The Effectiveness of Library Instruction in ENG 101 on Students’ Ability to Use Library Resources for Research Purposes (A natural experiment)

Introduction.
All sections of ENG 101 include a mandatory Library instruction class. The class consists of an hour of instruction on how to find material to support the research for the particular ENG 101 classes.

Scheduling classes and the natural experiment settings.
All sessions of ENG 101 receive a notification at the beginning of the semester with the date for their instruction. Some instructors choose to change the date if it does not work for them, but options are limited due to the volume of ENG 101 classes on the schedule.

Due to Hurricane Sandy, classes scheduled the week of October 29, 2012 did not go through the instruction component. Instead, students may have received an in-class overview of Library resources from their instructor, but did not receive instruction from the Library faculty during their ENG 101 class.

The Library took this as an opportunity to study the effectiveness of the instruction, and administered a survey to classes who missed the instruction due to Sandy, as well as to randomly selected ENG 101 classes that had already had their instruction. Thus, the cancellation of sessions due to the hurricane took place randomly across all sections.

The instrumental measurement.
The questionnaire tested the students’ understanding of research through a set of five questions and not by self-assessment. As such, it enabled an examination of students’ ability to:
(a) Evaluate the differences between articles, books and other resources,
(b) Recognize which parts of the Library’s web site will take them to a particular information format, and
(c) Effectively identify keywords and use Boolean operators (AND, OR, NOT) to connect keywords.

All questions were multiple-choice with clear correct and incorrect replies.

The sample.
A total of 488 students in ENG 101 were examined during the overview. Of them, 52.2 percent attended the Library’s instruction with their classes. All students who were in class during the instruction date or in-class overview were sampled.

Results.
Table 1 reports the overall number of correct replies for each of the tested groups. It is a summary of the number of correct replies across all items in the questionnaire. The maximum number of correct replies is five.
Table 1. Mean correct replies in Library’s Instruction Questionnaire for students who attended and did not attend a Library instruction in ENG 101 (Fall 2012)

Students who attended the instruction scored higher grades in the Library’s instruction questionnaire compared to students who did not attend the Library’s instruction: 3.36 vs. 2.95. The differences observed were statistically significant.

Table 2 examines students’ replies to a question that requires determining the appropriate keyword search strategy. Students were asked to determine the appropriate keyword strategy for articles about teenage depression using Boolean operators. Students were presented with four search options, and were asked to determine the most appropriate one.

Table 2. Percent of correct replies in Library’s Instruction: Selection of the appropriate keywords for a search function.

Students who attended the instruction selected the appropriate keywords and operators for the search 42.4% of the time, versus 23.6% for students who did not attend the instruction. This difference was statistically significant. Students in both groups had challenges determining the appropriate usage of search operators. Those operators are critical for effectively searching many of the Library’s electronic resources, as well as the catalog.

Table 3a. and 3b. examine students’ replies for a question that requires determining the appropriate part of the Library website used to find books or articles, respectively. Students were presented with a screenshot of the Library website and were asked to specify the link(s) that should be used to find a certain format of material.

Table 3a. Percent of correct replies in Library’s Instruction: Selection of the appropriate menu item leading to information regarding a book.
Table 3b. Percent of correct replies in Library’s Instruction: Selection of the appropriate menu item leading to information regarding an article.

Students who attended instruction did not defer significantly from students who missed the instruction in the recognition of the correct site links. There were no significant differences between students who attended the instruction and students that did not attend the instruction. Nonetheless, students who attended the instruction had a borderline significant improvement in the ability to select the appropriate resource to search for a book.

Table 4a. and 4b. examine students’ replies to determine whether the information provided to them represents a book or an article, respectively. Students were presented with a screenshot of a search result for an item from a subscription database and the Library’s catalog.

Table 4a. Percent of correct replies in Library’s Instruction: recognizing a book within the search results.

Table 4b. Percent of correct replies in Library’s Instruction: recognizing an article within the search results.

Students who attended instruction were more likely to identify the items for both books and articles. The differences between the student groups’ were significant. Overall, students ability to recognize articles is higher than their ability to correctly recognize book records.

Conclusions:
Overall, this natural experiment demonstrates that the Library’s instruction improves the ability of students to use Boolean operators and Library resources. Students who attended the instruction demonstrated higher ability to conduct an independent search, and recognize items presented from a search.

At the same time, it is important to note that results for both groups suggest that students are facing challenges identifying keywords and using Boolean operators in the search.
best fit context. It may suggest that expanding the number of exercises in this area will be useful for future students.