Methods for First Year Students at Deakin University. *Australian Academic & Research Libraries*, 33(1), 25-38. Cudiner, S., & Harmon, O. (2001). Comparing the Effectiveness of Different Presentation Formats for Workshops on Introductory Library Skills. *Research Strategies*, 18(1), 49-61. Germain, C. A., Jacobson, T. E., & Kaczor, S. A. (2000). A Comparison of the Effectiveness of Presentation Formats for Instruction: Teaching First-Year Students. *College & Research Libraries*, 61(1), 65-72. Gutierrez, C., & Wang, J. (2001). A Comparison of an Electronic vs. Print Workbook for Information Literacy Instruction. *Journal of Academic Librarianship*, 27(3), 208-212. Holman, L. (2000). A Comparison of Computer-Assisted Instruction and Classroom Bibliographic Instruction. *Reference & User Services Quarterly*, 40(1), 53-60. Nichols, J., Shaffer, B., and Shockey, K. (2003). Changing the Face of Instruction: Is Online or In-Class More Effective? *College & Research Libraries* 64(5), 378-388. Pearce-Smith, N. (2006). A Randomised Controlled Trial Comparing the Effect of E-learning, with a Taught Workshop, on the Knowledge and Search Skills of Health Professionals. *Evidence Based Library and Information Practice*, 1(3), 44-56. Silver, S. L., & Nickel, L. T. (2007). Are Online Tutorials Effective? A Comparison of Online and Classroom Library Instruction Methods. *Research Strategies*, 20, 389-396. Zhang, L., Watson, E. M., & Banfield, L. (2007). The Efficacy of Computer-Assisted Instruction Versus Face-to-Face Instruction in Academic Libraries: A Systematic Review. *The Journal of Academic Librarianship*, 33(4), 478-484.

⁷ A 2006 meta-analysis of 122 empirical studies assessed the effectiveness of various instruction methods; however, there were not enough studies on the effectiveness of active learning for them to include active learning in the meta-analysis. See Koufogiannakis, D., & Wiebe, N. (2006). Effective Methods for Teaching Information Literacy Skills

traditional classroom instruction, either with or without a hands-on component, and most of these were conducted in the late 1980s and 1990s as rapid developments in information technology both increased the demand for library instruction and made such online tutorials possible. These studies found no difference in student cognitive outcomes,⁸ but we wonder how applicable these dated studies would be to today's more computer savvy students. Very few studies have investigated in-depth the effectiveness of other forms of instruction, such as videocasts⁹ or active learning¹⁰ methods. A few studies have assessed students' preferences for different types of instruction in the library setting, but results have been mixed.¹¹

Much research has been done on the different learning styles exhibited by today's "Millennial" or "Generation Y" students. We know that today's students are more oriented toward images than text, and that they expect the use of technology in the classroom, prefer a customized learning experience, and like to learn experientially and in groups.¹² The standard method of instruction during a library one-shot – lecture and demonstration – is not considered to be an effective method of teaching current students. In their study of millennial students at USC, Gardner and Eng note that these days "students are more likely to learn by trying things on their own and with their peers rather than by just listening to a teacher talk about it."¹³ Wilson also

to Undergraduate Students: A Systematic Review and Meta-Analysis. *Evidence Based Library and Information Practice*, 1(3), 3-43.

⁸ Pearce-Smith, N. (2006). A Randomised Controlled Trial Comparing the Effect of E-learning, with a Taught Workshop, on the Knowledge and Search Skills of Health Professionals. *Evidence Based Library and Information Practice*, 1(3), 44-56. Silver, S. L., & Nickel, L. T. (2007). Are Online Tutorials Effective? A Comparison of Online and Classroom Library Instruction Methods. *Research Strategies*, 20, 389-396. Zhang, L., Watson, E. M., & Banfield, L. (2007). The Efficacy of Computer-Assisted Instruction Versus Face-to-Face Instruction in Academic Libraries: A Systematic Review. *The Journal of Academic Librarianship*, 33(4), 478-484.

⁹ Maness, J. M. (2006). An Evaluation of Library Instruction Delivered to Engineering Students Using Streaming Video. *Issues in Science and Technology Librarianship*, (47). Retrieved January 23, 2008 from <http://www.istl.org/06-summer/refereed.html>. Davis, D. F. (1993). A Comparison of Bibliographic Instruction Methods on CD-ROM Databases. *Research Strategies*, 11(3), 156-163.

¹⁰ Prorak, D., & et al. (1994). Teaching Method and Psychological Type in Bibliographic Instruction: Effect on Student Learning and Confidence. *RQ*, 33(4), 484-495.

¹¹Maness, J. M. (2006). An Evaluation of Library Instruction Delivered to Engineering Students Using Streaming Video. *Issues in Science and Technology Librarianship*, (47). Retrieved January 23, 2008 from <http://www.istl.org/06-summer/refereed.html>. Michel, S. (2001). What Do They Really Think? Assessing Student and Faculty Perspectives of a Web-based Tutorial to Library Research. *College & Research Libraries*, 62(4), 317-332. Silver, S. L., & Nickel, L. T. (2007). Are Online Tutorials Effective? A Comparison of Online and Classroom Library Instruction Methods. *Research Strategies*, 20, 389-396. Zhang, L., Watson, E. M., & Banfield, L. (2007). The Efficacy of Computer-Assisted Instruction Versus Face-to-Face Instruction in Academic Libraries: A Systematic Review. *The Journal of Academic Librarianship*, 33(4), 478-484.

¹² Howe, H. & Strauss, W. (2000). *Millennials rising: The next great generation*. New York: Vintage Books. McDonald, R. H. & Thomas, C. (2006). Disconnects Between Library Culture and Millennial Generation Values. *EQ: Educause Quarterly* 29(4) 4-6. Oblinger, D. (2003 July/August). *Educause Review*, 37-47. Wilson, M. E. (2004). Teaching, Learning and Millennial Students. *New Directions for Student Services* (106), 59-71.

¹³ Gardner, S. & Eng, S. (2005). What Students Want: Generation Y and the Changing Function of the Academic Library. *Portal: Libraries and the Academy*, 5(3), 405-420.

advocates moving away from the lecture and demonstration format in order to best engage millennial students: “[T]he team orientation of Millennials ought to work well with active learning strategies, among them cooperative and collaborative learning.”¹⁴ In the proposed study, we would like to determine the validity of these assertions for today’s undergraduates engaged in learning within the one-shot library instruction setting.

Relationship of the proposed research to prior work

In 1994, Prorack called for further studies of bibliographic instruction – “more research needs to be done on student preferences for and success in one teaching method over another.”¹⁵ Twelve years later, Koufogiannakis and Wiebe argued that more research still needs to be done – “Although [traditional instruction] accounts for much of the research literature, there is a lack of comparative research to determine effectiveness versus other teaching methods ... Studies comparing [no instruction or traditional instruction] to active learning, computer assisted instruction, and self-directed independent learning would greatly enrich the research literature.”¹⁶ The proposed study builds upon and greatly adds to past research as it compares four very different methods of instruction head-to-head. It will also add to our understanding of teaching techniques (videocasts and active learning) that have not been extensively studied in the library setting. And, it will give us current data on today’s UCSB students.

Anticipated Impact or Benefit

The proposed project would be more comprehensive than studies done in the past, given that it measures the effectiveness of four different modes of instruction when most research to date measures, at best, only two. The study would provide current data from the so-called "Generation Y" or "Millennial" students. The results of the study can be used by librarians, both within the University of California and beyond, to select better methods for teaching within one-shot instruction sessions, with the goal of making these brief encounters as engaging and effective as possible for our students. (We plan to publish the results of the study in an academic library journal and to present our results at a professional conference.)

The proposed study is also unique in its aim to compare four very different methods of instruction head-to-head. Most studies to date look at one or, at best, compare two variables in library instruction. By taking two years to focus on one narrow element of a one-shot instruction

¹⁴ Wilson, M. E. (2004). Teaching, Learning and Millennial Students. *New Directions for Student Services* (106), 59-71.

¹⁵ Prorack, D., & et al. (1994). Teaching Method and Psychological Type in Bibliographic Instruction: Effect on Student Learning and Confidence. *RQ*, 33(4), 484-495.

¹⁶ Koufogiannakis, D., & Wiebe, N. (2006). Effective Methods for Teaching Information Literacy Skills to Undergraduate Students: A Systematic Review and Meta-Analysis. *Evidence Based Library and Information Practice*, 1(3), 3-43.

session (the use of a general multidisciplinary database), we believe we can add significantly to our understanding of student learning styles and preferences, and of the effectiveness of these instruction methods, as related to the brief library instruction encounter.

3. Design and Methodology

We propose to examine four standard methods of library instruction for effectiveness and student preference. The methods to be examined are:

1. online tutorial
2. online videocast
3. active learning / discovery learning as part of a group exercise
4. lecture and discussion

We will recruit 100 freshman students at the start of Fall Quarter 2008 to participate in the study. These students will attend a 90-minute instruction and testing session. For their participation in the study, each student will receive coupons for a free slice of pizza from Woodstock's Pizza and a free smoothie from Jamba Juice. In addition, their names will be entered in a drawing for one 1GB iPod Shuffle, three 1-GB SanDisk flash drives, and six UCSB logo spirit mugs filled with candy.

College-level students are accustomed to being rewarded in some fashion for their participation in studies such as ours. Some academic departments and courses require participation in studies in their own departments; some instructors offer extra credit. As these avenues of reward or coercion are not available to us, we tried to be creative in thinking of ways to recruit student participants. In speaking to students about incentives for research participation, three themes emerged: food, merchandise, and technology. We arranged for discount coupons at the two most popular food destinations on the UCSB campus: Jamba Juice is offering a 20% discount on the purchase price and Woodstock's Pizza agreed to a 25% discount. In addition, the UCSB Bookstore merchandise and computer departments have both agreed to an 8% discount off of list price. The UCSB Libraries has strict policy regarding association with or exposing our students to advertising from any company, as does UCSB, so we concluded that arranging for donated prizes and rewards from profit-making companies would be impractical.

Students will be divided at random into four groups of twenty-five. This test group of one hundred should be small enough to work with over the course of a two-year project but, as Rick Johnson of the UCSB Office of Instructional Consultation assures us, it will be a significant enough study population to yield interesting results. Each group will attend a 90-minute instruction session focused on one of the four instruction methods. After a brief (five minute) introduction to the project, students will be asked to complete a short demographic questionnaire and a Kolb Learning Style Inventory questionnaire. This standard inventory will enable us to compare students' learning styles to success in learning under four instruction methods. Students should be able to complete the Learning Style Inventory in thirty minutes. The demographic questionnaire will be designed and validated in collaboration with UCSB Social Science Survey Center (SSSC) within the first year of this study.

The SSSC will set up four web-based questionnaires (the demographic questionnaire, the Kolb Learning Style Inventory, the post test and the six month follow-up post test) and administer data collection from the participating students and faculty. The SSSC will take care of all web programming, database setup, security measures. They will provide an online secure data repository and multiple web sites to check response status. The SSSC will take care of database management as well as data downloading, cleaning and set up, labeling. Standard tables will be produced, and additional consulting on results interpretation and further analysis will be provided.

The next twenty minutes of each group session will be focused on one of the instruction methods listed above. Each method will present information on the use of Academic Search Complete. Each will cover the same material (the same menu of searching for, selecting, and retrieving items from the database) in a roughly equivalent amount of time. We have chosen to limit the instruction method to twenty minutes as this is the maximum amount of time we typically spend teaching a general multidisciplinary database in a 50-minute, one-shot session. This will make our results more applicable to the instruction that we do on a day-to-day basis.

In order to ensure consistency among teachers, Richard Caldwell has agreed to be the instructor for each of the groups getting the lecture/demonstration or active learning methods. We plan to employ small test groups drawn from Spring Quarter 2009 students to work out details for presenting this material via the four instruction methods.

Following the twenty minute instruction session, students will be given fifteen minutes to complete an online post test aimed at determining success in learning Academic Search Complete via the session's instruction method. The post test will be designed and validated in collaboration with the UCSB Social Science Survey Center. Students will then participate in a twenty minute group discussion focused on what they believe worked under the instruction method, what didn't work, and what might have worked better. This discussion session will be videotaped and from these videotapes transcripts will be produced. To reduce self-censorship of student participants, the instructor or presenter of the instruction method will leave the room before the discussion segment begins, and discussion will be led by the other two project researchers. We hope that the absence of the presenter will help students be more open regarding what they like and dislike about the instruction method. Five students from each of the four groups will be selected at random to move on to the next phase of the study: the focus group.

The twenty students who move on to the focus group phase will be paid \$25.00 each to spend an additional ninety minutes giving feedback on the four instruction methods. (This rate of compensation for student participation in a research project was suggested by Rick Johnson, a senior consultant with UCSB's Office of Instructional Consultation.) Following a five minute introduction, instructors will use the next 25 minutes to summarize each of the four instruction methods. The focus group will then have an hour in which to talk about the effectiveness of and student preference for the different instruction methods, with discussion guided by a focus group questionnaire developed in consultation with the UCSB Social Science Survey Center. As with the discussion segment of the instruction session, the focus group session will be videotaped and from these videotapes also transcripts will be produced. Summary data from the Learning Style

Inventory and post test may be introduced into the discussion. At the end of the focus group session, students will be asked individually and anonymously to rank the four instruction methods in order of preference.

Six months after the instruction and testing sessions (that is, in Spring Quarter 2010), we will e-mail all participants with a request to take a very brief (fifteen minute) follow-up online post test. Those who complete the follow-up post test will receive another Woodstock's or Jamba Juice coupon. The follow-up test will cover the same material included in the original post test, and will be aimed at determining retention of the information covered six months earlier. This part of the study will also include brief questions regarding how often, if at all, the student has used the general multidisciplinary database in the past six months, and whether the student has attended additional library instruction sessions.

We are highly confident that most study participants will be more than happy to complete the follow up online post test six months after the initial instruction and testing sessions. All we are asking of them is a 15 minute test they can take online and at their convenience. And we feel that a coupon for a slice of Woodstock's Pizza or a smoothie from Jamba Juice is enough incentive to ensure a high rate of participation in the follow-up post test.

The twenty-minute instruction sessions for each of the four methods will be developed over the course of the Fall Quarter 2008 and Winter Quarter 2009. The post tests and structure for gathering input from the focus groups will be developed in Winter and Spring Quarters 2009 with the help of the UCSB Social Science Survey Center (especially Paolo Gardinali, Associate Director of the Center). We will also consult with John Yun (Assistant Professor of Education in Gevirtz Graduate School of Education), who has expertise in educational assessment. The Social Science Survey Center's statistical consulting unit will help us analyze the data gathered under the project in Winter and Spring Quarters 2010. Rick Johnson of the UCSB Office of Instructional Consultation has offered to assist with the project throughout.

4. Analysis

Our analysis will be aimed at determining what works best for presenting material on Academic Search Complete within a one hour one-shot library instruction session. From the statistical side of the study, we will pay particular attention to:

- the learning style distribution among participants
- the effectiveness of each instruction method (overall and for each learning style), both in immediate post test scores and in retention of information at the six month post test
- the degree of preference for each instruction method (overall and for each learning style)

In the discussion sessions and especially in the focus group, we will use qualitative evaluation techniques to document additional aspects of instructional effectiveness – paying particular attention to what students perceive to be the most (and least) effective techniques, as well as to how student preferences for the five instruction methods appear to affect actual learning.

5. Personnel

- Richard Caldwell

The project's primary applicant, Richard Caldwell is the UCSB Libraries' Communication & Political Science Librarian and Library Instruction Program Coordinator. For fifteen years, Caldwell served as the head of the Library and collections management programs at Seattle's Museum of History and Industry where he coordinated the design, implementation and evaluation of a variety of projects focused on the preservation, cataloging, and public service goals of the Museum. For the past two-and-a-half years, Caldwell has taught one-credit INT-1 "Introduction to Library Research" courses as well as one-shot discipline-centered library instruction sessions at UCSB.

- Angela Boyd

Angela Boyd is the UCSB Libraries' Psychology, News Resources, and International Documents Librarian. She teaches INT-1 courses and one-shot courses for the Psychology and Writing departments. Before coming to UCSB in August 2006, Boyd was an adjunct librarian in the Los Angeles Community College District where she taught one-shot courses for students for whom English was a second language. Boyd worked in research labs as an undergraduate at UC Santa Cruz where she conducted experiments in social psychology.

- Rebecca Lasswell

Rebecca Lasswell joined the UCSB Libraries as Life Sciences Librarian in June 2007. Lasswell teaches INT-1 courses and one-shot instruction sessions, primarily in the sciences. Prior to coming to UCSB, she worked as a librarian at Scios Inc., a Fremont based bio-technology company. At Scios, Lasswell coordinated her library's instruction efforts, offering classes on databases such as PubMed and coordinating vendor-led instruction.

6. Budget

We expect our expenditures to total approximately \$6,610. Costs include:

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| \$3,000 | Test design consultations and statistical analysis by the UCSB Social Science Survey Center |
| \$1,050 | Ten sets of ten copies each of the Kolb Learning Style Inventory Questionnaire & Workbook (\$105 for each set of ten licenses). See www.haygroup.com/tl/Questionnaires_Workbooks/Kolb_Learning_Style_Inventory.aspx |
| \$300 | Cost of video transcription (One student transcriptionist to be hired for 30 hours at \$10.00 per hour) |
| \$100 | Twenty-five \$4 coupons for a slice of Woodstock's pizza or a Jamba Juice smoothie for Spring Quarter students recruited to test the five instruction methods. |
| \$800 | One hundred \$4 coupons for a slice of Woodstock's pizza, plus One hundred \$4 coupons for a Jamba Juice smoothie for each student. |
| \$500 | \$25 cash to each of the 20 focus group participants. |
| \$210 | Prizes: \$50 One 1-GB iPod Shuffle \$70 Three 1-GB flash drives \$90 Six UCSB logo travel mugs. |
| \$400 | One hundred \$4 coupons for a slice of Woodstock's pizza or a Jamba Juice smoothie for students who complete the follow-up post test. |
| \$250 | Office supplies, photocopying, poster paper, etc. |

7. Project Timeline

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|-------------|---|
| Fall 2008 | Begin work on the instruction methods. |
| Winter 2009 | Begin working with Paolo Gardinali of the UCSB Social Science Survey Center to construct the pretest, post test, focus group questionnaire and follow-up post test. Finish work on instruction methods. |
| Spring 2009 | Test instruction methods on Spring Quarter 2009 students. Revise as necessary. |
| Fall 2009 | In the third week of Fall Quarter classes (around October 19), begin the instruction and testing sessions. In the fourth week of Fall Quarter classes, conduct the focus group. |
| Winter 2010 | Work with the UCSB Social Science Survey Center on statistical analysis. |
| Spring 2010 | In the third week of Spring Quarter 2010 (around April 19), conduct the six-month follow up post-test. In May 2010, meet with UCSB Social Science Survey Center for a final analysis of project data. |
| Summer 2010 | Caldwell, Boyd and Lasswell write up results for presentation at professional conferences and to library journals. |