San Jose State University

From the SelectedWorks of Valeria E. Molteni

January, 2015

Student Confidence/Overconfidence in the Research Process

Valeria E. Molteni, *San Jose State University*
Emily K. Chan, *San Jose State University*

bepress™

Student Confidence/Overconfidence in the Research Process

Abstract

Librarians with instructional responsibilities will base information literacy session content upon course syllabi and teaching faculty's assessments of student readiness. Often students' self-perceived competencies do not factor into the lesson planning process. The aim of this project is to collect the levels of self-confidence for a group of students who are primarily entering health care professions. This study observes students' levels of self-confidence in performing research-related activities and their corresponding ability to correctly answer content questions for those tasks. Students' self-confidence ratings are not reliable indicators for information literacy competence. The confidence levels for information literacy tasks of students entering health care professions may have clinical implications for future practice.

Introduction

Librarians often design lesson plans predicated upon a set of assumptions regarding the information literacy levels of the students. Those presumptions are generally guided by conversations with the teaching faculty, demographic data from the Office of Institutional Research, course sequencing considerations, and the assignments upon which the session is based. Often students' self-perceived competencies do not factor into the lesson planning process. This study observes students' levels of self-confidence in performing research-related activities and their corresponding ability to correctly answer content questions for those tasks. This data could provide a baseline of students' self-identified areas for improvement and competencies, which could be targeted by librarians for inclusion or greater emphasis during information literacy sessions.

The investigation centered upon upper division students (i.e., juniors and seniors) taking a mandatory writing course in the area of health sciences. The assignments from this course promote the development of research skills using an evidence based practice framework, while moving students from using general databases to subject-specific resources. Oftentimes, this course may be the first occasion where the students have the opportunity to link health care

literature to clinical practice. The authors of this study hope to contribute to the literature by examining if student confidence levels serve as reliable indicators for competence.

Literature Review

Evidence Based Practice and Its Connection to Information Literacy

Evidence Based Practice (EBP) "is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996). It was first defined by medical doctors in the 90's (Guyatt 1991 and Evidence-Based Medicine Working Group, 1992). In the last twenty years, the theoretical framework of EBP has been implemented in almost in every health science related discipline. A primary tenet of EBP requires that health care practitioners effectively and thoroughly search the literature to support clinical practice. The emphasis on evidence, as provided by the literature, requires strong information seeking skills.

Wahoush and Banfield (2013) highlighted the influence of EBP behaviors among experienced nurses, recent nursing graduates, and nursing students at a medium-sized university in Canada. They concluded that recent graduates employ more electronic information sources and resources to support clinical practice than their more seasoned counterparts. Hider, Griffin, Walker and Coughlan (2009) compared the differences in information seeking behaviors between medical doctors and dentists and other health professionals; medical doctors and dentists more frequently employ information resources and libraries than nurses and allied health staff, who tended to consult coworkers and experts in their daily practice. This reliance on experts, instead of the literature, can have clinical implications. The authors further commented that the lack of consistently searching and using the literature for decision-making could result in additional deterioration of information literacy skills.

Evidence based practice demands the acquisition of complex skills that cannot be acquired in a short period of time. Indeed, Dee and Stanley (2005) observes that health professionals have to deal with very complicated logistical daily practices, which, in the clinical setting, does not allow a great amount of time to dedicate for research. Furthermore, McKnight (2006) noted that critical care nurses thought that it was unethical to "read" material during their shifts. This is important because it indicates the lack of intersection between clinical duties and literature-informed practice. To promote EBP in professional practice, discipline-specific

information literacy skills should be fostered within the university curriculum while performing clinical experiences.

Academic and health sciences librarians devote a significant portion of instructional sessions to the EBP process with students in the medical and health sciences related areas. Boruff and Thomas (2011) reported on the experience of a librarian and an instructor who designed a specific activity integrating EBP and information literacy skills for physical and occupational therapy students. Several authors have published articles focusing on the teaching of EBM skills to medical students with the participation and collaboration of a librarian (Cyrus, J. W. W., Duggar, D. C., Woodson, D., Timm, D. F., Mclarty, J. W., Pullen, K., Banks, D. E., 2013; Gagliardi, J. P., Stinnett, S. S., & Schardt, C., 2012; Ilic, D., Tepper, K., & Misso, M., 2012; Kealey, S., 2011; Keim, S. M., Howse, D., Bracke, P., & Mendoza, K., 2008). These research articles observe and illustrate the possibilities that librarians may have in assuming greater responsibilities in students' development of EBP skills. Dorsch and Perry (2012) conducted a literature review on the intersection of EBP and information literacy in both library and medical professional literature; they concluded that this topic is of similar interest for the two professional groups. While there are many studies involving EBP, librarians, and other medical professionals or teaching faculty, the authors were unable to find any studies that measured students' self-confidence in performing the discrete information literacy skills that affect sound EBP skills. Ivanitskaya, O'Boyle, and Casey (2006) correlated students' proficiencies in finding and assessing consumer health information to their self-reports of research skills, and they found that students did a poor job of characterizing their skills.

Students' self-perceptions of their competency in performing information literacy tasks, as they relate to EBP, have not been well studied. It is the hope of the authors that this study will address that gap in the literature.

Methodology

The authors developed a 24-question survey for Health Professions 100 Writing (HPRF 100W) students. The student survey consisted of two parts: a demographic questionnaire and multiple-choice questions on information literacy mastery and concepts. The demographic part of the student survey employed questions from one of the author's previous publications (Molteni, 2008 and Molteni, Goldman & Oulc'hen, 2013). The information literacy component was further divided into two sections: the students' perceptions regarding their information literacy skills and information literacy questions that corresponded to those specific skills. The

survey was loaded into Qualtrics, an online survey platform, which enabled the authors to electronically administer the survey and collect and analyze the data using Microsoft Excel. The project has the approval from the San José State University Institutional Review Board #F1202078.

The survey was taken by upper division students enrolled in HPRF 100W during Fall 2012. Assignments from this course promote the development of research skills, moving students from using general databases to subject-specific resources. This course may oftentimes be the first occasion where the students have the opportunity to link health care literature to clinical practice. The students who take this course are generally from the Department of Health Sciences; Occupational Therapy; Nutrition, Food Science, and Packaging; and pre-nursing students from the Valley Foundation School of Nursing. Other students who register in this course also originate from Communicative Disorders and Sciences; Kinesiology; Social Work; Hospitality Management and even from the College of Business.

Student Perceptions regarding research skills and quizzes

This study consisted of two key collections of data. Students reported on their levels of competency in performing four information literacy-related tasks within the health professions discipline:

1) differentiating between popular and scholarly materials,
2) distinguishing between primary and secondary articles,
3) revising a database search, and
4) identifying the specialized databases specific to this content area.

These tasks were selected because of their connections to EBP. Students were asked to rate their ability to differentiate between scholarly and popular materials because clinical practices should always be based upon materials that have undergone a rigorous referee process. In the health sciences, primary research is defined as research conducted by the authors, whereby original data is collected. Students are generally asked to use primary research articles because they constitute evidence. Study parameters are stated, allowing for the critical analysis of study design and identification of the study's strengths and weaknesses. Distinguishing between primary and secondary sources is essential as literature types offer varying degrees of support; in EBP, credibility and relevance are based on the strength of study design, protocols, and procedures. Due to the primacy of navigating within the clinical literature

for applicable evidence, it is of the upmost importance that students are able to effectively and efficiently revise searches. Knowing and being familiar with the resources of the discipline is important to properly search and find appropriate materials. Certain databases provide access to the most current indexes on health sciences and EBP. As such, students must be able to identify those resources that will offer the most comprehensive, recent, and relevant resources that will inform their clinical practice.

In addition, students answered seven questions that tested for mastery in understanding information literacy concepts. These questions were validated in previous studies (Feind, 2010; Staley, Branch, and Hewitt, 2010); however, the authors adapted them to meet the emphasis of EBP and health sciences. Thus, the authors of this paper were able to correlate student perceptions of their own skills against their ability to correctly answer information literacy questions based on evidence based practices.

The seven-question quiz asked students to select the best answer from multiple answers. Students were given the correct answer, multiple incorrect answers, and the option of "Not Sure." The option of "Not Sure" was important, as the authors of this article wanted to ascertain the size of the student population who did not have sufficient confidence in their ability to select from one of the other given options.

The authors of this article operated from this premise – students, regardless of the quality of their answer, would not choose "Not Sure" as their response if they were sufficiently confident in their selection. That is, those who picked "Not Sure" as their response were indicating their lack of confidence in their ability to answer the question and, subsequently, their lack of mastery in the information literacy-related task. Likewise, students who were incorrect in their response were sufficiently confident in their answer to select one of the options.

Students rated their skills in performing the health professions information literacy-related tasks on the following scale: "Excellent," "Very Good," "Good," "Fair," and "Poor."

The information literacy mastery quiz consisted of seven questions that were associated with the four information literacy tasks. Each task had two questions that assessed for mastery, except for the differentiating between popular and scholarly materials task, which only had one question.

The 24-question survey is shown in Appendix A.

Results

During Fall 2012, the two authors offered information literacy sessions to 13 of 15 HPRF 100W sections. Each section had an enrollment cap of 25 students. The 24-question, online survey was administered at the beginning of the library instructional session. Of the possible 325 students, 239 students elected to participate in the voluntary survey. The difference between the ideal sample (n=325) and the size of the real sample (n=239, representing 74% of the total population) is related to logistical reasons: 1) class attendance during the day of the library instruction, 2) the survey was voluntary, 3) some students arrived late to the class sessions, and 4) the length of the instruction sessions varied from 75 minutes to 120 minutes.

Demographics

The survey indicated an overwhelming female majority in the sampled sections: 77% females to 23% males. This data did not align with the general SJSU population statistics; the Office of Institutional Effectiveness and Analytics (2013) reported a student population of 51.8% female and 48.2% male for Academic Year 2012-2013. The large percentage of female students in the sample was related to the Valley Foundation School of Nursing student presence (44.4 %). Nursing is still a predominantly female profession.

Students were distributed among the following age groups: 79% were 18-24 years old, 11.3% were 25-29 years old, 6.7% were 30-39 years old, and 2.5% were 40-49 years old.

The sampled group was very diverse, as evidenced by the numbers: 45.6% Asian, 18.8% White, 17.6% Latina/o, 13% multi-ethnic, and 4.2% of African descent.

As HPRF100W is a mandatory writing course for the Health Sciences related areas, the surveyed students came from the following majors: Nursing (44.4%); Health Sciences (28%); Nutrition, Food Science, and Packaging (16.7%); Occupational Therapy (5.9%); Hospitality Management (2.1%); and Communicative Disorders and Sciences (0.8%). Undeclared students and those majoring in Business, Child Development, and Social Sciences each comprised 0.4% in the sampled population.

The bulk of the sampled population was juniors (77.8%), followed by seniors (18.8%), sophomores (2.5%) and graduate level students (0.8%). The presence of graduate students is due to the School of Nursing's lack of a graduate mandatory writing course; HPRF100W satisfies the requirement for the Graduate Writing Assessment Requirement (GWAR).

Students were asked about their job status. Even though the majority of the population was full time students (88.3%), many worked part time (77.3%) in off campus jobs (77.8%).

Student Ratings on Performing Information Literacy Tasks

Students were asked to rate their confidence in performing four IL tasks. The distribution of students' responses is shown in Figure 1. The majority of the students indicated their skills at the level of "Good" or higher.

Figure 1. Student Confidence Percentages by Task
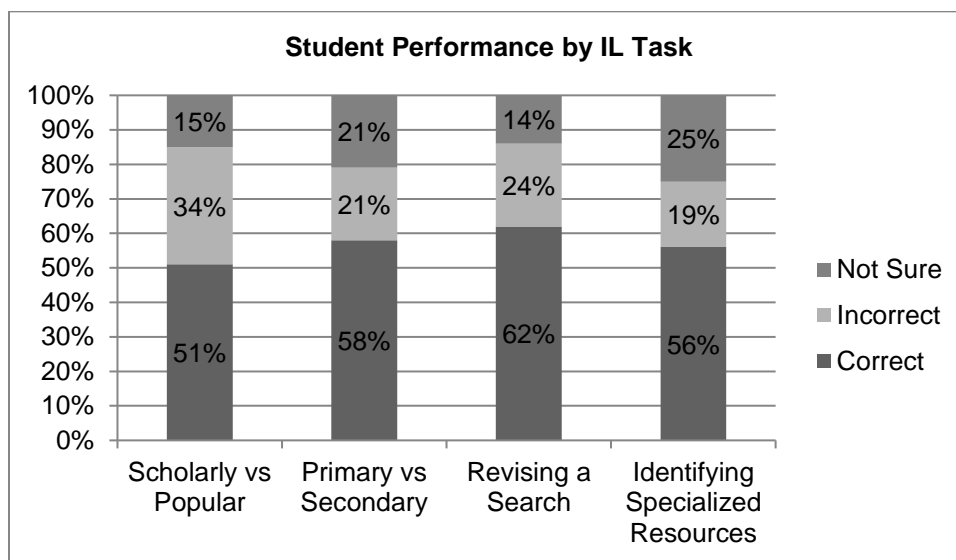
Students' Performance on the Information Literacy Quiz

In addition to reporting on their skills in performing information literacy tasks, students also answered quiz questions that tested for competence in those respective areas. Table 1 displays the overall results for each IL task.

Table 1. Student Performance on the Quiz by IL Task

Information Literacy Task	Correct	Incorrect	Not

			Sure
Scholarly vs Popular	51%	34%	15%
Primary vs Secondary	58%	21%	21%
Revising a Search	62%	24%	14%
Identifying Specialized Resources	56%	19%	25%

Where n=239

Student Quiz Performance by Confidence Levels

The authors collected student self-confidence ratings and assessed student mastery of information literacy questions in order to identify any potential relationships between these two areas and ascertain if student confidence levels are reliable indicators for information literacy performance.

Task 1: Differentiating Scholarly from Popular Materials

Seventy percent of the students who identified their skills as "Excellent" answered the corresponding IL question correctly, while 68% of the students who identified their skills as "Very Good" were correct. Students who rated their skills as "Good," "Fair," and "Poor" were 57%, 42%, and 18% correct, respectively. Except for the "Very Good" group, as confidence rates decreased, the percentages of "Not Sure" increased. The percentage of incorrect answers across the groups ranged from a low of 20% to a high of 27%. Students who rated their skills highest performed in accordance to their confidence levels (see Figure 2).

Figure 2. Task #1 - Differentiating Scholarly from Popular Materials by Students' Relative Confidence Rates
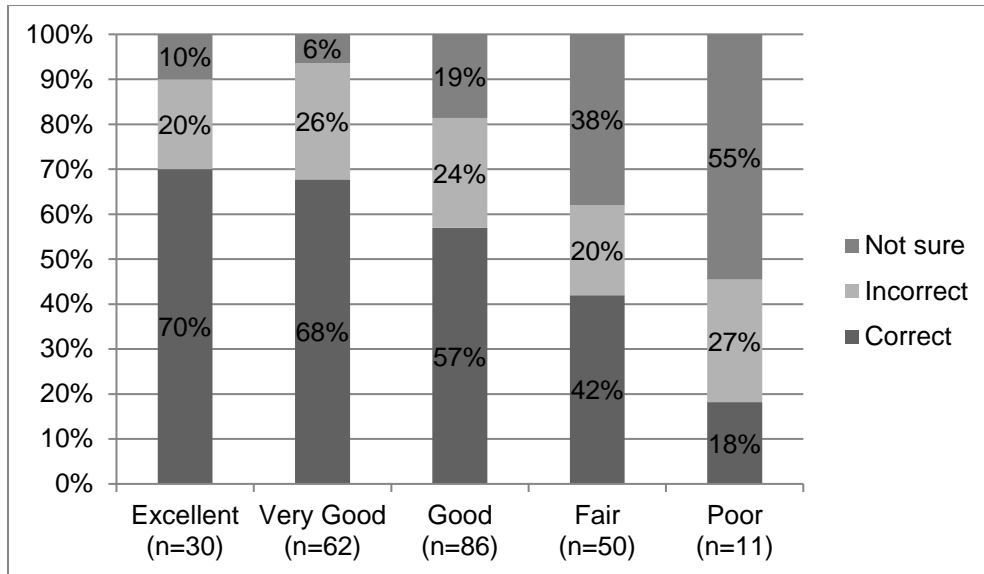
Task 2: Differentiating between Primary and Secondary Materials

The students who identified their skills as "Poor" marked "Not Sure" at higher rates than their more confident peers. Interestingly, among the "Excellent," "Very Good," and "Good" cohorts there was a large degree of similarity across the "Correct," "Incorrect," and "Not Sure" categories (see Figure 3).

Figure 3. Task #2 - Differentiating Between Primary and Secondary Materials by Students' Relative Confidence Rates
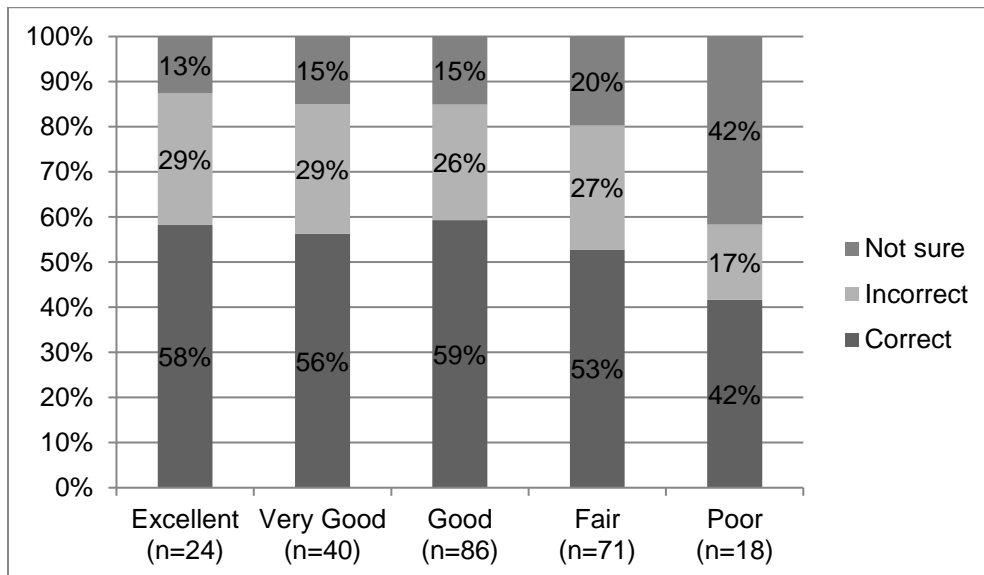
Task 3: Revising a Database Search

For this task, the higher the students' confidence level, the greater incidences of correct responses and lower "Not Sure" responses. As student confidence decreased, lower correct percentages and higher "Not Sure" responses were observed. Interestingly, the students who marked their skills as "Excellent" had the highest percentage of incorrect answers. The results across the various cohorts are displayed in Figure 4.

Figure 4. Task #3 - Revising a Database Search by Student Confidence Rates
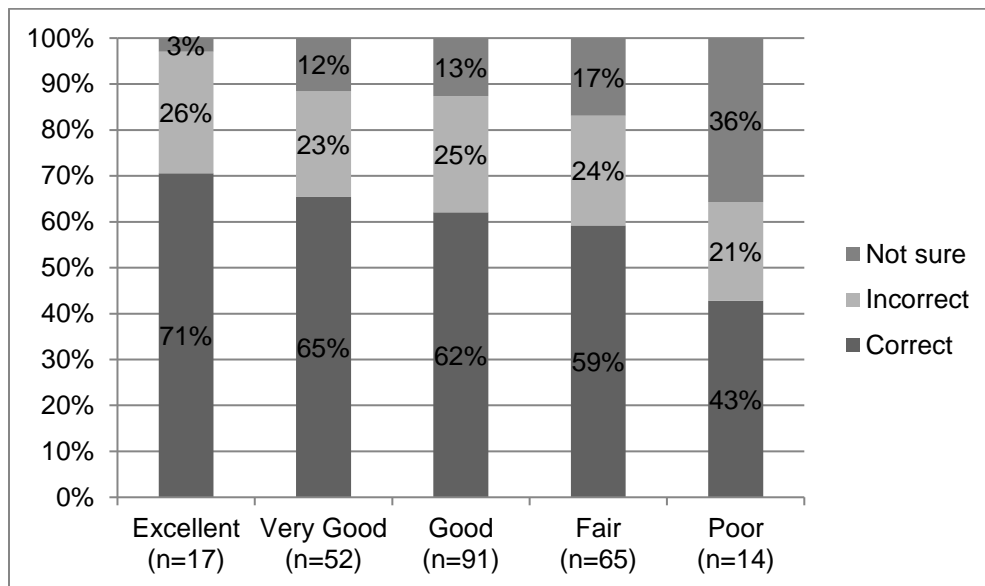
Task 4: Identifying the Databases of the Discipline

The students who rated their proficiency highest performed better than their peers who rated their proficiencies lower, except for the "Good" group. These students did not obtain higher percentages of correct answers than the "Fair" group. However, the percentages of "Not Sure" consistently increased as students rated their proficiencies poorer (see Figure 5).

Figure 5. Task #4 - Identifying the Databases of the Discipline by Student Confidence Rates
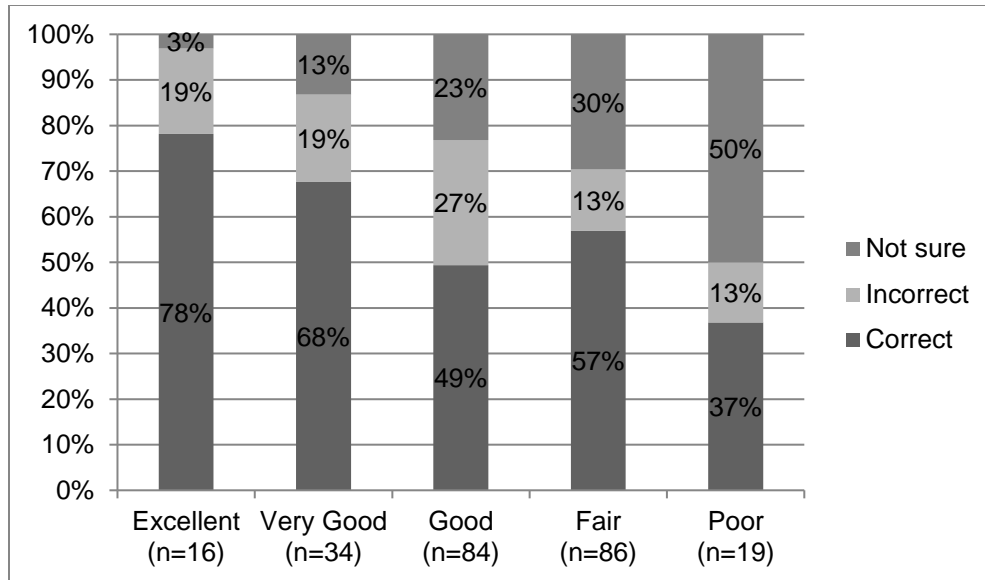
Discussion

The purpose of this study was to compare students' self-confidence rates in performing information literacy related (IL) tasks to their corresponding mastery of IL content questions. Percentages of incorrect responses varied among the cohorts across the four IL tasks, indicating that wrong answers were not correlated to confidence. Being incorrect was independent of one's confidence level.

Students who marked their competency at "Good," "Very Good," and "Excellent" levels had higher incidences of correct answers than their less confident peers. However, individuals in these clusters did not demonstrate complete mastery of the information literacy concepts; there were individuals in each of these cohorts who were incorrect or unsure of the answer. From these results, confidence does not appear to be a reliable indicator of competence. Rather, these results support research on the concept of overconfidence.

Student Confidence and Competence

In their 2012 study, Gross and Latham observed that first year college students "who are below proficient in terms of their IL skills evince[d] a miscalibration between what they can do and what they think can do" (p. 574). This gap between students' perceptions regarding their IL skills and performance could be explained by overconfidence, a behavior in the learning process during which students judge their competencies higher than actual observed performances. Gustavson and Nall (2011) surveyed 377 freshman students regarding their self-

confidence levels and IL skills; the authors observed that 3% of the surveyed population rated their confidence highest although they scored a 50% average on the test. Overconfidence can ultimately influence achievement. In 2012, Dunlosky & Rawson noted a relationship between overconfidence, underachievement, and poor long-term retention in undergraduate psychology students. Student overconfidence resulted in premature termination of studying, which was correlated to meager test results.

The possibility of students having inflated perceptions of their competence is troubling when considering the clinical implications. Higher degrees of confidence were correlated to lower incidences of "Not Sure," but not lower incidences of being incorrect. To promote EBP, students entering the health professions must consider a variety of information inputs and apply good judgment.

Students who identified their skills as "Poor" were more likely to mark "Not Sure" across all four of the IL tasks. Interestingly, this group had some of the lowest incidences of being incorrect in three of the four tasks suggesting that this group had a high degree of awareness and tended to mark "Not Sure" when faced with any uncertainty. Kruger and Dunning (1999) observed that highly competent individuals have the expertise to know that tasks are complex and will systematically underestimate their own proficiencies. While it is unclear if any of the less confident cohorts were exhibiting this behavior, it is important to note that this phenomenon could have influenced this study's outcomes. Furthermore, Kruger and Dunning (1999) note that competence can be obtained by improving metacognition through techniques, like self-monitoring.

Implications for library instruction

Students who tend to overestimate their information literacy skills may not be as receptive to library instruction as those who feel that they have a lot to gain. In a 2004 study, Freeman observed that there was a correlation between student self-assessments and their thoughts on library instruction. As students' perceptions of their skills increased, their opinions of library instruction decreased. While the sample size of this study was small, Freeman's results indicate that highly confident students, regardless of competence, could undervalue library instruction. These students may not be as receptive to assistance and learning opportunities as others who feel that their skills will improve. This, in turn, could influence student engagement and participation during instructional sessions.

Conclusions and Future Directions

The aim of this study was to ascertain students' self-confidence and corresponding performance in answering specific information literacy questions. Health Professions 100 Writing is the first course where SJSU undergraduate students are truly exposed to clinical literature and resources, which they will continue to use in their clinical practice for evidence based decision-making. It is important to note that the authors of this article operated under the following premise – students, regardless of the quality of their answer, would not choose "Not Sure" as their response if they were sufficiently confident in their selection. Therefore, the authors equated "Not Sure" to a lack of confidence. The authors understand that the reasons behind the decisions to mark "Not Sure" can be varied; future studies will need to be conducted to clarify the motives behind students who mark "Not Sure."

Given these parameters, confidence does not appear to be a reliable gauge of proficiency. Generally, students who were highly confident were correct more often than their less confident peers, but being incorrect often appeared to be independent of confidence. That is, for some tasks, the most confident students were as likely to be incorrect as their less confident peers. The fact that, overall, all categories have similar numbers of incorrect answers may be an indicator that some respondents are overconfident. If confidence was an accurate indicator of knowledge, it would be expected that those with the highest level of confidence would be correct more often than those with a lower confidence level. Students who marked their confidence highly tended to mark "Not Sure" less often than their less confident counterparts. Those who identified their confidence level as "Poor" lacked confidence and correspondingly marked "Not Sure" the most often.

In future studies, it may be worthwhile to ascertain the rationales behind students' self-confidence ratings. What caused students to mark their confidence at their reported levels? How might these factors affect library instruction and coordination with teaching faculty? Identification of the contributing factors that influence the self-ratings could be extremely helpful for librarians. Librarians can only suitably address and improve the quality of the learning experience for students if they are aware of the factors that influence student perceptions of readiness. In addition, the authors plan to correlate the collected demographic information to confidence levels. As part of the demographic portion of the survey, students provided information on their ethnic background, gender, previous library experiences, course load,

engagement in the library space, and work status. It will be interesting to see if there are connections between any of these attributes and self-confidence.

One limitation of this study was that the students were not polled on their self-confidence for each task after the administration of the content questions. Future directions include surveying students to see if the IL content quiz influenced their perceptions of their skills. That is, did answering the question reinforce or introduce any doubt on the accuracy of the self-confidence score? In addition, having students indicate how certain they are in their selected responses will help to fully explore the roles that metacognition and overconfidence can play in the learning process.

References

Boruff, J. T., & Thomas, A. (2011). Integrating evidence-based practice and information literacy skills in teaching physical and occupational therapy students. *Health Information & Libraries Journal*, *28*(4), 264-272. doi:10.1111/j.1471-1842.2011.00953.x

Cyrus, J. W. W., Duggar, D. C., Woodson, D., Timm, D. F., Mclarty, J. W., Pullen, K., Banks, D. E. (2013). Assessing the FACTTS: An evidence-based medicine and critical appraisal course for medical students. *Medical Reference Services Quarterly, 32*(2), 209-218. doi:10.1080/02763869.2013.776907

Dee, C., & Stanley, E. E. (2005). Information-seeking behavior of nursing students and clinical nurses: Implications for health sciences librarians. *Journal of the Medical Library Association, 93*(2), 213-222.

Dorsch, J.L. & Perry, G. (2012). Evidence-based medicine at the intersection of research interest between academic health sciences librarians and medical educators: a review of the literature. *Journal of the Medical Library Association, 100*(4), 251-257.

Dunlosky, J., & Rawson, K. A. (2012). Overconfidence produces underachievement: Inaccurate self evaluations undermine students' learning and retention. *Learning and Instruction, 22*(4), 271-280. doi:http://dx.doi.org.libaccess.sjlibrary.org/10.1016/j.learninstruc.2011.08.003

Evidence-Based Medicine Working Group (1992). Evidence-Based Medicine: A new approach to teaching the practice to medicine. *Journal of the American Medical Association 268(*17), 2420-2425.

Feind, R. (2010). *Reading the representation: Using library assessment to understand student knowledge*. Poster presentation presented ARLIS/NA: Revolution and Innovation: At the Hub of Discovery, April 23-26, 2010 Seaport Hotel, Boston, MA.

Freeman, C. A. (2004). The relationship of undergraduate students' self-assessment of library skills to their opinion of library instruction: A self-reporting survey. *The Southeastern Librarian*, *52*(3), 39-46.

Gagliardi, J. P., Stinnett, S. S., & Schardt, C. (2012). Innovation in evidence-based medicine education and assessment: An interactive class for third- and fourth-year medical students. *Journal of the Medical Library Association, 100*(4), 306-309. doi:10.3163/1536-5050.100.4.014

Gross, M., & Latham, D. (2012). What's skill got to do with it?: Information literacy skills and self-views of ability among first-year college students. *Journal of the American Society for Information Science and Technology, 63*(3), 574-583.

Gustavson, A., & Nall, H. C. (2011). Freshman overconfidence and library research skills: A troubling relationship? *College & Undergraduate Libraries, 18*(4), 291-306.

Guyatt, G. H. (1991). Evidence-Based Medicine (Editorial) American College of Physicians Journal Club. *Annals of Internal Medicine 114 (*Supplement 2), A-16.

Hider, P. N., Griffin, G., Walker, M., & Coughlan, E. (2009). The information-seeking behavior of clinical staff in a large health care organization. *Journal of the Medical Library Association, 97*(1), 47-50.

Ilic, D., Tepper, K., & Misso, M. (2012). Teaching evidence-based medicine literature searching skills to medical students during the clinical years: A randomized controlled trial. *Journal of the Medical Library Association, 100*(3), 190-196. doi:http://dx.doi.org.libaccess.sjlibrary.org/10.3163/1536-5050.100.3.009

Ivanitskaya, L., O'Boyle, I., & Casey, A. M. (2006). Health information literacy and competencies of information age students: Results from the interactive online Research Readiness Self-Assessment (RRSA). *Journal of Medical Internet Research 8*(2). doi: 10.2196/jmir.8.2.e6

Kealey, S. (2011). Continual evolution: The experience over three semesters of a librarian embedded in an online evidence-based medicine course for physician assistant students. *Medical Reference Services Quarterly, 30*(4), 411-425. doi:10.1080/02763869.2011.609046

Keim, S. M., Howse, D., Bracke, P., & Mendoza, K. (2008). Promoting evidence based medicine in preclinical medical students via a federated literature search tool. *Medical Teacher, 30*(9), 880-884. doi:10.1080/01421590802258912

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology, 77*(6), 1121-1134.

McKnight, M. (2006). The information seeking of on-duty critical care nurses: Evidence from participant observation and in-context interviews. *Journal of the Medical Library Association, 94*(2), 145-151.

Molteni, V.E., Goldman, C., & Oulc'hen, E. (2013). Experiences of the student population at an urban university: How do they use a joint library?. *Portal 13(*3), 233-256.

Molteni, V. E. (2008, April 5-8). *Providing bilingual library services on a multicultural campus.* Presentation presented at CARL Conference 2008: Going Global: Academic Libraries in the Age of Globalization, April 2-5, 2008 Hyatt Regency Irvine, Irvine, CA.

Sackett, D. L., Rosenberg W. M., Gray J. A., Haynes R. B., & Richardson W. S. (1996).
Evidence based medicine: what it is and what it isn't [editorial]. *British Medical Journal 312*, 71-72.

San José State University, Institutional Effectiveness and Analytics (2013). Quick Facts.
Retrieved April 19, 2013: http://iea.sjsu.edu/Students/QuickFacts/20134QuickFacts.cfm

Staley, S. M., Branch, N. A., & Hewitt, T. L. (2010). Standardised library instruction assessment:
An institution-specific approach. *Information Research*, *15*(3).
http://www.informationr.net/ir/15-3/paper436.html

Wahoush, O., & Banfield, L. (2013). Information literacy during entry to practice: Information-
seeking behaviors in student nurses and recent nurse graduates. *Nurse Education Today, 34(*2), 208-213.

Appendix A

Survey Introduction

We are conducting a survey on students' information literacy skills. We would like you to participate in this voluntary, anonymous survey. This survey should take no more than 10 minutes of your time. The results of this survey will be used to improve library instruction and may be used for future publications. Your willingness to proceed is greatly appreciated!

Only students 18 years old and older should complete this survey.

Please tell us a little about yourself

This is a 100W course. Please enter the section number below.

What is your ethnicity?

- European
- African
- African American
- American Indian / Aleut
- Latin American: South America
- Latin American: Central America
- Latin American: Mexican
- East Asian
- Chinese
- Asian Indian
- Asian Pacific Islander
- Middle Eastern
- Multi-ethnic / Multi-racial
- Other
- Do you define yourself in another category? Would you please describe it?

Gender

- Male
- Female

- Other

Age
- 18-24
- 25-29
- 30-39
- 40-49
- 50-59
- 60-69

Are you the first person in your family to study at a four-year university?
- Yes
- No

Major

Minor

Class Standing
- Freshman
- Sophomore
- Junior
- Senior
- Graduate
- Post Baccalaureate

What is your course load?
- Full time
- Part time

How many hours do you typically spend on campus per week?
- 5-10
- 11-15

- 16-20
- 21-25
- 26-30
- more than 30

Do you work?
- Yes
- No

How are you employed? (Check all that apply.)
- On campus
- Off campus
- Full time
- Part time
- Not employed

Do you know another language other than English?
- Yes , please specify below
- No

Please indicate your level of fluency in that other language. (Check all that apply.)
- Read
- Write
- Speak

Where did you learn this other language?
- Home
- School
- Church
- Other, please specify

Have you used libraries previous to your enrollment or attendance of the University? What types of libraries have you used? (Check all that apply.)

- Public libraries
- School libraries
- Other types of libraries
- I did not use libraries prior to my enrollment

Please tell us a little about your current skills

Please rate your skill in performing the following tasks:

- Differentiating between a scholarly, peer-reviewed resource from a popular resource
    - Excellent
    - Very Good
    - Good
    - Fair
    - Poor
- Differentiating between a primary and secondary source
    - Excellent
    - Very Good
    - Good
    - Fair
    - Poor
- Revising a database search to retrieve adequate results
    - Excellent
    - Very Good
    - Good
    - Fair
    - Poor
- Identifying the specialized resources or databases of the discipline
    - Excellent
    - Very Good
    - Good
    - Fair
    - Poor

Please select the option that best answers the question

If you were looking for journal articles on health sciences, which set of databases would be the best choices?

- WorldCat or ProQuest Dissertations
- PsycINFO, Lexis-Nexis Academic, Academic Search Premier
- Project Muse, Academic Search Premier, Social Sciences Full Text
- CINAHL, PubMed, PsycINFO
- Not sure

If you were searching for journal articles about the connection between smoking and high blood pressure to complete your research paper, which databases would you consult?

- WorldCat or ProQuest Dissertations
- PsycINFO, Lexis-Nexis Academic, Academic Search Premier
- Project Muse, Academic Search Premier, Social Sciences Full Text
- CINAHL, PubMed, PsycINFO
- Not sure

What is primary or original research?

- A survey of previously published literature on a particular topic to define and clarify a particular problem
- A study which tests a hypothesis based on systematic observation and data collection
- A study which relies on researchers' intuition and speculation to answer a research question or test a hypothesis
- A survey of previously published literature that comprehensively identifies, appraises, and synthesizes all relevant literature to address a specific question
- Not sure

Generally speaking, literature review articles

- Summarize, synthesize, and evaluate what the scientific community has found about a specific topic or question
- Have results sections in which statistical analyses are reported

- Are informal articles written for a general audience instead of a scholarly audience
- Are not useful for student papers
- Not sure

How can you tell you are reading a magazine instead of a scholarly source of information?
- There are few, if any, advertisements
- Articles are in-depth and often have a bibliography
- Articles are written for the general public
- Issues are usually published quarterly (4 times a year)
- Not sure

If your keyword search "public health United States" retrieves 827 articles, what would be the best next step?
- Add another keyword and try again
- Try searching with the keywords "public health US"
- Try the search again with fewer keywords
- Scan the list to choose the most relevant articles
- Not sure

Your keyword search "working with diverse cultures in the health care setting" retrieves only 3 articles. What would be the next best step?
- Add another keyword and try again
- Scan the list to choose the most relevant articles
- Remove some of the keywords from your search and try again
- Change the search to "working with diverse cultures in the healthcare setting"
- Not sure