Reflections on collaboration: learning outcomes and information literacy assessment in the business curriculum

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Abstract

Develops a model whereby information literacy competencies are formally adopted as learning outcomes for an undergraduate business curriculum. The information competencies are some of the mission driven competencies developed by a College of Business Administration at a regional university in keeping with the Association to Advance Collegiate Schools of Business standards. In one class, develops an assessment instrument to measure student learning of information literacy competencies tied to the course objectives. The performance measures and learning outcomes in the Association of College and Research Libraries' *Information Literacy Competency Standards for Higher Education* were used to plan an information literacy curriculum within an upper division discipline program. Provides an example of how the learning outcomes can offer guidance to course instructors when designing activities and assignments that seek to measure information competence in business courses.

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Introduction

The information economy and the knowledge economy are well-established descriptions of the present day business environment. In an information economy, information competency is the ability to know when information is needed, and to be able to locate, evaluate and present that information. This study sought to develop a model, whereby, information literacy competencies are formally adopted as learning outcomes for an undergraduate business curriculum. This is consistent with the Association to Advance Collegiate Schools of Business (AACSB) requirement that mission-driven competencies be identified for business school graduates. The study also sought to develop an assessment instrument in one class that would measure student learning of information literacy competencies tied to the course objectives. The study was supported by a faculty development grant from California State University, San Marcos and by the California State University Information Competence Initiative. Participation in a US Federal Government Institute of Museum and Library Services (IMLS) grant funded training program awarded to the Association of College and Research Libraries (ACRL) is also acknowledged through the consulting and training provided by Nana Lowel and Laurie Collins of the Office of Educational Assessment at the University of Washington (ACRL, 2002a, b, c).

California State University, San Marcos is a 6,500 student, primarily undergraduate, institution in the north San Diego County area. A total of 70 percent of the students transfer from the local community colleges after two years of coursework; 95 percent of the university's graduates enter the local workforce. The campus has formally adopted information literacy into the general education curriculum,

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and a writing requirement in all courses provides multiple opportunities for students to practice research and critical thinking.

Library instruction is generally introduced to the College of Business Administration students through guest lectures at the start of the students' research assignments at the invitation of the professor. The library instruction session was driven by the course research assignment. Problems encountered included duplication of instruction for some students or the opposite situation where students in their capstone course were receiving library research orientation for the first time. The college set a goal to incorporate information competency standards formally into the business curriculum. This report describes the first phase in that process.

Literature review

Information competencies

The importance of information research skills, or information competencies, especially to the business community has been well documented. An early 1990s alumni survey of The National Center for Post Secondary Improvement (2001) reported that only 48 percent of respondents reported confidence in their ability to find information. Business information has its own idiosyncrasies that contribute to greater difficulty. Business publications originate from diffuse sources. Therefore, there is a greater need for comparing, verifying and corroborating information using multiple sources (Lavin, 1995, p. 86) This increases the need for students to be able to evaluate and critically analyze their sources. How those abilities are transmitted to students in business courses is often through critical thinking pedagogy. Sormunen (1992) studied the methods used in business education proficiency to test for critical thinking. A survey of student preferences for searching the Web reported that students consider locating and collecting information more important than critically evaluating it (Morrison *et al.*, 1998). Michlitsch and Sidle (2002) concluded from their survey of business school faculty that using grades as a final measure for assessment is well established, but there was less use of assessment measurement for value added to student learning using a pre-test/post-test method.

A benchmark now exists for higher education information competencies (ACRL, 2000), *The Information Literacy Competency Standards for Higher Education* (ACRL, 2000) grew from the 1989 *Report of the Presidential Committee on Information Literacy* (American Library Association, 1989) that defined information literacy as the ability to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information". The performance measures and learning outcomes in the standards can now be used to plan an information literacy curriculum within an upper division discipline program. They can offer guidance to course instructors when designing activities and assignments that seek to measure information competence. A growing number of resources are available for that purpose, among them: The ACRL Information Literacy Web Site (2002b), the Indiana University Bloomington Libraries, Assessment Plan for Information Literacy (Indiana University Bloomington Libraries Assessment Planning Committee, 1996), and the ACRL (2001) *Objectives for Information Literacy: A Model Statement for Academic Librarians* (Association of College and Research Libraries, 2001). A number of studies are underway to measure the applications of the competencies and reveal baseline data. These include a report from librarian/faculty teams around the country who developed assessment instruments using the standards (ACRL, 2000) and a research study assessing information competencies of undergraduates in the California State Universities (Dunn, 2002). Additional bibliographies can be viewed at the ACRL Information Literacy Web site, Core Readings (ACRL, 2002c).

Collaboration

Academic librarians and teaching faculty have often cooperated on student research assignments. Faculty alert librarians to upcoming assignments, or invite librarians as guest speakers to orient students to library resources. Librarians create finding aids and

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Web sites supporting the assignments. The increasing demands for information literate graduates have spurred additional interest for more collaboration and the existence of the standards provides a common language from which to integrate information competence into the curriculum and courses.

Business faculty and librarians have a long history of collaboration with library research orientations, courses, and curriculum planning. The literature documents the advancement from *ad hoc* skill-based orientations to a more integrated cognitive method based on developing educational standards. Jones *et al.* (1987) reported that 85 percent of marketing professors included library requirements in their syllabi. Jacobson (1987) documents the transformation of *ad hoc* library instruction sessions into a planned program targeting selected courses in a business school. Business students responded that library instruction contributed to their academic success (Littlejohn and Benson-Talley, 1990). Littlejohn and Benson-Talley (1990) reported that 57 percent of business instructors required use of the library in their assignments. Linking a credit library research course to business courses is a more recent development (Gammill and Hanson, 1992).

Information competencies and objectives developed in the 1990s is reflected in the literature. Cohen (1995, p. 163) describes planning a business instruction session around objectives of accessing, retrieving, organizing, and analyzing the information. Crawford and Barrett (1997) describe collaboration with a business professor to educate students in the evaluation and use of sources. A checklist maps departmental learning goals to the five information competencies (Hogan-Garcia *et al.*, 2001). There has been a steady shift from *ad hoc* orientations to planned and integrated activities which integrate information competencies into the business curriculum.

Methodology for the curriculum project

Four foundation business courses were identified as appropriate initial areas for information competence emphasis. Those courses are BUS 302 (business environments) and BUS 304 (business statistics), both required of all beginning business students, and SSM 304 (services management, the introductory course for the service sector management option), and BUS 444 (business strategies), a required capstone course.

The research team adapted an assessment-planning matrix designed by Lowell and Collins (2001) as a working tool to guide faculty as they tied their course objectives and instructional methods to information learning outcomes. For each course, faculty identified their course objectives, described the instruction method and/or course assignment that related to the course objective, and then identified the learning outcomes expected for each objective. Our goal was to create an assessment planning instrument which faculty could easily self-administer in order to identify and incorporate information competencies into their courses. We worked with one course at a time consisting of two to three professors who taught the same course. With each new course, the project team revised the method used to introduce the competencies, as we identified the professors' barriers to understanding and listened to their debriefing of the process.

Method 1

All professors were asked to bring their syllabus to the meeting that included the business librarian and the faculty project director. The first group was given an introduction to the information competency concepts, and the full set of standards and learning outcomes. They completed the matrix independently and returned it within two weeks.

Method 2

Subsequent groups completed the matrix together in one hour meetings. They were given a copy of a sample matrix prior to the meeting and instructed to complete the matrix columns one and two, course objectives and the instrument/assignment they used to assess those objectives (see Table I). At the meeting they were then given the list of five standards, performance indicators and outcomes. Working from the standard to the related performance indictors, they then chose the outcome that most closely matched each objective. These they noted by alpha numerical notations in the

Table I Example matrix as produced by the professor (BUS 302: business environments)

Objective	Instrument and method	Information literacy standard	Performance indicator	Outcomes
Objective 4: be able to apply the concepts, models and principles to actual cases	Business week articles: write one paragraph summary and a one paragraph analysis of how the article relates to Porter's and/or Griffin's models	S3. P1. 1a S3. P1. 1b		

third column (e.g. S3, P2, 2b). In most cases they choose several outcomes for each instrument/assignment and corresponding objective.

Method 3

The next group was also asked to fill in matrix columns one and two in advance of the meeting. At the meeting, rather than presenting the group with the large list of five standards, performance indicators and outcomes, they were given only a five sentence list of the five standards. Once they chose a standard that fit the objective and instrument/assignment, they were presented with a list of the performance indicators and learning outcomes for that one standard and asked to choose the most important outcomes that matched their objective and instrument/assignment. Again, they identified these by the alpha numerical notation in the third column. Tables I and II are examples of completed objective sets for one instrument/assignment. Data entry that transformed the information in Table I to the completed version in Table II was completed by project assistants. The project assistants also linked the instrument/assignment to the description of the assignment from the professor's course syllabi. The assistants then put the completed course information on the Web site at http://library.csusm.edu/cg/Business/business.asp The Web site includes the four foundation business courses chosen for the study. A total of 31 objectives are detailed by ten professors who taught these courses.

The results of this preliminary exercise indicate that the third method was the most effective, for three reasons. Professors who prepared in advance of the meeting, by filling in the course objectives and corresponding instrument/assignments (columns one and two of the matrix) could better concentrate on how the information literacy standards related to the objectives and assignments. Using meeting time to identify the objectives and assignments detracted from the focus on information literacy. Second, working together as a group generated interesting information exchange among professors teaching the same course, and ultimately led to modifications of some course assignments that better meet the information literacy objective. Finishing the matrix in the meeting gave the participants closure and eliminated follow-up reminders from the research team that the professors needed to turn in the completed matrices. Third, the segmenting of the standards from the outcomes reduced the perception of an overwhelming number of information literacy outcomes. Participants who did not have the information segmented remarked on the sheer number and perceived redundancy of the outcomes. Participants who used the third method were better able to focus on the most critical outcomes associated with an instrument/assignment and provided significantly fewer outcomes per instrument assignment. Under method one, as many as eight outcomes were listed for a given method/assignment. Under method three, the participants averaged between three to four outcomes.

The case study project

The services management course (SSM 304), was chosen to develop and test an assessment

Table II Matrix and link to syllabus description as seen on the Web (BUS 302: business environments)

Objective	Instrument and method	Information literacy standard	Performance indicator	Outcomes
Objective 4: be able to apply the concepts, models and principles to actual cases	*Business Week* articles[a]: write one paragraph summary and a one paragraph analysis of how the article relates to Porter's and/or Griffin's models	S3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system	S3. P1: The information literate student summarizes the main ideas to be extracted from the information gathered	S3. P1. 1a.: Reads the text and selects main ideas S3. P1. 1b.: Restates textual concepts in his/her own words and selects data accurately

Notes:
[a] There is a hyperlink from the matrix to the text from the syllabus that describes the instrument/assignment. For example:
Business Week articles
Business Week assignments. During the semester each student will submit six one-page assignments based on *Business Week* articles. Each assignment is a review/analysis of an article from a specified section of *Business Week*. Each assignment will be taken from a different section of the magazine. The first assignment will be from the international business section, other assignments, as specified in the assignments, will be from the following sections: economic analysis, finance, science and technology, or cover story. The article chosen may be selected from the two most recent issues of the magazine (dates are listed on the assignment sheet). Only articles from the assigned section/issues will be scored for a grade. The assignments are to include the complete citation of the article (title, publication, issue date and page number(s)), a one paragraph summary of the article and at least a paragraph analyzing how the issues of the article relate to Porter's and/or Griffin's models. [Attention: the length of the critique has to be at least the same length as the summary.] The assignments will be collected in class

instrument that would measure specific information literacy learning outcomes identified for that course. The goal of the case study was to document the successful implementation of an information literacy infusion into a particular course design. As with any assessment, it is important to establish an assessment instrument that could accurately reflect each student's information literacy competence. The assessment instrument would test whether learning had occurred in three areas. First, that students were better able to express a specific research question for a topic in organizational behavior. Second, that they demonstrated they could extract the main ideas from their research questions and, third, that they could locate and evaluate relevant and sometimes conflicting information on their topic.

Assessment planning process

We used the course objectives and the Information Literacy Competency Standards to identify which information competencies were most important to meeting the course objectives. Course objective 1 "Ability to identify organizational behavior topics in the student's every day live (personal and work)" and objective 2 "The ability to conduct practical business research (i.e. given a management problem find a management solution)" were identified as prime course objectives for which to develop assessment instruments. In that context, standard 1 (students determine the nature and extent of the information needed) and performance indicator 1 (student defines and articulates the need for information) and standard 3 (evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system) and performance indicator 2 (articulates and applies initial criteria for evaluating both the information and its sources) were central to guiding our search for assessment instruments that would provide learning opportunities for students to master those measures by the end of the semester. A study of how students' approach the Web for research found that while they become adept at searching for information they were lacking in their ability to evaluate the information found (Davis, 2002). The study confirmed our decision to include an evaluative activity in our design. Table III illustrates

Table III Matrix for SSM 304: services management

Objective	Instrument and method	Information literacy standard	Performance indicator	Outcome/s
Objective 1: ability to identify organizational behavior topics in the students' everyday life (personal and work)	Experiential activities	S1: The information literate student determines the nature and extent of the information needed	S1. P1: The information literate student defines and articulates the need for information	S1. P1. 1f: Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information
	Team presentation project	S3: The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system	S3. P2: The information literate student articulates and applies initial criteria for evaluating both the information and its sources	S3. P2. 2a. Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias

objective 1 and its associated learning outcomes.

A pre-test and post-test assessment would serve to measure the difference in student responses over the course of the semester. This assessment instrument was chosen in part because we suspected, and survey results confirmed, that students' prior experience with research activities differed widely. Most indicated they had prior library instruction, but also indicated they were transfers from local community colleges. Because of the different institutions represented among the class, we wanted to know what prior experience or familiarity the students had with research activities or with library resources. We wanted a baseline of responses that would indicate the degree of learning over the semester and that would inform planning for future semesters. An exercise in critical thinking was added to course assignments and directed students to read and then write a critical annotation of one article (standard 3 student evaluates information and its sources critically and incorporates the information into their knowledge base). We considered a bibliographical item count to provide a measure of the variety of resources used (standard 1 performance indicator 2: student identifies a variety of types and formats of potential sources of information). That measure was later dropped because of a lack of time and perceived limited usefulness.

Data gathering and interventions

A pre-test of the survey instrument was given to students in one of the first class periods at the beginning of the semester. Students were asked to answer the questions as best they could in light of their team's selected project topic. The answers to these questions formed a baseline measure of each student's competence for those learning outcomes we were measuring. Following completion of the pre-test instrument, the librarian led the class in an hour-long discussion describing how to evaluate critically an article and how to search business databases. Within the two weeks following this instruction, students were assigned to find, critically evaluate, and annotate an article related to their topic. The purpose of the annotation exercise was to help students think more critically about their research and retain a better record for the analysis of their topic. Feedback was given on these projects but no grade was given. This task was designed to be a developmental tool that students could use to reflect on their research experience and to assist in the synthesis of disparate pieces of information that would eventually form the

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basis for their team project. The assignment provided applications of standard 3 (student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system).

Students then spent the remainder of the semester working with their teammates on their projects. Executive summaries of their projects were turned in one week prior to the presentation date. Immediately following the presentations, all students were asked to complete a post-test assessment. The post-test included essential components from the pre-test instrument to allow for comparison.

Instrument development

The pre- and post-test questionnaire method was chosen in order to measure learning outcomes we deemed central to the course objectives. We developed the pretest by beginning with the course objectives and asking the question: "What do we want the students to learn?" Starting with sketchy ideas for questions we used the outcomes mapped to the objectives to refine the questions. Pre- and post-test questions were identical and each question was tied to one or more learning outcomes. A copy of this instrument is included in the Appendix. In order to remove potential bias from the student responses, we developed a coding instrument and asked librarians at other institutions to code for evidence of a more precise statement among the pairs.

Analysis of results

The independent coders were instructed to identify which of the paired responses (pre or post) was more specific or precise. The order of pre- and post-test responses was changed on some of the pairs so that pattern response effects could be mitigated. We expected that a more precise statement exhibited greater understanding and knowledge of the question or research method being tested. If a high percentage of post-test responses were found to be more specific then we can extrapolate that the question is an accurate measure for that outcome, and that student learning occurred. Each coder's response was then recorded. When a majority of the coders agreed (three or more of the five agreed that the post-test response was more specific or precise), a count was made. This data is detailed in Table IV.

The table details the percentage response rate of students in which a majority of the coders viewed the student's post-test response as more specific than the paired pre-test response. Again, we are using specificity as an indication of a deeper level of knowledge in a particular area. If a high percentage of post-test responses are found to be more specific than pre-test responses then we can extrapolate that the question is an accurate measure for that outcome, and that the students' competence increased from the pre-test to the post-test.

The learning goals for the students were that they would be able to articulate a statement, identify the main concepts, and develop a strategy for their research. Results show a clear and substantial increase in the students' ability to state a problem, extract main concepts and develop a search strategy (questions 3, 50 percent, question 4, 48 percent, question 6, 60 percent)

Question 5 tested for where to locate business information. Students clearly learned where to locate business resources for background reading on their topic (question 5D, 70 percent). Coders reported that a respectable 41 percent of students could accurately locate company press releases, but reported lower precision for current examples of industry practices (30 percent) and finding employment law and regulations (28 percent). These results indicate that students clearly are competent in locating background reading for a topic, but were less likely to recall where to locate specific categories of business information such as press releases, examples of industry practice, or employment law and regulations. These results will serve as a tool for faculty designing assignments that reinforce those competencies in other courses.

Question 8 tested for the ability to evaluate a citation according to criteria enumerated in standard 3, performance indicator 2, learning outcome 1. "... in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias." Student ability to evaluate an article was mixed with most students better able to construe authority, timeliness, and reliability (50 percent or higher)

Table IV Student responses to post-test questions

Pre- and post-test questions in SSM 304	Percent of students with more precise responses to post-test questions	Learning outcomes
Question 5D: Where to find background reading	70	S1.P2.O3
Question 8D: Can you construe the authority of the authors?	64	S3.P2.O1
Question 6: Constructing a search	60	S2.P2.O2
Question 8E: Citation evaluation, timeliness	55	S3.P2.O1
Question 8C: Citation evaluation, accuracy	51	S3.P2.O1
Question 3: State organization/management problem	50	S1.P1.O5
Question 8A: Citation evaluation, reliable, trustworthy	50	S3.P2.O1
Question 4: Describe information needed for research	48	S1.P1.O5
Question 5B: Where to find company/organization press releases	41	S1.P2.O3
Question 8B: Citation evaluation, valid or reputable study	38	S3.P2.O1
Question 8F: Citation evaluation, bias	31	S3.P2.O1
Question 5A: Where to find current examples of industry practices	30	S1.P2.O3
Question 5C: Where to find employment law and regulations	28	S1.P2.O3

and less precision reported for their ability to evaluate validity and bias (38 percent or lower). Aside from the introductory library session at the beginning of the semester and the critical evaluation annotation exercise, students were expected to complete their project research independently. In a first semester (junior year) business course students would not be expected to be conversant with all the elements tested. Given the ubiquitous nature of Web searching, students are competent expressing a research need and extracting main concepts in order to search for information and the results demonstrate that competence. By the end of a first semester they would be expected to have only a beginning understanding of the nature of business literature (press releases versus industry analysis and regulations) since it would be a new concept with distinct features not found in lower division literature. The results show improvement over the semester and also provide useful insights for designing research activities for later in the curriculum.

The assessment instrument designers want to emphasise the preliminary nature of the pre- and post-test questions. The results represent only the first use of this instrument. The designers believe that improvements in the questions will contribute to better responses from the students. We eliminated question 7 (evaluating Web sites) since we received inconclusive responses. We believe that question 5 could be improved and yield different results.

Conclusion

Our project looked at two aspects of incorporating information literacy into the business school curriculum. The first project concentrated on the professors' identification of course objectives and methods/assignments that linked to information learning outcomes. The second project developed and tested an assessment instrument that would measure specific information literacy learning outcomes identified for the course.

Throughout the process, professors often indicated a sense of being overwhelmed by the vastness of the information literacy outcomes. As we now reflect on our experience, we believe that segmenting the standards from the outcomes allowed the professors to focus on limited information moving in stages toward the identification of relevant outcomes. Working in a group with colleagues who teach the same course, created an information exchange that resulted in better understanding of the information literacy standards. Most important, the majority of the faculty stated they would change the description of assignments in their

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syllabus to better reflect the learning rationale behind the assignment. While the professors clearly had a learning objective behind the course assignments they required, the information competency standards now created a new "language" for them to use to articulate the learning objectives of the assignments.

Another interesting, but expected, observation is that different courses in the business curriculum concentrate on very different information competencies. For example, the statistics course, BUS 304 concentrated heavily on standard 4 (the information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose). In contrast, more a behaviorally-oriented course such as service sector management emphasized standard 3 (the information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information). A future objective, useful for assessing information literacy competencies as part of our mission-driven competencies for AACSB, is to articulate how the various information competencies are integrated throughout the curriculum. The second step would be to identify what courses might be targeted for specific learning outcomes that are desired, but not presently covered, in our curriculum.

We experienced a similar sense of being overwhelmed by the vastness of the information literacy outcomes when developing the case study example for SSM 304. We overcame that obstacle by reviewing the outcomes, keeping them in the back of our mind, and then delving deeper into the pedagogical goals of the course project. In particular, it was helpful for us to remember that all of the outcomes were not important to measure, but only the ones that were the most important elements the professor wanted to see from the students. After we clearly identified these specific outcomes (S1.P1.O5; S1.P2.O2,O4; S2.P1.O3; S2.P2.O2; S3.P2.O1), it was much easier to proceed from there and begin building the instrument.

Originally, in the case study we had envisioned multiple measures that would be used to test the learning outcomes. For example, we thought a comparison of thesis statements to the pre- and post-test answers might be helpful. We also thought that bibliographical analysis of student papers would be useful. We discarded that aspect for this study because we did not want to study the bibliographical content in isolation from the papers. In the case of this course, much of the content of the research was presented orally rather than in writing. Also, with each of these ideas we had to subject them to the realism question – is this too much or are we asking too many questions for the students to answer? Again, we realized that for this project, we were not building the mother of all information literacy instruments. Instead, we were attempting to create a part of a tool that can be used to assess whether information literacy increased as a result of our training, and a tool that could be easily administered semester after semester.

To commit to a pre-test environment we realized that students would need to have completed some of the work in order to test against it. For example, we could not pre-test a student's ability to combine research into original thought at the beginning of the research project (standard 3, performance indicator 4: ... compares new knowledge with prior knowledge). Therefore, when working with a pre-test/post-test instrument, we chose those outcomes that can be measured at the early stages in the research process.

Cal State San Marcos has an intensive writing requirement for all courses. The responses in both the pre-test and the post-test for the SSM 304 class will inform how planning for other courses in the business curriculum will be structured. The course is an entry level course for the major. Results indicated that students improved over the course of the semester in their ability to evaluate a citation especially in regards to authority of the author, and determining accuracy, reliability and timeliness. It may be because of the structure of introducing library research methods, together with the reinforcing element of the critical annotation exercise. Results of responses indicated that only some students had mastered how to locate specific business information such as employment law and regulations, industry practices, or press releases, but were able to

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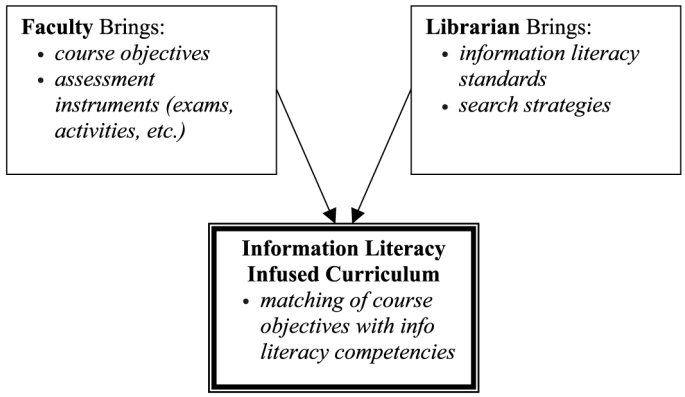
locate general background reading. It may be that future instruction will place greater emphasis on the nature of business publications set within the context of variable evaluative criteria.

These results are to be considered preliminary and based only on one administration of the assessment instrument. Before further administrations the questions in the pre- and post-test will be revised. The results from the case study project are encouraging insofar as they shed light on how one might go about measuring information literacy in particular classes. It should be noted, however, that this study only included a few information literacy outcomes chosen specifically to coincide with a particular course's objectives.

Reflecting on the collaborative efforts of faculty and librarian we each were exposed to cross disciplinary pedagogy. The librarian was given the opportunity to observe professors reflect on course objectives and how information competencies matched those objectives. The activity of matching information competencies to course objectives and of designing an assessment instrument to measure learning outcomes in a test case provided insight into course design not usually available to librarians. Oral presentations are an essential presentation medium in business, not conducive to microscopic citation analysis. Therefore alternative methods to assess the quality of material selected needed to be employed. Limited critical annotation exercises can be successfully used to increase student comprehension of the research process.

It is evident that each discipline has its own area of expertise to contribute. From library science we utilized information competencies, citation analysis, steps in the research process and locating sources for information. From the business discipline we recognized the importance of real-world application, context-specific questioning, and the use of practical research methodology. From a faculty perspective, this experience yielded an increasing interest in defining course objectives more clearly and engaging students in development of information literacy competence. Figure 1 summarizes our view of librarian/business faculty collaboration.

Figure 1 Faculty and librarian collaboration to achieve information library literacy infused curriculum



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Appendix. SSM 304 Project Planning Worksheet (1)

1. Please indicate (✓) your status:
   ☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior
2. Place a checkmark next to each entry (✓) if you attended a workshop or lecture on library research:
   ☐ Cal State San Marcos ☐ Palomar College
   ☐ Other (indicate where you attended the workshop or lecture)_____
   ☐ Took GEL 101 at Cal State San Marcos
3. State, as a question, the organization/management problem you are addressing for your research topic in this class.

4. Describe the information you will need to complete this research.

5. Books, articles, newspapers, statistics as well as free and fee-based Web sites on the Internet all have a place in business research. From the list of topics below identify what you think is the best format or media type (e.g. books, newspaper articles, etc.) for locating information on that topic. Explain where you would go to get this type of information and why you would go there. Where would you find information on . . .

Example:
Recent layoff announcements from across the country

Possible answer:

Popular press magazines (like *Time, Newsweek*, and *Business Week*)

a. Current examples of industry-specific practices
   Answer:

b. Company/Organization press releases
   Answer:

c. Employment laws and regulations
   Answer:

d. Background reading, commentary on a specific topic
   Answer:

6. Consider that you are searching an online index or electronic database to locate journal or magazine articles for your topic. Fill in the box below just as if you were searching that index. Construct your search in order to get the most useful and accurate results. Include any key words, operators or truncations you would you use, such as (and, or, not etc.) to get optimal results. Refer to your answer in Question 1 above to help you construct your search. Fill in key words here:

7. Describe advantages and disadvantages of searching the free World Wide Web on the Internet for research on your particular project.

   Advantages Disadvantages

8. Study the following citation to an article, and in your own words describe if, and how the citation approaches the criteria listed below:

   Levy, E.S., Flynn, P.M. and Kellog, D.M (1999), "Balancing professional and personal lives: the mantra for the next millennium", *The CPA Journal*, Vol. 69 No. 10, pp. 70-3.

   Is this a reliable or trust worthy source? Why or why not?

   Is this a valid or reputable study? Why or why not?

   Would you say this source is likely to be accurate? Why or why not?

   Can you construe the authority of the authors? How or how not?

   Is this a timely source? Why or why not?

   What would the likelihood of bias be, if any with a source such as this? Why or why not?

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