

TO: Charles E. Kratz
Dean of the Library and Informational Fluency

FROM: John A. Ruddy, CPA, CFA

DATE: March 11, 2014

SUBJECT: 2013/2014 Information Literacy Research and Report

I. Introduction

The below is a follow-up report in regards to the information literacy proposal submitted on November 1, 2013 (See Appendix A- Information Literacy Proposal 11.01.13). It is also a follow-up to your letter of response dated December 10, 2013 (See Appendix B- CK_InfoLitStipend). This report details the efforts and results to integrate information literacy into the cross listed accounting course in the Kania School of Management (KSOM) titled "ACC 463" - Financial Statement Analysis & Research and "ACC 527" - Financial Reporting and Research. The course was offered and completed during Intersession 2014. Herein, the course is referred to as "ACC 463/527".

As you are aware, information literacy regards the ability to know when there is an information need. According to the 1989 Presidential Committee on information literacy, it also regards the ability to locate, evaluate and effectively use needed information. In regards to ACC 463/527, the primary information literacy goal was to strengthen student research skills concerning financial statement and company financial analysis. However, the information literacy skills obtained by students during the course might also be applied more broadly in other facets of student life. It might also help students deal with the ever increasing technological availability within society. Whether an information need involves academic, personal or professional topics, students face an overwhelming selection of information sources and an astounding amount of data. This information "overload" forces students to 1. increase the precision of their information searches and 2. determine the quality of the information received. Information users must filter data sources to determine the reliability and overall quality of information. By increasing information literacy skills, students are preparing themselves for a lifelong pursuit of learning and knowledge. As the standards for higher education inform, this is central to the mission of higher education.

This remainder of this report is organized as follows: Section I provides a brief introduction on Information Literacy as well as a layout of the remainder of the paper. Section II details the University's inter-college collaborative efforts on matters pertaining to information literacy for ACC 463/527. Section III details the ACC 463/527 course requirements and components that pertain to information literacy. Section IV provides the information literacy results from student entrance and exit questionnaires. This includes both summary statistics and an inferential statistical analysis. Section V provides the limitations of the current research as well as the implications for future research. Section V also includes an overall report summary and discussion of information literacy issues. Lastly, six appendices (Appendix A through Appendix F) have been appended to the report and are referenced throughout the paper.

II. Library and KSOM Collaboration Efforts

To incorporate information literacy into ACC 463/527, Professor Betsey Moylan provided information literacy background information and provided student access to at least six financial accounting and business databases. Database examples include the American Accounting Association (AAA) database, Business Source Elite, ProQuest Accounting & Tax Database and the Dun & Bradstreet Key Business Ratios. The following link provides a more complete listing and details of the materials to which Professor Moylan provided access: <http://guides.library.scranton.edu/financialreporting>. Professor Moylan also built links to content, which detailed how to conduct financial accounting research. She added links to ACC 463/527 via its Angel resources page. The links provided students with information on the content of peer reviewed journals and how to utilize the Inter-library loan (ILLIAD) system. During the course, the ACC 463/527 students utilized the links to conduct research. Lastly, Professor Moylan provided materials on information literacy standards and she made herself available to explain facets of information literacy. Professor Moylan availed herself and as a result, she met with the researchers several times in December and January. During the meetings and through email follow-ups, Professor Moylan provided guidance as to how information literacy could be incorporated into ACC 463/527. The results of her efforts are included in the below sections.

III. Course Requirements

To complete the ACC 463/527 course requirements, students were required to submit a total of ten assignments. The assignments were split into three categories: 1. Questionnaires on Information Literacy - at the course onset and completion, students responded to twenty statements regarding their research abilities; 2. Research reports - once per week for four weeks students conducted research by reviewing accounting and financial topics in peer reviewed journals; and 3. Financial Statement and Company Analysis - once per week for four weeks, students applied the theory derived from their research reports to analyze a company's financial statements. The following (Table 1) describes each of the required submissions:

Description	Number
Entrance and Exit Questionnaire on Research Abilities	2
Research Efforts and Reports on Financial Topics	4
Financial Analysis Reports on Company Financial Statements	4
Total Number of Assignments Submitted	10

Details for each of the above three submission categories are as follows:

1. *Entrance and Exit Questionnaires* were provided to students via an Excel file posted to the Angel course website. The students completed the questionnaires electronically (See Appendix C - EntranceExitILQues) and then submitted the electronic files via an Angel drop box. The EntranceExitILQues questionnaire file is comprised of 20 Likert items. The questionnaires were based on the research of Dr. Rodney Marshall of Eastern Illinois University. Dr. Marshall has developed research and questionnaires to measure information competency. The questions are similar to selected questions from Dr. Marshall's forty question competency assessment. A complete listing on Dr. Marshall's forty question assessment can be found at the following web address: <http://jfmuller.faculty.noctrl.edu/icai.pdf>.

The ACC 463/527 entrance and exit questionnaires polled students on how they felt about items related to assignments and research. The student selected answers ranging from one for "strongly disagree" to seven for "strongly agree". Student answers depended on the student's feeling pertaining to the question. For example, question one

asked students "When given a research assignment, I feel confident in determining the topic that I need to search". The following (Table 2) provides a copy of the Likert scale:

1	2	3	4	5	6	7
Strongly Disagree			Neither Agree nor Disagree			Strongly Agree

Both an entrance and exit questionnaire format was utilized to determine changes in student feelings about research and assignments from the beginning to completion of the course. Between the completion of the entrance and exit questionnaires, students were provided research training. First and as was indicated above, the students were provided with Professor Moylan's on-line guidance on conducting financial research. Second, voluntary workshop sessions with students were held 1-2 times per week in Brennan Hall's Alperin Financial Center. Lastly, the workshop sessions were supplemented with individual tutorial sessions. Details on the results of the entrance and exit questionnaires are provided in Section III below titled "Information Literacy Results".

2. *Research Efforts and Reports* involved database searches and subsequent research efforts on various financial topics of the student's selection. Each student selected a different topic to research each week. The instructor provided a form (See Appendix D -Research_Question_Form), which contained detailed questions concerning the student's weekly research topic, the databases searched, the search strings, revised search strings and the peer reviewed journals searched. Once students completed the questions on the form, they had to create a 300 to 500 word summary / write-up of the peer reviewed journal articles that they had reviewed. The assignments were submitted via Angel drop box on Wednesday of each week.

3. *Financial Analysis Reports* were the final ACC 463/527 course requirement. This category involved applying the current week's research (the above defined second course requirement) to an analysis of an actual company. Like all other assignments in the course, the company analysis assignments were submitted via Angel drop box. The company analysis assignments were due four days after submitting the week's research topic. This allowed students the additional time needed to apply the research material.

Different financial statement analysis material was covered in each of the course's four weeks. The submissions were graded using the KSOM rubric for writing intensive courses (See Appendix F -Writing Rubric). The course materials mirrored the material provided by the course textbook, *Financial Reporting, Financial Statement Analysis and Valuation: A Strategic Perspective*, 7th Edition, Cengage Learning by Wahlen, Baginski and Bradshaw. The course material covered each week, as taken from the course syllabus (Table 3), was as follows:

Date	Topic & Material	Corresponding Textbook Chapters
01/06-01/12	Introduction, Company Overview, Industry Analysis and Ratio Analysis	Chapters 1, 2, 4 and 5.
01/13-01/19	Statement of Cash Flows: Financing, Investing and Operating Activities	Chapters 3, 6, 7 and 8.
01/20-01/26	Pro Forma Analysis: Dividend Discount Models	Chapters 10 and 11.
01/27-02/01	Cash Flow vs. Earnings Based vs. Relative Value Approaches to Valuation	Chapters 12, 13 and 14.

Utilizing the above table to provide an example, students had to conduct research on a topic germane to Chapters 1, 2, 4 and/or 5 in Week 1 of the course. Examples of an acceptable Week 1 topic included an overall company analysis, industry analysis or ratio analysis. Subtopics were also allowed. Whatever topic the student selected, the Week 1 research report material was incorporated into the Week 1 company analysis. Thus, students researched a given topic in the first half of the week and then applied to the theory to a company analysis in the latter half of the week.

Overall, completion of the three categories of course requirements allowed students the opportunity to determine an information need, conduct research into peer reviewed journals and then apply the knowledge to a "hands on" company analysis. The three categories of requirements are consistent with what was included in the November 1, 2013 information literacy proposal (Appendix A - Information Literacy Proposal 11.01.13). The results of the instruction provided and experience obtained by students during ACC 463 / 527 indicate that the course increased student information literacy. Details of the results are provided below in section IV.

IV. Information Literacy Results

Background - Nine students participated in the 2014 Intercession ACC 463/527 course. All nine of the students completed the entrance questionnaire and all nine of the students completed the exit questionnaire. Each of the questionnaires comprised 5% of the student's final grade and thus in total, the questionnaires combined to be worth a total of 10% of each student's final grade. The questionnaire submissions were reviewed for completeness and full credit was awarded for a complete submission. All of the submissions were evaluated and determined to be sufficiently complete.

Summary Statistics - As was noted above, an entrance and an exit questionnaire were provided to each student at the beginning and end of the course. A complete sample questionnaire can be located in Appendix C. Summary statistics of the entrance and exit questionnaire are included in Appendix E. The summary statistics include four items: 1. the mean response of the entrance and exit questionnaire: 2. the variance of the entrance and exit questionnaire responses; 3. the difference in the mean of the entrance and exit questionnaire responses; and 4. the correlation coefficient between the entrance and exit questionnaire responses. An explanation of the results provided in Appendix E is as follows: when the nine students completed the entrance and exit questionnaires, they could respond with an answer ranging from 1 for "strongly disagree" to 7 for "strongly agree". Using question 1 as an example, the mean of the nine responses was 5.11 (column 1) and the variance was 0.61 (column 2). When the nine students answered the same question on the exit questionnaire, the mean response was 6.00 (column 3) and the variance was 0.75 (column). Thus, the question one difference in the averages between the entrance and exit questionnaire was 0.89 (column 5). This indicates improvement in student feeling concerning the ability to conduct topic searches. Similarly, students showed improvement in 17 of the 20 questionnaire Likert items.

In the sixth and last column of Appendix E, a Pearson's correlation coefficient was calculated between the entrance and exit questionnaire responses for each question. The correlation coefficient measures the association of movement between two variables. To measure the overall association of the entrance and exit questionnaire responses, each student's response for each of the 20 questions on the entrance questionnaire was paired up with the same student response on the exit questionnaire. The average correlation

coefficient across the twenty questionnaire responses was approximately 66.5%. This relationship is conveyed graphically in Figure 1 below, which contains a scatter plot diagram of all the responses for all twenty questions (180 data points). The question with the highest correlation between the entrance and exit questionnaire responses was number 15, which had a correlation coefficient of approximately 85.7%. This is conveyed graphically below in Figure 2 below. Both the question 15 and overall results indicate a high degree of association between the entrance and exit questionnaire responses.

Figure 1 - Scatter Plot Diagram with line of best fit

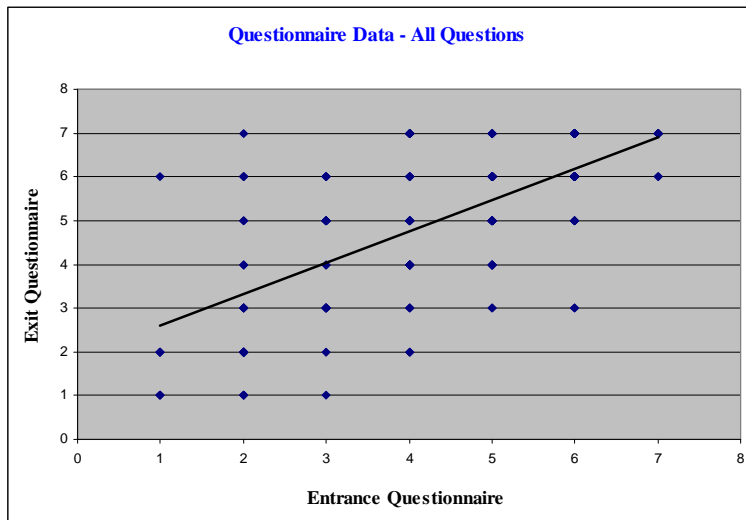
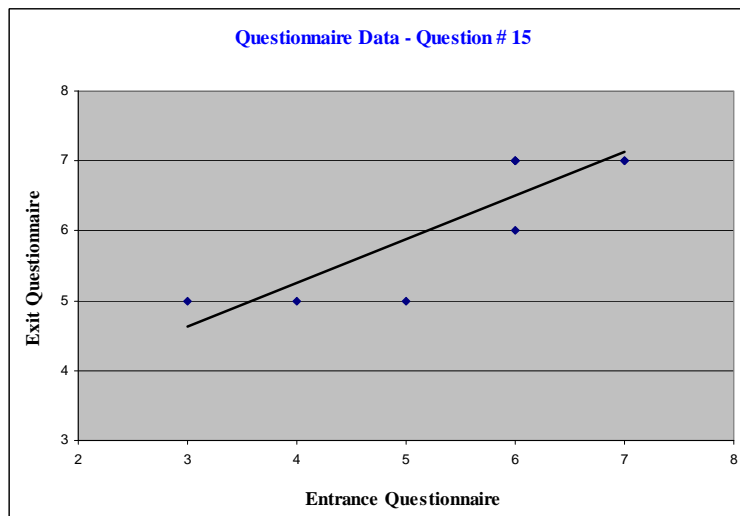


Figure 2 - Scatter Plot Diagram with line of best fit



The high degree of association between the entrance and exit questionnaire responses indicates that pre-existing student differences explain much of the variable differences. The relation between entrance and exit questionnaire responses impacts the appropriate statistical methods used to analyze the data. This is one of the topics covered in the following section on inferential statistics.

Inferential Statistics - While the above summary statistics quantify the results of the entrance and exit questionnaires as well as the direction of change between differences in the entrance and exit questionnaire, they do not indicate as to whether the response differences between the entrance and exit questionnaire are statistically significant. To determine statistical significance, we need to utilize inferential statistics.

As was noted above, a given student's entrance and exit responses were correlated with each other. Stated differently, pre-existing individual differences explain much of the variance between the entrance and exit questionnaire responses. Because pre-existing differences are extraneous to the question of whether students increased their information literacy during ACC 463/527, the entrance and exit questionnaire responses should not be treated as independent samples. If the data were treated as independent, the data's standard deviation would be overestimated and the significance of observed deviations would be understated. The extraneous differences were therefore eliminated by utilizing a within subjects or repeated measures t-test. To accomplish this, we examine only the change of response between the entrance and exit questionnaire. In other words, we do not treat the data samples as independent.

When conducting the significance testing of the questionnaire data, we take the default position that there's no relationship between the two measurements. In the case of ACC 463/527, we assume that providing students with research tools, weekly seminars and research assignments will not enable them to increase their comfort level with research and assignments. In other words, we assume that the mean of the exit questionnaire data will be less than or equal to the mean of the entrance questionnaire data ($\mu_2 - \mu_1 \leq 0$). The alternative hypothesis is that the research tools, weekly seminars and research assignments will enable students to increase their comfort level with research and assignments. In other words, we assume that the mean of the exit questionnaire data will be greater than the mean of the entrance questionnaire data ($\mu_2 -$

$\mu_1 > 0$). This indicates that only an increase in proficiency is considered extreme and unlikely. It also means that it's highly unlikely that providing students with training and research experience will actually decrease the students' information literacy. As we are only concerned with increases in research proficiency, it means that a one tailed test of statistical significance is appropriate.

Because the sample size is small ($n=9$) and the standard deviation of the population is unknown, the researchers utilized a student's t-distribution to assess the statistical significance of the difference between the sample means. Using a sample size of nine (the number of students in ACC 463/527) results in eight ($n-1$) degrees of freedom. When examining a one tailed student's t-distribution with eight degrees of freedom at a 5% significance level, we are stating that with a 95% confidence that the results are a product of something other than chance. Stated differently, the confidence level indicates a 95% reliability of our sample estimate. When utilizing a student's t-distribution with 8 degrees of freedom at a 5% significance level, the results need to be 1.86 standard deviations greater than the mean for the result to be considered statistically significant.

When the change in response from the entrance questionnaire to the exit questionnaire was examined, nine out of twenty questions showed statistical significance at the 95% confidence level. If the confidence level were reduced to 90%, fifteen of the twenty questions would have shown statistical significance. Conversely, if we had increased the confidence level to 99%, only four of the questions would have indicated statistical significance. When we consider the 95% confidence level, it means that there is a 95% chance that that the increase in average student response was due to factors other than pure chance. For the nine questions that show statistical significance at the 95% confidence level, we can reject the null hypothesis ($\mu_2 - \mu_1 \leq 0$) that the training seminars and assignments failed to increase student information literacy. The data suggests that there is only a 5% likelihood that pure chance caused an increase in student response level. This occurred for questions 1, 3, 8, 9, 10, 11, 15, 17 and 19. For the eleven questions that did not show statistical significance, we fail to reject the null hypothesis. This occurred for questions 2, 4, 5, 6, 7, 12, 13, 14, 16, 18 and 20. In

summary, 45% (nine out of twenty) of the Likert items showed statistical significance at a 95% confidence level for an increase in information literacy during ACC 463/527.

V. Summary, Limitations and Implications for Future Research

The above information literacy research was conducted during a course held in January 2014. The course requirements involved three facets: data collection via questionnaires, student research into peer reviewed journals and research application by analyzing company performance. While the research involved only nine students, the data collected prior to and after the course suggest an improvement in information literacy. More specifically, both the summary and inferential statistics of the entrance and exit questionnaires data indicate that students improved their information literacy during ACC 463/527. While the researchers obtained positive results when conducting their research, several limitations exist in the research, which are detailed as follows:

The first and most obvious limitation of the research was the small sample size of only nine students. While the nine students in the course showed improvement in research capabilities, the question as to whether similar results would be achieved across the larger sample sizes should be considered. Potential impacts include whether the small class size may have enabled students a higher degree of comfort and or increased access to instruction during the course. This limitation could be addressed by increasing the class size when attempting to replicate the results achieved during the ACC 463/527 course.

A second research limitation was that the results were obtained during a one month focused time period between the fall and spring semesters ("Intercession"). The question as to whether the results could be achieved during either the fall or spring semesters needs to be considered as well. Several of the students commented on how having the research course without having to be concerned with four or five other courses enabled them to complete the training more easily. This limitation could be addressed by repeating the questionnaires and training during the spring and fall semesters. The question as to whether the researchers can replicate the results achieved in the above research needs to be considered. The researchers plan to attempt this during the Spring 2014 semester.

Lastly, all nine of the students have a major degree of study in accounting (accounting is at least one of each student's major fields of study). This means that the students were not a random sample of the student population and therefore may not be representative of the student population. Complicating the issue is that the students elected to take the course during Intercession. This "selection bias" raises the question as to whether intercession students are representative of the average student. If the ACC 463/527 students were not representative of the student population, it would preclude generalization of the information literacy results from the sample to the overall student population.

In closing, information literacy concerns whether students have the skills and desire to conduct a quest of life long learning and research once they are finished with their formal education. The research conducted during ACC 463/527 contains results that indicate that increasing information literacy during a short time period may be possible. The purpose of the research was to integrate information literacy into an academic course and to develop the information literacy skills of students. While the above research shows promising results, the research might be expanded to determine if the work can be repeated across larger sample sizes, longer course schedules and different courses of study.

Appendix A - Information Literacy Proposal

TO: Charles E. Kratz, Dean of the Library and Information Fluency

FROM: John A. Ruddy, CFA, CPA
KSOM, Accounting Faculty Specialist

DATE: November 1, 2013

SUBJECT: Information Literacy Proposal

Please consider the below proposal with respect to the requirements for the Information Literacy Stipends that are defined at on the University's website at the following web address:

<http://www.scranton.edu/academics/wml/infolit/stipends/index.shtml>.

The stipend will apply to the following cross listed course: ACC 463 - Financial Statement Analysis & Research and ACC 527 - Financial Reporting and Research. The combined course is scheduled to be taught during Intercession 2014. The course is mandatory for students who major in forensic accounting and an elective for students who major in general accounting. As the University's 2013-2014 undergraduate course catalog indicates, the course is designed to provide students with the skills necessary to conduct financial research. More importantly, the course has the potential to provide students with a broader research focus, which would include the skills needed to assess, locate, retrieve, and utilize financial information. At the conclusion of the course, each student should be able to :

1. Research a given financial topic using peer reviewed journals. Potential areas for review include how to assess future company performance using historical accounting data, analyzing company performance from the perspective of a company shareholder in contrast to company lender. Lastly, the research could also include the limitations of financial statement analysis.

2. Apply the research and theory by analyzing a current company's financial statements. This would include utilizing trend analysis, ratio analysis as well as horizontal and vertical analysis to analyze company performance.

3. Write a research report which includes the analysis conducted in step 2. This would include explaining the importance of comparisons and trends in financial statement analysis.

As part of the proposal, the instructor will collaborate with Mrs. Betsey Moylan to develop aspects of the course. More specifically, the proposal includes:

1. At the beginning of the course, the students will have to state the specific research objective that they plan to pursue with respect to their assigned company. As the students progress through the course, the students will have to document the databases that they search, the search strings utilized to locate literature sources, any modification to the original research questions and a preliminary list of articles considered for review.
2. The course will require at least three research reviews on given financial topics. Each research review will require students to analyze peer-reviewed articles on given financial topics. After obtaining information on each research topic, students will apply the research to the analysis of an actual company's financial data.
3. For the course's final submission, students will combine the above referenced research reviews along with an overall assessment of the company. The combined assessment and analysis will satisfy the requirement for the course's final paper.

All three of the above items will be submitted to the Instructor for his review. The quality, thought and depth of each student's research will determine each student's final grade.

To assess the effectiveness of the course's information literacy, the instructor plans to assess: 1. questionnaire data from each student upon entrance and exit from the course; and 2. student submissions, which would include the final research report as well as the research reviews. To conduct the assessment, the instructor will develop a grading rubric to assess and grade each submission. In addition, the instructor plans to utilize the rubric recently developed by the University's faculty for writing intensive courses.

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December 10, 2013

CAMPUS MAIL

Mr. John Ruddy
Faculty Specialist
Brennan Hall 316

Dear Mr. Ruddy,

Your information literacy stipend proposal has been reviewed by the Library Advisory Committee's Information Literacy Subcommittee. As Dean of the Library and Information Fluency, it is my pleasure to inform you that you have been selected to receive one of the \$1,000 stipends. I hope it will be useful to you as you integrate information literacy into your course.

By accepting this stipend you agree to:

- Consult with Prof. Betsey Moylan on this project. *X*
- Develop student learning outcome(s) on information literacy. *X* → *Handout*
- Complete the project for the Spring 2014 term. *X*
- Provide the Library Advisory Committee with a written report at the end of the project. *X*
- Allow the Library to post your report on the Library's Web site and to use excerpts for publicity purposes. *X*

I hope the consultation with your chosen Library Faculty member goes well. This new partnership will make a valuable contribution to information literacy and student learning.

The stipend will be awarded in full at the completion of the project and the submission of a written report. *X* If I can be of additional assistance, please contact me at (570) 941.4008.

Again, congratulations on receiving this stipend.

Sincerely,

Charles E. Kratz

Charles E. Kratz
Dean of the Library & Information Fluency

cc: Dr. Harold Baillie, Provost/VPAA *X*
Dr. Michael Mensah, Dean Kania School of Management *X*
Dr. Daniel Mahoney, Accounting Department Chair *X*
Prof. Betsey Moylan, Library *X*

Appendix C -EntranceExitLQues.xls for ACC 463/527

The following questionnaire contains questions concerning schoolwork, assignments and research. Please highlight, circle or mark the number that represents how you feel about each question.

	1	2	3	4	5	6	7
	Strongly Disagree			Neither Agree nor Disagree			Strongly Agree
1	When given a research assignment, I feel confident determining the topic that I need to search.						
	1	2	3	4	5	6	7
2	I am, at times, uncertain because the topic that I want to research is unclear to me.						
	1	2	3	4	5	6	7
3	I can take a complex or multi faceted topic and simplify it into more understandable parts.						
	1	2	3	4	5	6	7
4	At the start of the research project or assignment, I feel confused and do not know where to begin.						
	1	2	3	4	5	6	7
5	When given a research assignment, I am unsure as to how much information is needed for the assignment.						
	1	2	3	4	5	6	7
6	I know the difference between "Primary" and Secondary" data / information sources.						
	1	2	3	4	5	6	7
7	I get confused because of the many different information formats (print, electronic, graphic etc).						
	1	2	3	4	5	6	7
8	I am certain when I can and cannot use information that I locate on a given topic.						
	1	2	3	4	5	6	7
9	I know how to broaden/narrow the scope of a search using Boolean operators (AND, NOR and OR) and truncation.						
	1	2	3	4	5	6	7
10	I know how to broaden or narrow the scope of a search using Boolean operators.						
	1	2	3	4	5	6	7
11	It is easy to interpret the results of a given database search.						
	1	2	3	4	5	6	7
12	I am NOT sure how to use an Index to facilitate a search (catalog, database).						
	1	2	3	4	5	6	7
13	I understand the organization of materials located in libraries.						
	1	2	3	4	5	6	7
14	Web search engines are unreliable.						
	1	2	3	4	5	6	7
15	I understand and feel comfortable with the difference between and abstract and an article.						
	1	2	3	4	5	6	7
16	I can use many different types of media (print, video, pictures, graphs, etc).						
	1	2	3	4	5	6	7
17	I confidently spot inaccuracies, errors and mis-statements in mass media information.						
	1	2	3	4	5	6	7
18	The information that I find is so confusing that I am unsure if I can use it.						
	1	2	3	4	5	6	7
19	The information that I use is complete and reliable.						
	1	2	3	4	5	6	7
20	Sometimes my research question/questions change based on the information that I find.						
	1	2	3	4	5	6	7

Appendix D -Research_ Question_Form

ACC 463/527 Research Question Form –the below form has been provided to assist you in conducting and documenting your research questions and efforts.

1. **What is/was the initial research topic and/or question that you would like to pursue?**

2. **What databases and / or journals did you search?**

3. **What were the search words and/or search strings that they used to locate peer reviewed journals in the databases?**

4. **Assuming you modified your original research question, what were the modified research questions that you chose in response the peer reviewed journals you located in step #3?**

5. **What is the list of articles that you are considering for review (consider a minimum of 3 and a maximum of 5 that were issued in the last 10 years)?**
 - a.
 - b.
 - c.
 - d.
 - e.

6. **What are the beginning and end dates of the literature search?**

7. **In the space provided on the next page, summarize the above 3-5 peer reviewed journal articles and how the articles will help you conduct this week's company analysis.**

Appendix E - Questionnaire Summary Statistics

Question Number	Entrance Questionnaire		Exit Questionnaire		Difference in Averages	Correlation Coefficient
	\bar{x}	σ^2	\bar{x}	σ^2		
1	5.11	0.611	6.00	0.750	0.89	73.9%
2	3.33	2.000	4.00	2.250	0.67	70.7%
3	5.22	0.444	5.78	0.944	0.56	47.2%
4	3.67	2.750	3.44	1.278	-0.22	28.9%
5	4.22	2.694	3.56	1.278	-0.67	73.4%
6	6.00	0.750	6.44	0.528	0.44	59.6%
7	2.78	2.444	2.44	2.278	-0.33	52.4%
8	4.22	2.194	5.67	0.250	1.44	28.1%
9	3.78	1.194	6.11	0.861	2.33	52.0%
10	3.67	1.750	6.22	0.694	2.56	41.6%
11	4.33	1.750	5.89	0.611	1.56	-20.1%
12	2.44	0.778	2.89	3.361	0.44	57.6%
13	5.33	0.750	5.22	0.944	-0.11	64.4%
14	2.78	1.194	3.22	1.444	0.44	70.8%
15	5.56	1.778	6.22	0.944	0.67	85.7%
16	5.67	1.250	6.33	0.500	0.67	31.6%
17	4.11	1.611	5.11	1.361	1.00	41.3%
18	3.11	1.861	3.00	2.000	-0.11	77.7%
19	5.22	0.444	5.67	0.500	0.44	70.7%
20	5.67	0.750	6.11	0.861	0.44	51.8%

The average of the correlation coefficients for all 20 questions equals 66.47%

Appendix F - Writing Rubric

Writing Rubric

TRAIT	Does Not Meet Expectations 1	Meets Expectations 1.5 2 2.5	Exceeds Expectations 3	Score
Logic & Organization	Does not develop ideas cogently, uneven and ineffective overall organization, unfocused introduction or conclusion.	Develops unified and coherent ideas within paragraphs with generally adequate transitions; clear overall organization relating most ideas together, good introduction and conclusion.	Develops ideas cogently, organizes them logically with paragraphs and connects them with effective transitions. Clear and specific introduction and conclusion.	
Language	Uses words that are unclear, sentence structures inadequate for clarity, errors are seriously distracting.	Word forms are correct, sentence structure is effective. Presence of a few errors is not distracting.	Develops concise standard English sentences, balances a variety of sentence structures effectively.	
Spelling and Grammar	Writing contains frequent spelling and grammar errors which interfere with comprehension.	While there may be minor errors, the writing follows normal conventions of spelling and grammar throughout and has been carefully proofread.	The writing is essential error-free in terms of spelling and grammar.	
Development of Ideas	Most ideas unsupported, confusion between personal and external evidence, reasoning flawed.	Supports most ideas with effective examples, references, and details, makes key distinctions.	Explores ideas vigorously, supports points fully using a balance of subjective and objective evidence, reasons effectively making useful distinctions.	
Purpose	The purpose and focus of the writing are not clear to the reader.	The writer has made good decisions about focus, organization, style, and content so as to achieve the purpose of the writing.	The writer's decision about focus, organization, style, and content fully elucidate the purpose and keep the purpose at the center of the piece.	