

Assessing Business Information Literacy: A Collaborative Framework

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ABSTRACT

In today's knowledge-based economy, being information literate, and possessing Business Information Literacy (BIL) skills in particular, is critical to achieving professional success. Information literacy is a set of abilities that require individuals to recognize when information is needed and demonstrate the ability to locate, evaluate, and effectively use that information. This paper reports on the evolution of a collaborative framework for integrating information literacy into upper-level undergraduate business courses, as well as into introductory MBA courses. The framework, which was developed over a significant period of time, provides a guide for a structured and full collaboration between librarians and classroom instructors and includes a sample assignment and accompanying evaluation rubric which is adaptable across disciplines. In addition, this paper provides a model for developing pedagogical methodologies for student attainment of BIL competencies, as well as a technique for faculty assessment of them.

INTRODUCTION

In today's knowledge-based economy, being information literate, and possessing Business Information Literacy (BIL) skills in particular, is critical to achieving professional success. Information literacy is a set of abilities that requires individuals to recognize when information is needed and demonstrate the ability to locate, evaluate, and effectively use that information. A 2013 poll conducted by the National Association of Colleges and Employers (NACE) (2013) found that the ability to obtain and process information ranked in the top five competencies employers look for in new hires.

Collaborations between business faculty and librarians to enhance information literacy competencies in business education based upon Association of College and Research Libraries (ACRL) *Information Literacy Competency Standards for Higher Education* (2000) have been modest at best, while assessment of business students' information literacy skills continues to mature. It is these *Standards* that are used by numerous accrediting agencies, such as the Middle States Commission on Higher Education (MSCHE) and the Association to Advance Collegiate Schools of Business (AACSB), as the foundation for their requirements for student information literacy (Cooney, 2005; O'Connor, Radcliff, & Gedeon, 2002).

This paper reports on the evolution of a collaborative framework for integrating information literacy into upper-level undergraduate business courses, as well as into introductory MBA courses. The framework, which was developed over a significant period of time, provides a guide for a structured and full collaboration between librarians and classroom instructors and includes a sample assignment and accompanying evaluation rubric which is adaptable across disciplines.

LITERATURE REVIEW

This literature review focuses on several areas relevant to the current study: the concept of information literacy; its importance in the workplace; how it is addressed in business schools; assessment of student information literacy and using rubrics as an assessment tool.

Information Literacy Defined

Information literacy is a pedagogical innovation developed in the mid-1980s to provide a new framework for libraries' instructional efforts at the start of the information age. From its

inception, librarians promoted information literacy actively within higher education, as well as in the field of business (Cooney, 2005; Hawes, 1994).

The *Presidential Committee on Information Literacy: Final Report* released in 1989 defined *information literacy* as follows: “To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (American Library Association, 1989, para. 3). The ACRL has provided a set of standards for information literacy along with performance indicators and outcomes by which to measure attainment of the standards (Association of College and Research Libraries, 2000).

Bruce (1999) promulgated the idea that information literacy is important in the workplace environment and has complex elements that go beyond acquiring skills to use information tools and to find information resources. She defined information literacy as follows: “Information literacy ... involves critical thinking, an awareness of personal and professional ethics, information evaluation, conceptualizing information needs, organizing information, interacting with information professions and making effective use of information in problem-solving, decision-making and research” (Bruce, 1999, p. 46).

Importance in the Workplace

The UNESCO-sponsored international conference, *Information Literacy Meeting of Experts*, was held in Prague in 2003 and led to the Prague Declaration that determined that information literacy is essential for successful participation in today’s information society (Thomson, 2001). One of the policy recommendations that grew out of the report was to

encourage employers to invest in information literacy education to enhance the effectiveness of the workplace.

Peter Drucker stated, “We need to make ourselves and our businesses information literate” (Drucker, 1994, p. 109). He believed organizations were beginning to rebuild around information and would need to gather and use outside information, not just internally generated information, to make better decisions. Drucker (1995) asserted executives would need different types of information from secondary sources to be able to identify environmental threats and opportunities that will affect their industry.

Business leaders have long known that information often provides a significant strategic advantage and is a competitive resource for successful companies. In a national workforce study conducted by the U.S. Chamber of Commerce and the University of Phoenix (2011), 82% of the respondents rated critical thinking and problem solving as very important, and 69% also rated the ability to analyze and synthesize information as very important (U.S. Chamber of Commerce & University of Phoenix, 2011). These skills are critical components of the information literate person. In today’s knowledge economy, “information has become the leading business asset” (Kanter, 2003, p. 23).

Being information literate has a definite impact on any organization’s bottom line (Reedy, Mallett, & Soma, 2013). Inaccurate and outdated information often leads to poor decision-making and the inability to evaluate information effectively is especially harmful because it can hurt a business strategically (Cheuk, 2008). “Time spent looking [for] and not finding the information required to do their job is a huge drain on employees’ productivity and company resources” (Makani-Lim, Agee, Wu, & Easter, 2014). De Saulles (2007) links the time

and effort wasted on unsuccessful searches to a lack of information literacy skills in the workforce. It might be argued that, by improving the information literacy skills of employees, companies would save both time and money. In his opinion piece, Boyd (2005) comments, “Employees spend a huge amount of their time looking for information they can’t find, or recreating information that already exists” and bemoans this lost productivity” (para. 10).

To understand the importance of information literacy to economic growth requires comprehension of the difference between routine distributions of information and the use of information to create knowledge. According to Kirton and Barham (2005), “Information seeking and use become a process of the construction of knowledge” (p. 367). “When information is used to innovate and create new products or processes . . . , then new knowledge can be costly to replicate by competitors” (Catts & Lau, 2008).

O’Sullivan (2002) reported that the business community concedes a state of information overload. She says that businesses recognize the “values of information and knowledge, but at the micro level, workers are floundering with too much information readily available, too little relevant and timely information when they need it, and few tools or skills to deal with information effectively” (p. 9).

College graduates “quickly find themselves avid information seekers as they look for work, learn the ropes of a career [and] tend to personal and professional business” (Head, 2012, p. 2). In a survey of newly hired recent college graduates, participants agreed “a primary part of their jobs required them to find, evaluate, and use information to solve problems (Head, 2012, p. 16). Concurrently, employer interviews revealed “the suite of information competencies [they] assumed college hires would bring with them to the workplace . . . was sorely incomplete” (Head,

2012, p. 110). “Faced with an increasingly complex and competitive workplace, business students must be information literate” (Cooney, 2005. p. 4). Mutch (1999) describes the nebulous problems managers confront in the workplace and advises higher education to emphasize “critical, flexible patterns of thought [of which] information literacy forms [an] important part” (p. 332).

Integration in Business Schools

There is a general agreement in business schools and in the business world that information literacy skills are important. A survey of AACSB libraries revealed that 90% of respondents provided information literacy instruction to their business students (Cooney, 2005, p. 10).

The publication in 2000 of the *Information Literacy Standards for Higher Education* by ACRL provided a means to focus and to assess efforts. Increasing emphasis by accrediting agencies on developing information literacy in students, promoting collaboration between library and classroom, and assessing student learning outcomes has provided added motivation to develop and integrate information literacy into instruction efforts.

In 1994, Hawes surveyed articles in popular business education journals. He found only one article directly addressing information literacy, leading him to conclude that “not enough is being done” to promote information literacy outside of librarianship (p. 54). Stevens (2007) searched 54 discipline-specific pedagogical journals for information literacy related content (p. 258). Her study identified only 25 articles on information literacy or library instruction out of thousands published (p. 261).

O'Connor (2007) studied business literature to evaluate the level of implementation of information literacy by business faculty. She determined that information literacy is still in the early adoption phase in terms of awareness and potential pedagogical value among business faculty, despite significant progress. Cooney (2005) showed collaboration between librarians and business faculty is moderate with only a small number of instances of full collaboration between librarians and business faculty. A problem for business information literacy, as it is across the different disciplines in higher education, is the majority of research and teaching on this topic is by librarians and it is not always incorporated into a credit-bearing assignment or course (Johnston & Webber, 2003).

Calma's (2013) examination of generic skills, including information literacy, in business programs revealed deficits in effectively evaluating information to produce new and original thought. One way to respond is Gunn, Hearne, and Sibthorpe's (2011) proposal to embed information literacy skills in courses developed through effective learning designs.

Several studies have been conducted that confirm the need for information literacy instruction for business students, offer models for collaborative instruction between business faculty and librarians, and provide insights into assessments. Sterngold and Hurlbert (1998) designed a group research project in a marketing course to assist their students in developing several attributes of information literacy. Working closely with classroom faculty, Fiegen, Cherry and Watson (2002) created a model for integrating the *Information Competency Standards for Higher Education* into business curriculum and assessing student learning outcomes. Feast (2003) identified a program at the University of South Australia that focused on informing eight business course coordinators about what information literacy involved and encouraging them to include it in the core courses they taught. She noted, "students engage in a

more meaningful way in developing information literacy when these skills are directly pertinent to the courses they are studying and in particular when they have an imminent impact on their course assessment” (Feast, 2003, p. 82). Cooney and Hiris (2003) collaborated to embed information literacy into a graduate finance course and assess it. Gilinsky and Robison (2008) modified a business capstone course offered at their school by incorporating information competency (IC) skills training. They defined these as information-gathering and interpretive skills. Bowers et al. (2009) presented a partnership between business faculty and research librarians to revamp a research assignment in the business program at Birmingham-Southern College and introduce information literacy into a newly designed project called the *Business Discovery Project*. Other articles that promote adoption of information literacy and offer practical suggestions for integrating it into the business classroom and curriculum include Roldan and Wu (2004) and Stanton (2006).

Researchers agree that relating information literacy to a particular discipline not only provides a more valuable learning experience, but is also important in becoming more fully information literate (Grafstein, 2002; Roldan & Wu, 2004). Becoming information literate in general terms is not sufficient for information literacy within a disciplinary context, and being information literate in one discipline does not automatically mean one is information literate in another (Manuel, 2002). Regarding business information, Lavin (1995) has pointed out the inherent abundance, diversity and specialization of business resources, as well as the complex nature of business inquiries.

Analysis of student work is a useful and authentic assessment, particularly in the context of information literacy. Conley & Gil (2011) indicate that information literacy skills “need to be addressed with undergraduate students in an integrated manner to fully influence core

competency and lifelong learning capabilities” (p. 214). Makani-Lim et al. (2014) explored “how library research sessions and carefully designed class assignments were used to strengthen students’ information literacy skills” (p. 4). Their study also demonstrated “the effectiveness of analytic rubrics in assessing ... students’ learning outcomes.” (p. 4).

Assessment of Student Information Literacy

The significance of assessment in all of higher education was highlighted in 2006 with the publication of *A Test of Leadership: Charting the Future of U.S. Higher Education*. This report, published by the U.S. Department of Education’s Commission on the Future of Higher Education, made several recommendations for reform intended to assure that future national economic and workforce needs would be met. The report significantly impacted institutions of higher education across the country as regional accreditation organizations modified their standards in response to it.

Suskie (2009) views assessment as an ongoing process of establishing clear, measurable expected outcomes of student learning and employing systematically gathered, analyzed and interpreted evidence to determine how well student learning matches expectations. Resulting information is used to understand and improve student learning. Assessment needs to be carefully aligned with goals (i.e., the most important things for students to learn) and used to improve teaching and learning.

University faculties have embarked on gaining accreditation from various accrediting bodies and are encouraged to develop mechanisms by which outcomes, including skills and other abilities, are assessed, measured and reported as part of assuring quality. Authentic assessment, a process that measures what students can do with knowledge in a meaningful way, is a promising

method for the evaluation of information literacy learning outcomes (Montgomery, 2002). It measures not only what students learn through instruction, but also how this learning is subsequently incorporated into academic work.

Many accrediting organizations call for the assessment of information literacy outcomes which they define as a “change in knowledge or attitude as a result of an interaction with the library” (Saunders, 2007, p. 319). Grading student assignments using analytical rubrics with measurable outcomes is an effective way of meeting the assessment challenge.

Use of Rubrics in Higher Education

A review of published articles and studies done on rubrics in higher education by Jonsson & Svingby (2007) showed that, of the articles reviewed, only seven were published before 1997, evidence of the relatively late acceptance this form of assessment in universities and colleges. Although a relative newcomer to higher education, the rubric is now employed in a variety of disciplines, including business, and is used to assess levels of competencies, such as the ability to think critically, in a wide mix of student projects (Reddy & Andrade, 2010). One possible reason rubrics are gaining in popularity is the change in emphasis of accrediting agencies, such as AACSB, away from evidence of what is being taught to evidence of what is being learned (Reddy & Andrade, 2010).

A rubric is an assessment tool that lists the criteria for a piece of work and articulates degrees of quality for each criterion. Gradations of quality are what distinguish any rubric from a checklist that simply lists criteria for an assignment (Andrade, 2005).

Effectiveness of a rubric depends on its design and clarity to users. Designing a rubric is not easy. Educators have to ensure a rubric aligns with the curriculum and course learning objectives, and is worded in a manner that is not open to interpretation (Andrade, 2005). Peach, Mukherjee, and Hornyak (2007) caution that instructors should be prepared for the fact that first rubrics may fall short and need to be developed over time.

As described by Reddy & Andrade (2010), rubrics are effective for many reasons: they explain not only what a student should do to complete an assignment effectively, but also what they should avoid; they help instructors detail learning goals for students; and they help enhance the reliability of scoring. A rubric provides useful feedback to instructors on the effectiveness of instruction and can help them identify areas for improvement in courses and /or programs. It provides an opportunity for them to look at criteria and evaluate delivery and/or even the content of learning material. Rubrics can be used in class for self-assessment or peer-assessment. Employed in this way, they also serve as effective teaching aids (Andrade, 2005; Knight, 2006; Reddy & Andrade, 2010) and serve not only evaluative, but also developmental purposes. Jonsson & Svingby (2007) found that a major benefit of rubric use is bringing transparency to assessment.

METHODOLOGY AND DATA ANALYSIS

Our major goal is continuous improvement of our students' BIL skills. Our effort to achieve this objective consisted of linking an assessment tool, or rubric, to a course related assignment to ultimately provide meaningful feedback to the students and to ourselves as educators. The rubric results would assess BIL skills, as well as focus on areas where the instructor and/or librarian could improve their methodology. Our process included three major

segments beginning with the preparation of course syllabi detailing weekly lectures and assignments, learning outcomes, and evaluation methods; followed by the actual library presentation related to the assignment; and, lastly, the grading of the assignment.

Prior to the start of each semester, the instructor would contact the library's business information specialist to arrange a class session to be held at the Library Instruction Laboratory. In preparation for the library research session, the information specialist reviewed the course syllabus, learning outcomes, and assignment. The instructor and information specialist agreed on content-related materials created to support the course-embedded assignment designed to allow students to demonstrate their ability to use information. Specifically, this was an electronic *LibGuide* (Appendix A and <http://liu.cwp.libguides.com/company>) covering company and industry resources, as well as learning objectives for the lecture. An analytic rubric (Appendix C) was designed to assess the students' mastery of the *Information Literacy Competency Standards for Higher Education* (2000) as defined by ACRL. The competency standards assessed are shown in Table 1.

Table 1: Information Literacy Competency Standards for Higher Education	
Standard	Description
Standard Two	The information literate student accesses needed information effectively and efficiently.
Standard Three	The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
Standard Four	The information literate students, individually or as a member of a group, uses information effectively to accomplish a specific purpose and also communicates effectively.
Standard Five	The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Source: Association of College and Research Libraries. (2000). *Information literacy standards for higher education*. Retrieved from <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards>

At a hands-on library session tailored to the specific course assignment, students received instruction on business information resources and research skills provided by a knowledgeable business information specialist/librarian. They were able to listen to the lecture while also following along using individual computers available in the Library Instruction Laboratory. Students accessed the various databases as they were discussed and clicked links that directed them to the resources that were to be used in fulfilling the information literacy assignment.

Specifically, the library research sessions covered information literacy skills, and how to effectively use library databases to conduct research. To achieve the information literacy

learning objectives, the information specialist gave an overview of the electronic *Company and Industry LibGuide* with focus on specific databases, as well as tools for citing and writing. The library information specialist demonstrated how to build search queries in the databases and how to build a reference list.

Students were then required to do research to provide answers to questions in a *Company and Industry Information Literacy Assignment* (Appendix B) after receiving corresponding course content lectures in their classes. After completing the assignment, students' information literacy skills were assessed using an analytical rubric containing measurable outcomes designed for systematic assignment review. Employing the rubric, students' information literacy competency skills were classified as Excellent, Competent, or Needs Improvement, based on their performance on the various sections of the assignment. Use of a rubric is an effective way of meeting the assessment challenge of evaluating student information literacy skills and ensuring continuous improvement of both these skills and the pedagogy used to help students develop them.

The Company and Industry Information Literacy Assignment

While the collaboratively developed *Company and Industry Information Literacy Assignment* was an important component of both undergraduate and introductory core MBA classes in finance for more than five years (10 semesters), the spring 2015 semester represented the first term that a formal evaluation rubric was used to more systematically evaluate students' performance with respect to select information literacy competency standards for higher education (see Table 1). Use of the rubric was implemented on a trial basis following the end of the semester.

Over the years, the assignment had been reviewed, revised, and improved. Currently, in addition to accessing four different databases available at the B. Davis Schwartz Memorial Library of Long Island University's Post campus and accessing, providing, analyzing, and interpreting data, the assignment required students to provide a company's North American Industry Classification System code (NAICS), the formal name of the company under study (e.g., The Coca Cola Company rather than "Coke."), the ticker symbol, and references according to APA citation style. Students are instructed to access and download the assignment in Word document format and to use the downloaded assignment as a template in answering questions and providing analyses. These steps provide a consistent format to facilitate review of individual assignments.

The Rubric

The students were evaluated according to the *Company & Industry Analysis Rubric* which incorporates ACRL standards. The rubric was developed with a view toward continuous improvement, as well as evolving development of information literacy assessment. The task description was the *Company and Industry Information Literacy Assignment* itself. The rubric required several basic parts to set out the parameters of the assignment. Three scales were established to provide levels of achievement that describe how well or poorly a task was performed (i.e., Excellent, Competent, and Needs Improvement). The Dimensions of the assignment were identified to provide a breakdown of the competencies involved in the assignment. Dimensions, or learning objectives, were easily adapted from the ACRL standards. Finally, descriptions of what constituted each level of achievement were written. Criteria were selected by which performance could be judged – the highest level of expectations; what might

have been accomplished, but was not; and in between, the most common ways in which students fail to meet the highest level.

The Students and Class Characteristics

During the spring 2015 semester, the *Company and Industry Information Literacy Assignment* was administered to three classes: Finance 11, GBA 522, and Finance 31. Finance 11 is an undergraduate course covering principles of finance and one of the first business courses students take in the upper division AACSB accredited College of Management at Long Island University's Post campus. GBA 522 is the corresponding introductory core MBA course required of students who do not have sufficient background in finance principles to entitle them to proceed directly to the Advanced MBA core. Finance 31 is an undergraduate course which covers basic investments and is a course required of all Finance majors. Finance 31 students have already successfully completed Finance 11, the basic principles of finance course, but none of the students have had a library presentation related to business information literacy.

Rubric Results – Finance 11 (Principles of Finance)

It is interesting to note that the undergraduate Finance 11 class had the highest scores followed by the corresponding GBA522 introductory core graduate level finance class. Students in Finance 31, the undergraduate Investments course, did not score as well as had been expected perhaps because of extenuating circumstances.

The Finance 11 class met twice a week with each session lasting 80 minutes. By the time the library information session was scheduled at the 9th class session, the students were familiar with financial statements analysis and trend and cross-sectional analysis of ratios, most of the

content required for the assignment. Each student chose a company to analyze and no two students could analyze the same company. The completed assignment was due the following week. Students had opportunity to discuss their assignment with their classmates and to ask the business information specialist specific questions during the intervening week.

Table 2: Rubric Results - Finance 11 (*Principles of Finance*)

	Excellent	Competent	Needs Improvement	Total Number of Students
Student accesses needed information (ACRL Standard Two)	14 (82%)	0 (0%)	3 (18%)	17
Student identifies types of information (i.e., articles) that answer research question (ACRL Standard Four)	14 (82%)	1 (6%)	2 (12%)	17
Student analyses & evaluates data (ACRL Standard Three)	13 (76%)	2 (12%)	2 (12%)	17
Student thinks critically (ACRL Standard Three)	13 (76%)	2 (12%)	2 (12%)	17
Student properly cites sources (ACRL Standard Five) *	8(89%)	1(11%)	0(0%)	9*
Student communicates ideas clearly and logically (ACRL Standard Four)	12 (70%)	4 (24%)	1 (6%)	17

*Assignment did not require students to provide citation. Numbers represent those students that voluntarily provided them following instruction on APA citation style.

Rubric Results – GBA 522 (Financial Management)

Assessment results for GBA 522, the graduate level MBA introductory core course, were not as robust as its undergraduate Finance 11 counterpart. Classes met once per week for 110

minutes and the library session was scheduled for the fifth session after the instructor had opportunity to teach financial statement analysis content. Each student chose a company to analyze and no two students could analyze the same company. The completed assignment was due two weeks later.

Table 3: Rubric Results - GBA 522 (*Financial Management*)

	Excellent	Competent	Needs Improvement	Total Number of Students
Student accesses needed information (ACRL Standard Two)	9 (56%)	6 (38%)	1 (6%)	16
Student identifies types of information (i.e., articles) that answer research question (ACRL Standard Four)	9 (56%)	6 (38%)	1 (6%)	16
Student analyses & evaluates data (ACRL Standard Three)	5 (31%)	7 (44%)	4 (25%)	16
Student thinks critically (ACRL Standard Three)	4 (25%)	9 (56%)	3 (19%)	16
Student properly cites sources (ACRL Standard Five)	5 (31%)	8 (50%)	3 (19%)	16
Student communicates ideas clearly and logically (ACRL Standard Four)	4 (25%)	5 (31%)	7 (44%)	16

The GBA 522 class cohort consisted of 16 students, 14 of whom were international students where English was not their primary language. This may have impacted results as 44% of the student respondents were rated “Needs Improvement” in the “Student communicates ideas

clearly and logically.” Still, about 80% of the students were rated as either “Excellent” or “Competent” in the remaining five categories.

Rubric Results – Finance 31 (Investments)

Finance 31 is an undergraduate course titled, “Investments,” which was scheduled to meet one evening per week for 160 minutes per session. Finance 11 is a course prerequisite or co-requisite; therefore, students were already familiar with financial statement analysis and ratio analysis, topics traditionally covered in Finance 11. The library presentation was scheduled during the third week of classes. Unfortunately, extreme weather and snow caused the first two Monday classes of Finance 31 to be cancelled. The instructor communicated with the students via email and Blackboard during these first two weeks. Students met face-to-face for the first time in the library during the third week of classes for instruction on information literacy in investments and to review the assignment that had been posted on Blackboard.

Since this was a more advanced class, these students were scheduled to complete their *Company and Industry Information Literacy Assignment* during class time the following week. Thus, the students had one week to practice and become proficient on finding needed information. The companies to be analyzed were to be selected by the instructor. The business information specialist was available to help them with any questions during the intervening week.

This more advanced undergraduate class did well in critical thinking and in communicating ideas clearly and logically with 100% of the students scoring either “Excellent” or “Competent” in these categories.

Table 4: Rubric Results - FIN 31 (Investments)

	Excellent	Competent	Needs Improvement	Total Number of Students
Student accesses needed information (ACRL Standard Two)	10 (50%)	8 (40%)	2 (10%)	20
Student identifies types of information (i.e., articles) that answer research question (ACRL Standard Four)	12 (60%)	6 (30%)	2 (10%)	20
Student analyses & evaluates data (ACRL Standard Three)	4 (20%)	9 (45%)	7 (35%)	20
Student thinks critically (ACRL Standard Three)	13 (65%)	7 (35%)	0 (0%)	20
Student properly cites sources (ACRL Standard Five)	13 (65%)	4 (20%)	3 (15%)	20
Student communicates ideas clearly and logically (ACRL Standard Four)	12 (60%)	8 (40%)	0 (0%)	20

Rubric Results – Consolidated Table of Finance 11, GBA 522, and Finance 31

While the graded rubric results for individual classes may have been impacted by unique class characteristics and circumstances as described above, the consolidated table of results of all three classes provides insights into students' overall success in meeting ACRL standards.

The consolidated table confirms the value of a hands-on information literacy session coupled with an assignment representing a significant portion of student grades as an effective means of assuring desired outcomes. A significant 88% of students scored either Excellent or Competent in accessing needed information (ACRL Standard Two); 90% identified types of articles that answered research questions (ACRL Standard Four); and 83% properly cited sources (ACRL Standard Five).

Student scores were not as robust in meeting the analyzing and evaluating data portion of ACRL Standard Three where just about three quarters of students scored either Excellent or Competent and one quarter (25%) needed improvement. This may suggest that students would benefit from an additional lecture on interpreting financial data, as well as an in-class exercise aimed at data interpretation prior to the information literacy session.

Rubric results reported that in all three classes students were successful in the thinking critically portion of ACRL Standard Three, where they were asked to provide a short report and draw their own conclusions about the viability and strength of the company they analyzed and its outlook for the future. Fifty-seven percent of students scored excellent and 34% were competent. Similarly, rubric evaluation reported that 53% and 32% of students were rated Excellent or Competent in the ACRL Standard Four portion rating communicating ideas clearly and logically.

Table 5: Consolidated Table of Results (FIN 11, GBA 522, FIN 31)

	Excellent	Competent	Needs Improvement	Total Number of Students
Student accesses needed information (ACRL Standard Two)	33 (62%)	14 (26%)	6 (11%)	53
Student identifies types of information (i.e., articles) that answer research question (ACRL Standard Four)	35 (66%)	13 (25%)	5 (9%)	53
Student analyses & evaluates data (ACRL Standard Three)	22 (42%)	18 (34%)	13 (25%)	53
Student thinks critically (ACRL Standard Three)	30 (57%)	18 (34%)	5 (9%)	53
Student properly cites sources (ACRL Standard Five) **	18 (50%)	12 (33%)	6 (17%)	36**
Student communicates ideas clearly and logically (ACRL Standard Four)	28 (53%)	17 (32%)	8 (15%)	53

** Total represents GBA 522 and Finance 31 results only. The earlier dated assignment used for Finance 11 did not require students to provide citation.

SUMMARY AND CONCLUSIONS

Information literacy skills are crucial for students who plan to enter the business world. Business faculty can help develop and strengthen these skills through assignments designed to immerse students in simulated business situations. Collaboration is an important part of this process. Through the use of analytic rubrics with measurable outcomes, faculty can accurately assess the level of proficiency achieved by students for competencies, such as critical thinking, incorporated within the definition of information literacy. Librarians can enrich these student experiences by providing in-depth instruction in research skills. Such an approach is effective in aiding students in developing information literacy skills for finding employment and success in today's workplace.

The analysis of student assignments produces a body of data that can be easily understood and reported to interested stakeholders. This can influence changes or improvements to instruction programs. It is hoped that the results of this study will make faculty and administrators more aware of the importance of cultivating information literacy among undergraduate students and the impact of the collaboration between faculty and librarians in developing this skill set.

Use of rubrics for assessment of student work is not without disadvantages. The initial generation of the rubric can be very time consuming, as can its application. Another disadvantage is that the use of the rubric is heavily dependent upon the course assignment. The rubric will require modification to adapt to specific course requirements.

An analytical rubric with measurable outcomes for rating assignments is an effective way of evaluating information literacy skills and meeting assessment challenges. It is also a means for

fostering continuous improvement in both student skills and the pedagogy used to support students in their development.

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APPENDIX A: COMPANY & INDUSTRY LIBGUIDE HOMEPAGE

The screenshot displays the LIU Post Company and Industry LibGuide homepage. At the top, there is a navigation menu with the following items: Home, Company, Public vs Private Companies, Industry, SWOT, Articles, How-to Guides, Cite It!, and FAQs. Below the navigation menu is a search bar with the text "Enter Search Words" and a "Search" button. The main content area is divided into several sections:

- ASK A LIBRARIAN**: A section for users to ask questions.
- Library Information**: A list of links including Main Library Homepage, Library Hours, Library Maps, Campus Map, and Find Books And More.
- WELCOME TO COMPANY AND INDUSTRY RESOURCES**: A section with four sub-sections:
 - How Do I Get Started?**: A paragraph stating "Use the tabs across the top of this guide to find resources for your projects."
 - What Resources Are Included in this Guide?**: A paragraph stating "This guide provides links to free websites as well as to Library databases."
 - How can I use these resources from off-campus?**: A paragraph stating "Access to digital resources found in this guide is available from both on- and off-campus to current University students and faculty through the Library's homepage. For off-campus access, users with a University ID may simply type in their LIU credentials (the same Username and Password used for accessing e-mail)."
 - Where Can I Go For Additional Information?**: A paragraph stating "See all of the Business LibGuides for accounting, entrepreneurship, management, marketing, and finance."
- BUSINESS INFORMATION SPECIALIST**: A section featuring a photo of Elizabeth Mezick, an Associate Professor at B. Davis Schwartz Memorial Library, LIU Post, Brookville, NY 11548-1300. Her contact information is provided: E-Mail: emezick@liu.edu, Phone: 516-299-2985, Fax: 516-299-4170. The subjects listed are Accounting & Tax, Business, Economics, and General.
- Acknowledgment**: A section stating "This guide was originally created by Martha Cooney."

At the bottom of the page, there is a footer with the following information: "Last Updated: Oct 7, 2015 3:33 PM", "URL: http://liu.cwp.libguides.com/company", "Subjects: Business", "Page: business", and "Print Page". The browser's address bar shows "liu.cwp.libguides.com/company". The browser's title bar shows "Home - Company and Ind...". The browser's status bar shows "2:07 PM 10/27/2015".

APPENDIX B
COMPANY AND INDUSTRY ANALYSIS ASSIGNMENT

Your Name: _____ **Date:** _____

Select any **public company** of your choice.

Company Name: _____

Download this Word document. Use it as a template to provide answers to the following questions that will help you create an analysis of your company. Library resources appropriate for locating the information you will need are identified within each question.

1. Look up your company in *Hoover's Online* database and provide the following:
 - a. Company's primary industry
 - b. Primary *North American Industry Classification System (NAICS)* code number and description
 - c. Top competitors:

2. Using the *Mergent Online* database, conduct a search for your company. On the company's homepage, click on the "Company Financials" tab. Select the link for "Ratios" beneath the "Company Financials" tab.
 - a. Select any three ratios (e.g., ROA, ROI, Current, Quick, etc.).
 - b. Create a table that presents the dates and ratios for the past three years.
 - c. Comment on both the trend in and your interpretation of the ratios over the three year period.

3. Lookup the report for your **company** in the *Value Line* database. **Attach a copy of your company's Value Line report to your assignment.**
 - a. What is the date of the company report?
 - b. Compare the most recent actual annual high and low stock price data listed at the top of the *Value Line* company report with the prices for the year 2008. Comment on the differences.
 - c. Provide the *Value Line* rankings for the following items.
 - Timeliness:
 - Safety:
 - Technical:

Briefly interpret what these rankings say about investing in your company.*

- d. Find a *Value Line* **industry** report on the industry in which your company operates. **Attach a copy of the Value Line industry report to your assignment.**
 - What is the date of the industry report?
 - What factors, concerns, or issues are currently impacting this industry?

*Hint: For help in understanding the rankings, click on [View Our Guides](#) under the heading *Need Help?* on the bottom left-side of the *Value Line* homepage. Look for the "Definitive Guide to the Value Line Ranking System."

4. Using the *Business Source Complete* database, perform a search on your company to obtain articles about it.
 - What is the most recent "buzz" about your company? What is being discussed in newspapers and magazines about your company? (e.g., new product announcements, changes in top management, earnings announcements, court cases, etc.)
 - Provide 2-3 references for the articles you reviewed using American Psychological Association (APA) style.
5. Based upon the material you obtained on your company, and its industry, provide a short report (100-200 words) of *your own conclusions* about the viability and strength of the company and its outlook for the future.

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APPENDIX C COMPANY & INDUSTRY ANALYSIS RUBRIC

Dimension	Assignment Question	Excellent	Competent	Needs Improvement
Student accesses needed information (ACRL Standard Two)	All Questions	Accesses all relevant information sources.	Accesses some relevant information sources.	Has difficulty accessing relevant information sources.
Student identifies types of information (i.e., articles) that answer research question (ACRL Standard Four)	Question 4	Identifies types of information that answer research question.	Identifies types of information that partially answer research question.	Has difficulty identifying types of information that answer research question.
Student analyses and evaluates data (ACRL Standard Three)	Questions 2c, 3b & c	Interpretations & conclusions are fully supported by the data.	Interpretations & conclusions are partially supported by the data.	Interpretations & conclusions are not supported by the data.
Student thinks critically (ACRL Standard Three)	Question 5	Synthesizes information from sources with own ideas to draw conclusions in a cohesive and clear manner.	Synthesizes information from sources, but does not blend it well with own ideas to draw conclusions.	Uses information, but it is fragmented and not synthesized. No conclusions provided.
Student properly cites sources (ACRL Standard Five)	Question 4	All sources are cited following APA style guide conventions.	Some , but not all, sources are cited following APA style guide conventions.	Sources were not cited following APA style guide conventions.
Student communicates ideas clearly and logically (ACRL Standard Four)	All Questions	<ul style="list-style-type: none"> • Demonstrates excellent use of grammar and language. • Organizes content to meet the purpose and objectives of the assignment with detail and clarity. • Clear articulation of conclusions. 	<ul style="list-style-type: none"> • Demonstrates appropriate use of grammar and language. • Organizes content to meet the purpose and objectives of the assignment. • Some articulation of conclusions. 	<ul style="list-style-type: none"> • Demonstrates minimal use of grammar and language. • Organization of content does not meet the purpose and objective of the assignment. • Conclusions are not clear.

Adapted from: (1) AAC&U VALUE Information Literacy Rubric Revision – Langridge. Retrieved from http://railsontrack.info/rubrics_details.aspx?wkid=51&catid=7. (2) Makani-Lim, B., Agee, A., Wu, D., & Easter, M. (2014). Research in action: Using rubrics to assess information literacy skills in business education. *Journal of Business and Educational Leadership*, 5, 3-17.

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