

Glendale Community College
Statistical Evaluation of Information Competency Program Student Outcomes
Spring 2000 to Spring 2007

Introduction

This report summarizes the statistical evaluation of two aspects of the GCC information competency program: Library 101/191 courses and library workshops. In general, both aspects of the information competency program were associated with positive short-term and long-term student success. Because of the nature of the study, however, it is not possible to determine if the information competency interventions were strong causes of student success.

Library 101 and Library 191 Courses

Glendale Community College offers two courses which cover information competency. Library 101 was offered in Spring 2000, and Library 191 was offered every subsequent Fall and Spring semester. The following section presents evidence that students passing Library 101 or 191 had more short-term and long-term success than students of similar academic ability who did not pass Library 101 or 191.

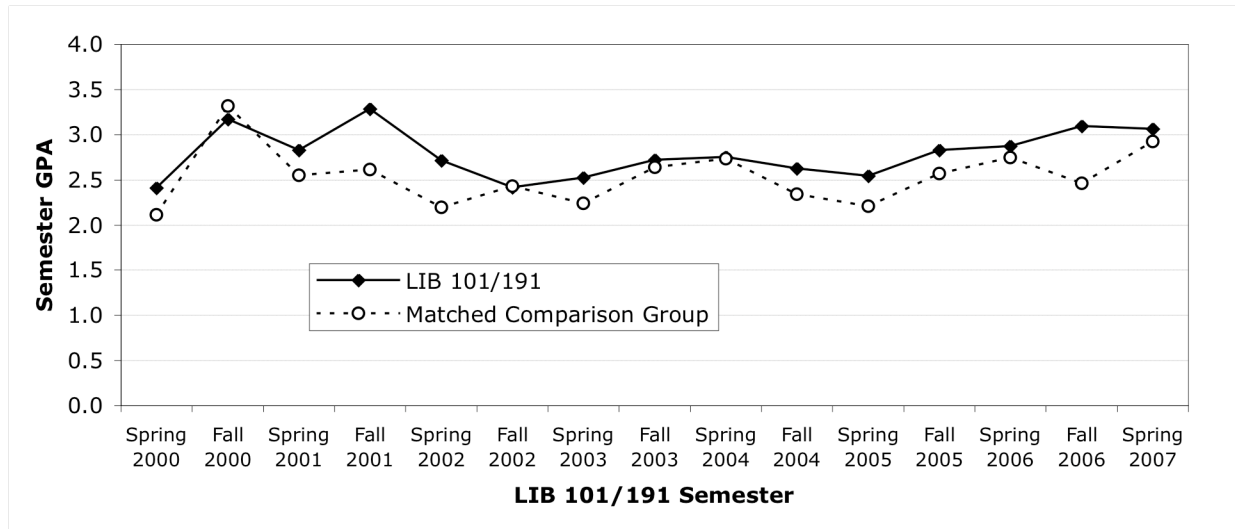
The results below are based on a comparison between students who passed Library 101 or 191 and a matched sample of students who did not pass Library 101 or 191. Students were matched on enrollment status (new, returning, or continuing), GPA prior to the Library 101/191 term, and units attempted in the Library 101/191 term. Each student who passed Library 101 or 191 was paired with a comparable student who did not enroll in Library 101 or 191. Without this matched comparison design, there would be a serious self-selection problem. Students who enroll in a Library course are probably more academically prepared for college than students who do not enroll in such a course. Thus, it would be expected that the outcomes of Library 101/191 students would be more positive than the outcomes of the general student population. The matched comparison design alleviated this problem to some extent because each Library 101/191 student was matched with a student of similar academic ability.

Short-Term Student Outcomes

Short-term outcomes include semester GPA in the target semester (the semester in which the Library 101/191 group passed Library 101 or 191), units completed in the target semester, persistence to the next Fall or Spring semester, semester GPA in the next semester, and units completed in the next semester. Although results were not consistent from semester to semester, Library 101/191 students tended to have more positive short-term outcomes than the matched comparison group.

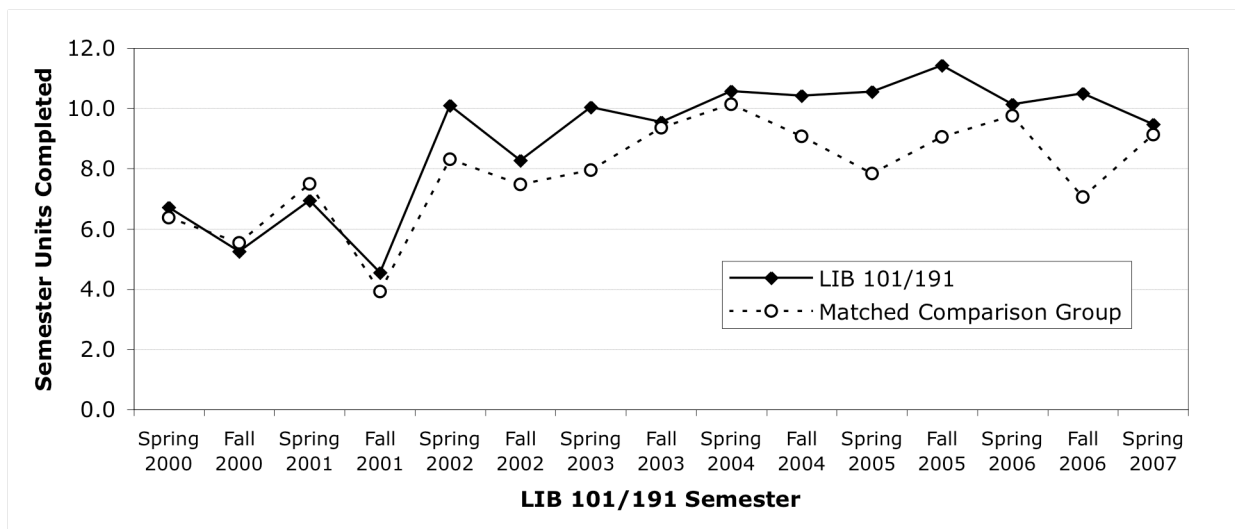
The following graph shows GPA in the Library 101/191 semester. Generally, students who passed Library 101 or 191 had higher semester GPA's than the matched comparison group. Across the 15 semesters, term GPA was higher for Library 101/191 students by 0.21 points, a small but statistically significant difference. A statistically significant result indicates that the difference in semester GPA was probably not due to chance.

Figure 1. Target Semester Grade Point Average



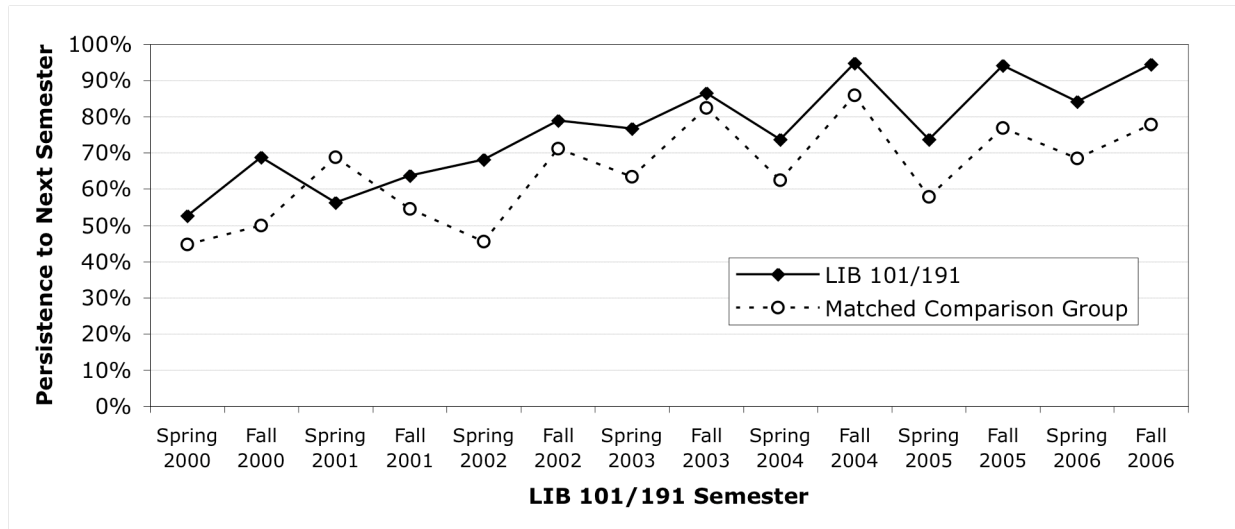
The next graph shows average units completed in the Library 101/191 term. Units completed was highly variable. Students who passed Library 101/191 completed somewhat more units than the comparison group. Across 15 semesters, students who passed Library 101/191 completed 1.2 more semester units on average than the matched comparison group. This overall difference was statistically significant.

Figure 2. Target Semester Units Completed



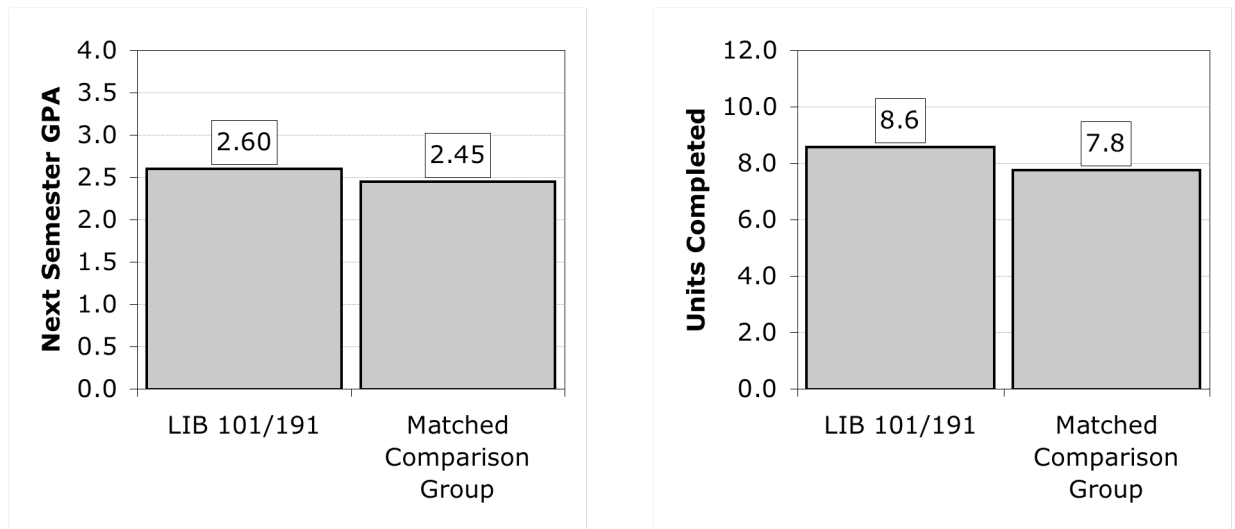
The next graph shows persistence from the target semester to the following Fall or Spring semester. Although the persistence pattern was highly variable, overall persistence was 11 percentage points higher for students who passed Library 101 or 191, and this difference was statistically significant.

Figure 3. Persistence to Next Semester



Units completed and GPA in the following Fall or Spring semester were also analyzed. Differences between Library 101/191 students and the matched comparison group were not statistically significant for next-term GPA, but they were significant for next-term units completed. Students who passed Library 101 or 191 had an average next-term GPA of 2.60, compared to 2.45 for the matched group. The difference of 0.15 points was not significant. Students who passed Library 101 or 191 completed an average of 8.6 units in the following semester, compared to 7.8 for the matched group. This difference was statistically significant. The following graphs summarize these differences.

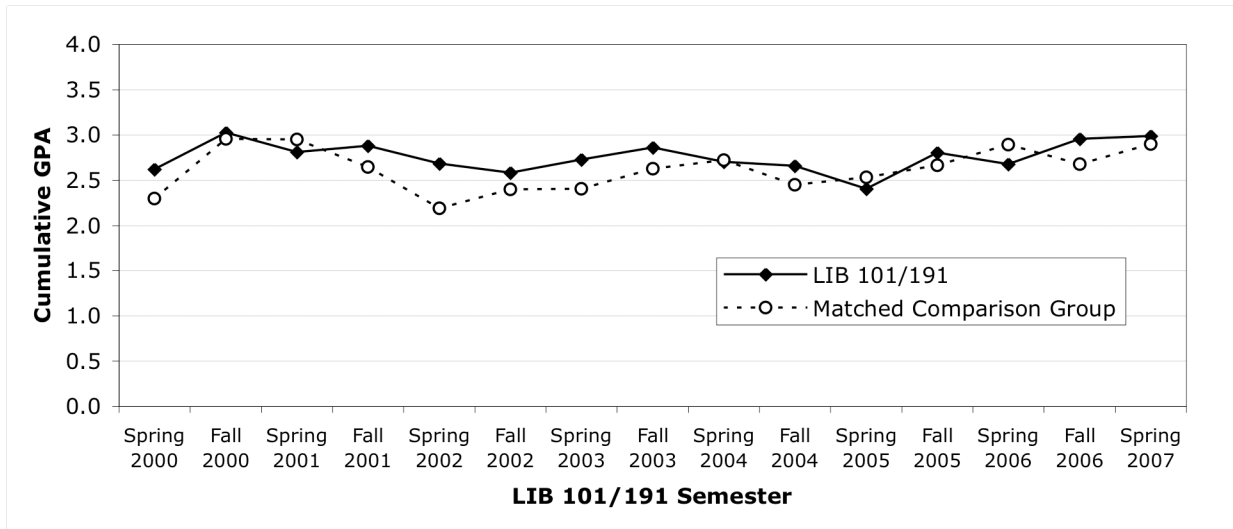
Figure 4. Next Semester GPA and Units Completed



Long-Term Student Outcomes

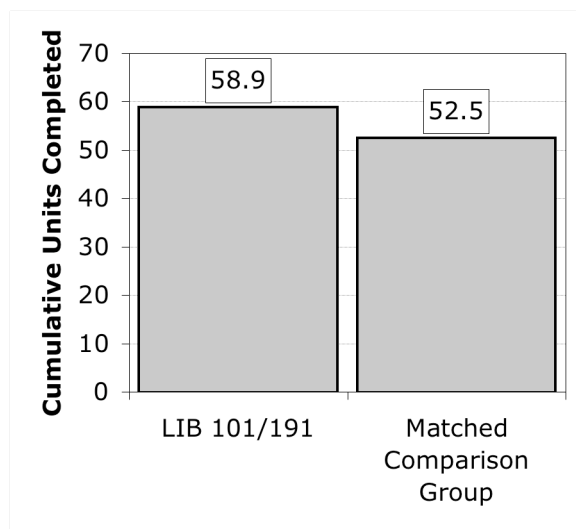
Students who passed Library 101 or 191 were somewhat more successful in the long term than the matched comparison group. The following graph shows cumulative collegewide GPA for both student groups. Across 15 semesters, the average GPA for students who passed Library 101/191 was 2.68, compared to 2.52 for the matched group. This difference of 0.16 points was statistically significant.

Figure 5. Cumulative Collegewide GPA



There was a statistically significant difference in cumulative units completed. Library 101/191 students completed an average of 6.4 more units than the matched comparison group. The following graph shows the mean difference across 15 semesters.

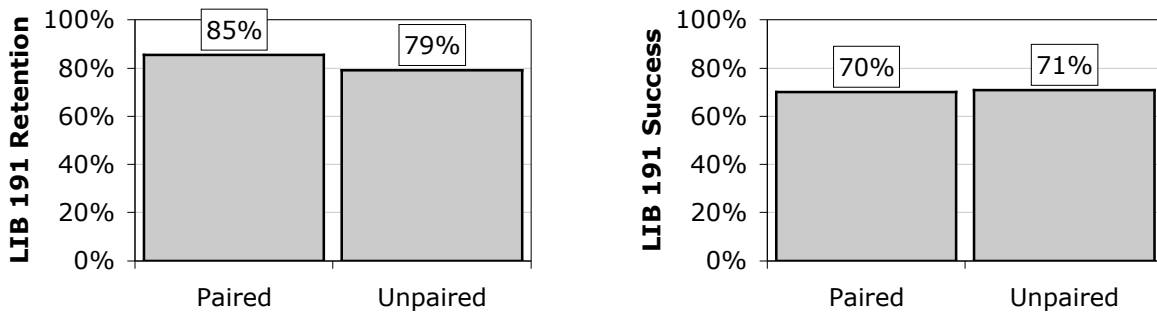
Figure 6. Cumulative Units Completed



Paired and Unpaired Library 191 Classes

Sections of Library 191 were paired with sections of English 101 (freshman composition) from Spring 2002 through Spring 2005. Although Library 191 success and retention rates were somewhat higher in paired sections than unpaired sections, the differences were not statistically significant. The following graphs show Library 191 retention and success rates in paired and unpaired classes from Spring 2000 through Spring 2005. Data are shown for two groups of students. The paired group includes students from Library 191 sections paired with English 101 sections (in two semesters, Library 191 sections were paired with English 191 and Business Administration 106 sections; data for these sections are not included here). The unpaired group includes students in all unpaired Library 191 sections who were eligible for English 101.

Figure 7. Library 191 Retention and Success for Paired and Unpaired Courses



Students in paired Library 191 classes were not significantly more successful on long-term outcome measures. The collegewide cumulative GPA of students in paired Library 191 classes was 2.37, compared to 2.50 for students in unpaired Library 191 classes who were eligible for English 101. The difference was not statistically significant.

Students in paired Library 191 classes were not more successful in their English 101 classes than students in unpaired English 101 classes. In fact, students in paired English 101 classes were less successful than students in unpaired English 101 classes. The English 101 success rate for paired classes was 57%, compared to 65% in unpaired classes. This difference was statistically significant. It is possible that paired classes were taught by instructors who tended to grade lower than unpaired classes. However, looking only at classes taught by the same instructors, the English 101 success rate in unpaired classes was 62%. The difference (57% in paired classes vs. 62% in unpaired classes) was not statistically significant.

Library Workshops

The Glendale Community College Library offers workshops focusing on such topics as research strategies, critical evaluation of sources, journals and newspapers, academic research on the web, and other topics. Since Spring 2000, attendance at Library workshops has been a class assignment in some sections of English 101 (level 6, freshman English), English 120 (level 5),

and ESL 151 (level 5). The following section reports on the effectiveness of Library workshops as components of these courses.

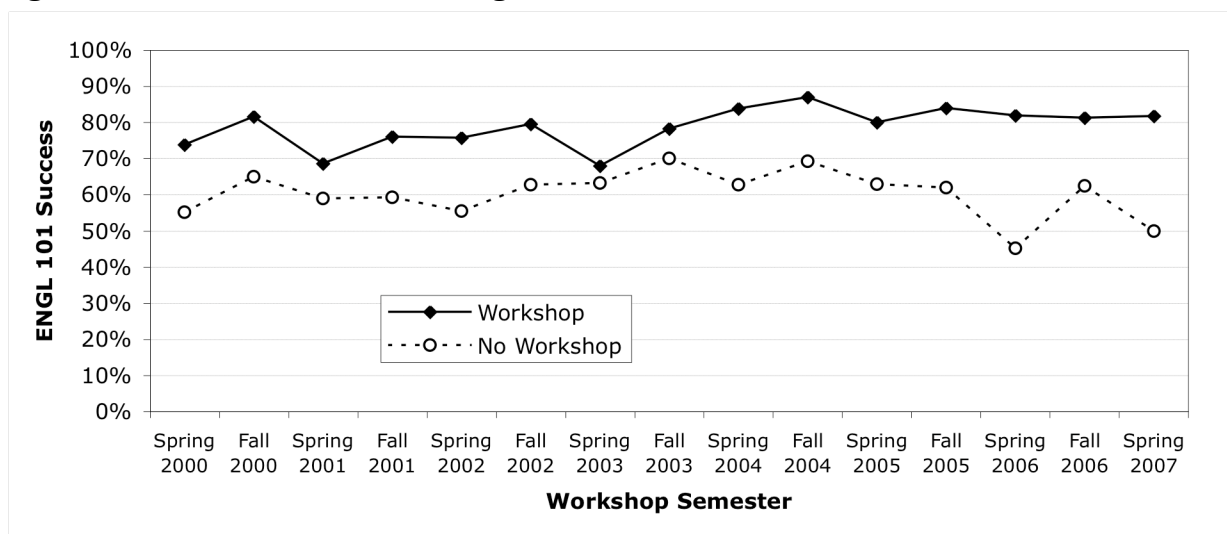
Some instructors required their students to complete Library workshops and some did not, allowing a comparison of student outcomes for students enrolled in different sections of the same course. It is important to note that Library workshops were class assignments for some instructors, so failure to complete a workshop could result in a lower grade. Thus, course grade and workshop completion should be correlated regardless of the effectiveness of the workshop. It is important to examine student outcomes after the English or ESL course to determine if the workshops were associated with positive outcomes.

Course Outcomes: English 101, English 120, and ESL 151

Students completing Library workshops were more successful than students who took the same English or ESL course but did not complete a Library workshop. The differences in success rates were statistically significant for English 101, English 120, and ESL 151.

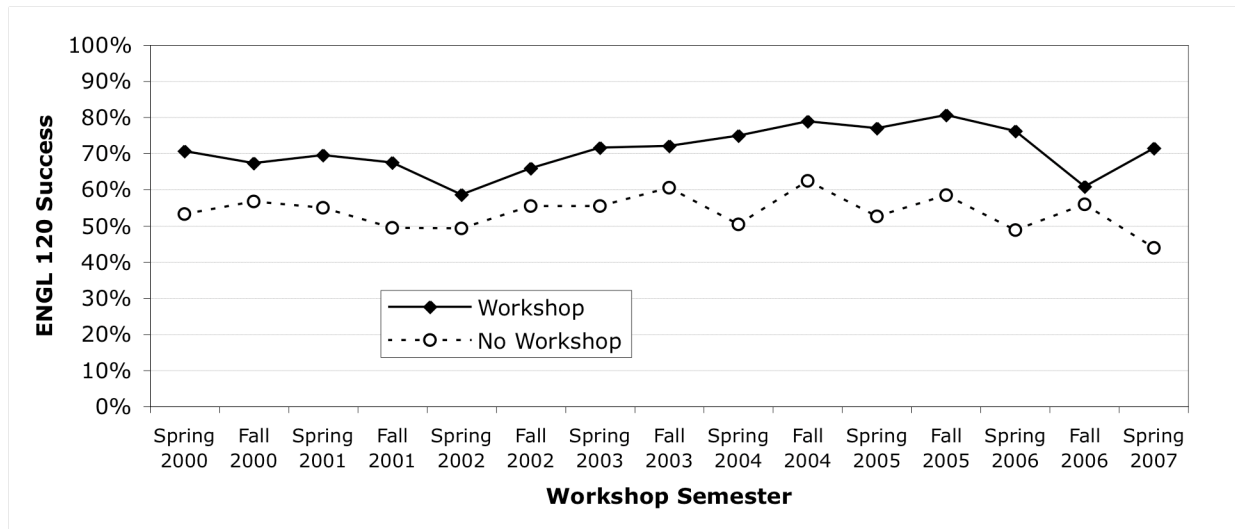
The following graph shows English 101 success rates for both student groups. Library workshop students were generally more successful than non-workshop students in English 101. The average difference in course success rate was 19 percentage points, a statistically significant difference. As mentioned in the previous section, however, the relationship between course success and workshop completion might be due to factors other than the workshop, such as the possibility that workshop completion was counted as part of the student’s grade.

Figure 8. Course Success Rate in English 101



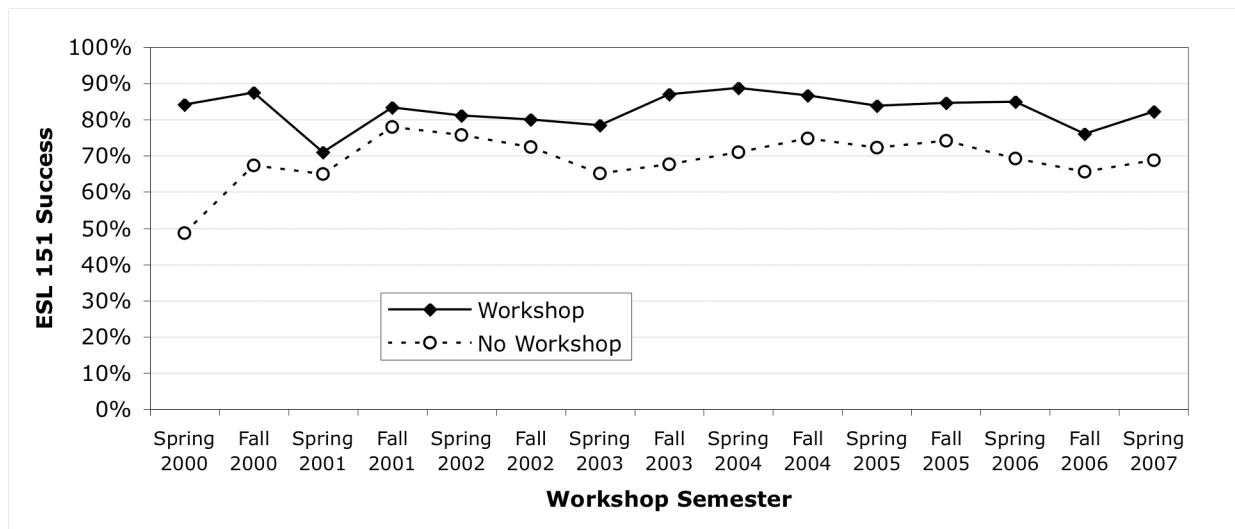
The next graph shows success rates in English 120. Across 15 semesters, the average success rate in English 120 was 15 percentage points higher for students completing Library workshop hours (69% for workshop completers vs. 54% for non-completers). The difference was statistically significant.

Figure 9. Course Success Rate in English 120



The following graph shows success rates for ESL 151. The average difference in success rates was 13 percentage points for ESL 151 (83% for workshop completers vs. 70% for non-completers), a statistically significant difference when combining data across 15 semesters.

Figure 10. Course Success Rate in ESL 151

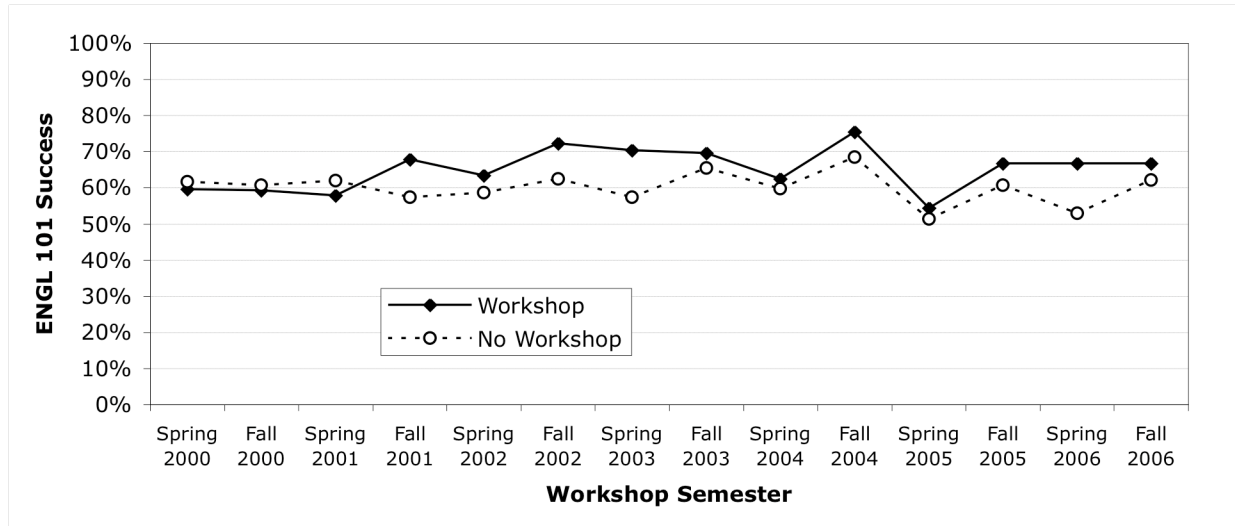


Subsequent Course Outcomes: English 120 and ESL 151

If the Library workshops are effective in imparting skills students need to succeed, it would be expected that students completing workshops would be more successful in their subsequent coursework. Both English 120 and ESL 151 feed into English 101, transfer-level freshman composition. The following results show that, whereas Library workshops were associated with better performance in the associated course, they did not have a large effect on performance in the subsequent English course.

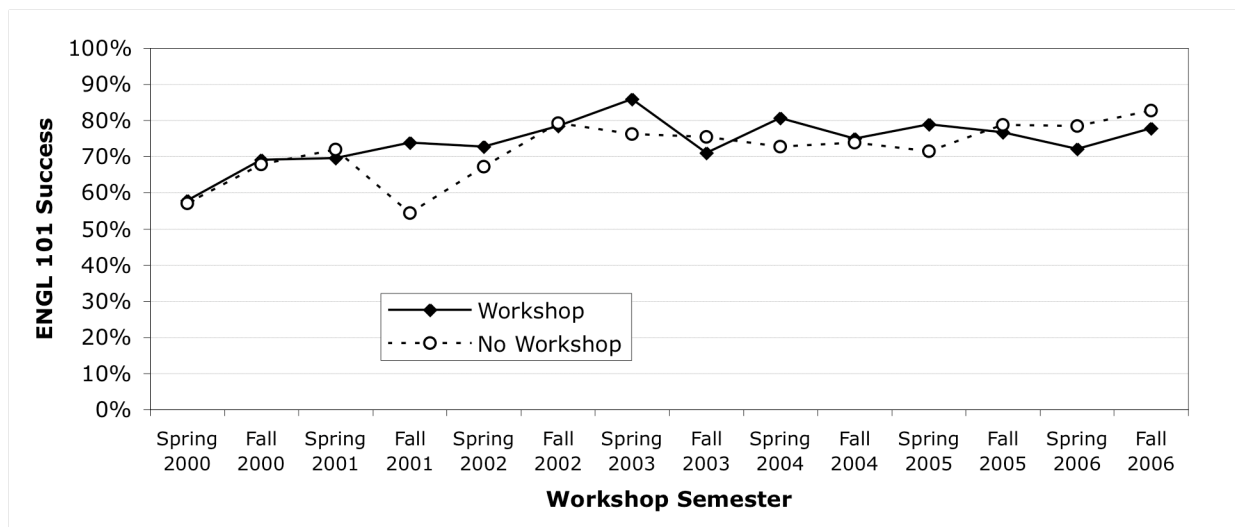
The following graph shows success in English 101 for students who completed Library workshop hours in their previous English 120 course. Workshop students were significantly more successful in English 101 than non-workshop students in two semesters: Fall 2001 and Fall 2002. Across 14 semesters, students completing workshop hours with their English 120 course had a success rate of 65% in English 101, compared to 61% for students not completing workshop hours with English 120. The difference of four percentage points was small but statistically significant.

Figure 11. English 101 Success of Students Taking Library Workshops with English 120



The following graph shows success in English 101 for students coming from ESL 151. The success difference was only statistically significant in Fall 2001. The overall difference (only 2 percentage points) across 14 semesters was not statistically significant.

Figure 12. English 101 Success of Students Taking Library Workshops with ESL 151



These results show that the Library workshops in English 120 were associated with higher success rates in English 101, but the same was not true for ESL 151. The following

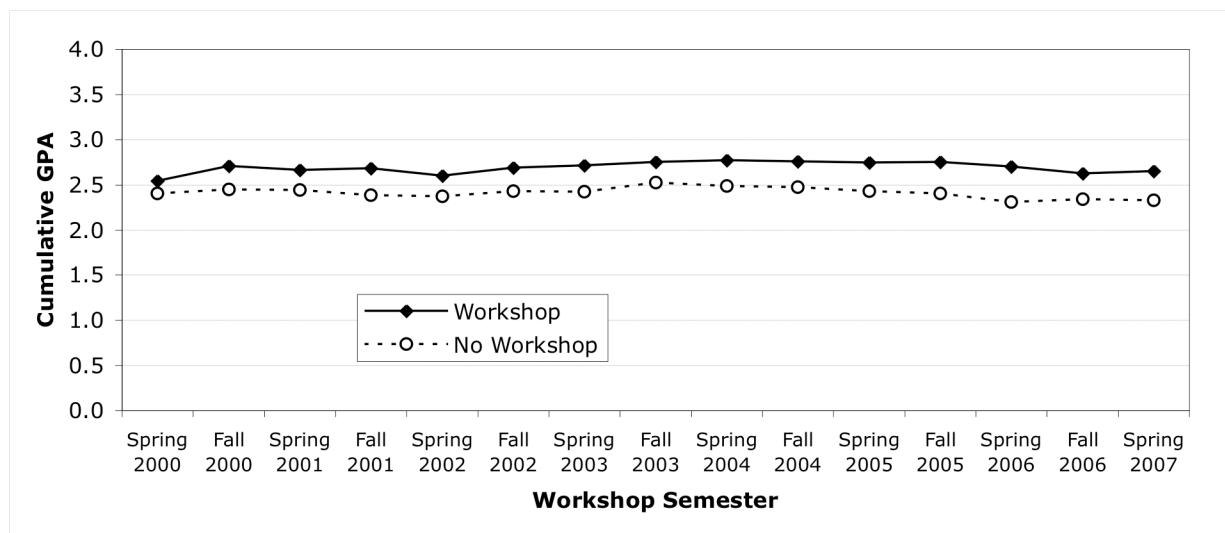
section reports some evidence that workshop students have greater long-term success than non-workshop students.

Long-Term Student Outcomes

Students completing Library workshop hours had higher cumulative collegewide GPA's and completed more total units than students taking English 101, English 120, and ESL 151 without completing Library workshop hours. However, it is not possible to conclude that workshops cause more positive outcomes. It is possible that stronger students completed workshop hours and would have succeeded at a higher rate than non-workshop students regardless of the workshops.

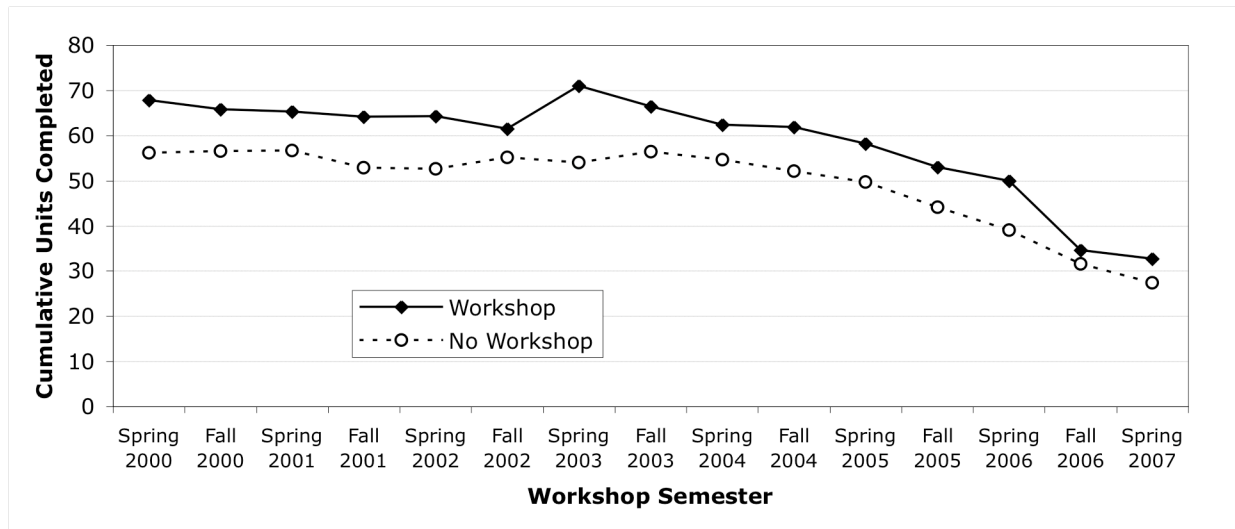
The following graph shows cumulative collegewide GPA for workshop and non-workshop students. The average workshop student's cumulative GPA was 2.68, compared to 2.41 for the average non-workshop student. The overall difference in GPA (0.27) was statistically significant, and the differences in each semester were all statistically significant.

Figure 13. Cumulative Collegewide GPA



The following graph shows mean total units completed for workshop and non-workshop students. Workshop students completed significantly more units during their career at Glendale College. The average number of units completed by workshop students was 56.1, compared to 49.6 for non-workshop students. Note that the declining trend in the graph is an artifact of the study: students enrolled in Spring 2000 had more opportunities to enroll than students enrolled in Spring 2007 because they were more likely to be enrolled at the college earlier.

Figure 14. Cumulative Units Completed



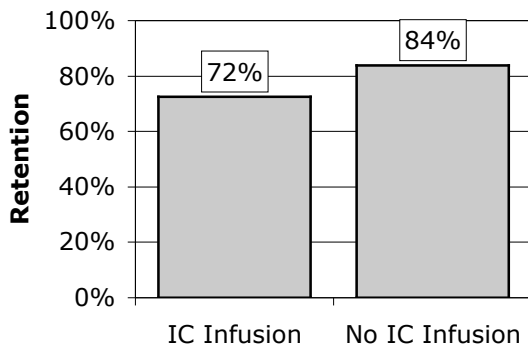
The results reported above suggest that Library workshops are associated with greater long-term student outcomes. Completion of Library workshop hours is correlated with somewhat higher success in English 101 (for English 120 students), with higher cumulative GPA, and with higher cumulative units earned.

Extended Infusion

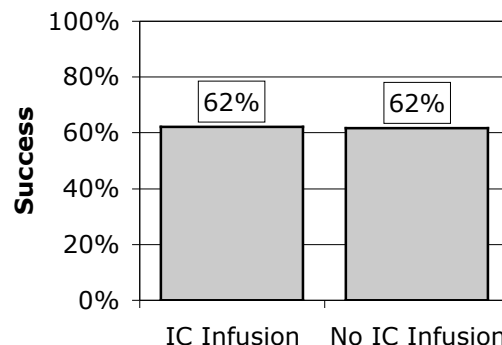
In Fall 2003, one Library faculty member taught six information competency sections as part of an English 120 class. These instructional sessions were structured around topics covered in the workshop program, including research strategies, online catalog, journals and newspapers, Internet basics, academic research on the web, and evaluating web resources.

The following graphs show retention and success in English 120, comparing outcomes in the one section including the extended infusion with the 24 sections not including the infusion. Retention and success in English 120 were not significantly different for the infusion section compared to the other sections.

English 120 Retention



English 120 Success

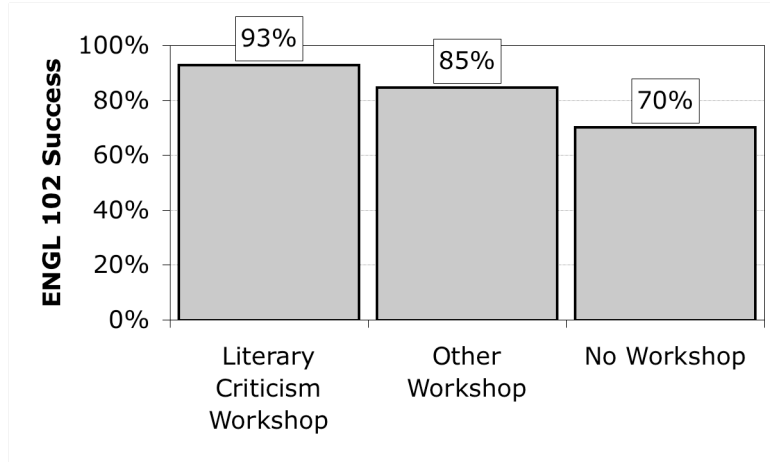


Individual Library Workshops

Four specific Library workshops were revised: Literary Criticism, Academic Research on the Web, Critical Evaluation of Web Resources, and Improving Library Research. The following section describes student outcomes for these revised workshops.

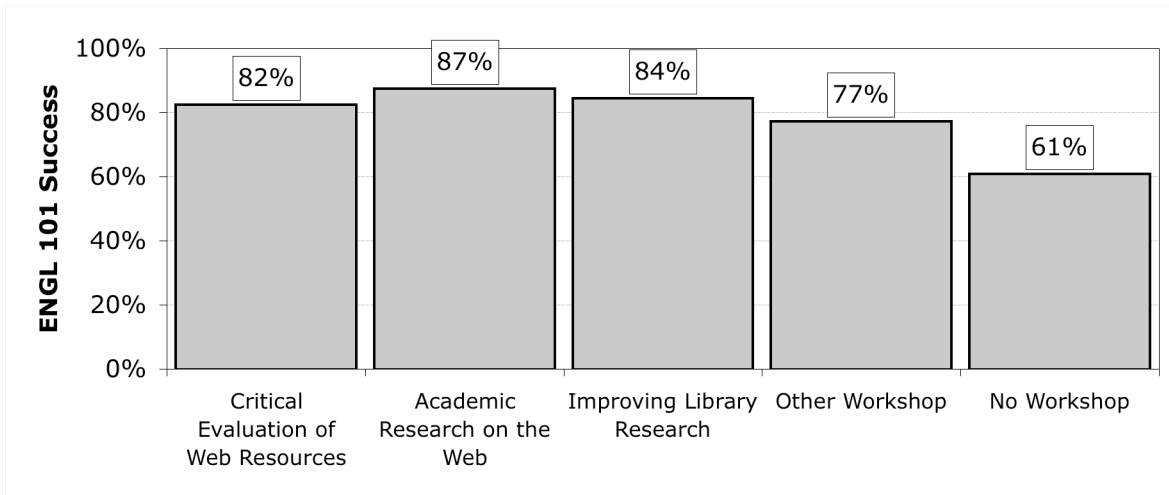
The Literary Criticism workshop was aimed at students taking English 102, Critical Thinking and Literary Analysis, a transferable course with English 101 as a prerequisite. Students completing the Literary Criticism workshop were more successful in their English 102 courses than students not completing Library workshops. The graph below shows course success rates in English 102 for students completing Literary Criticism workshop hours during the same semester they took English 102, as well as for students completing other Library workshops during the same semester they took English 102. The success rate of students completing Library workshop hours was significantly higher than that of students completing no hours.

Figure 15. English 102 Outcomes



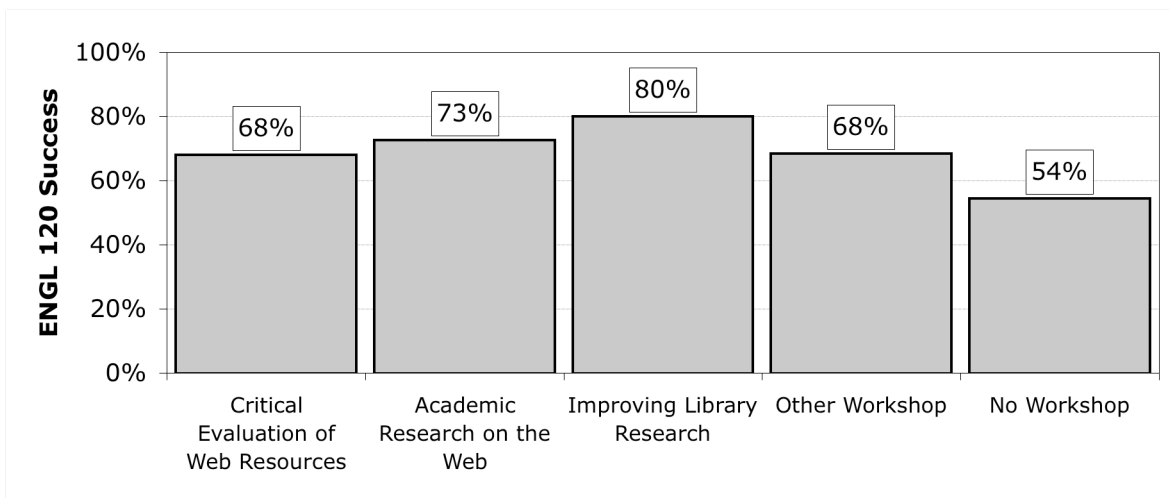
The following graph shows success rates in English 101 for the three workshops other than Literary Criticism. Again, students not completing Library workshop hours were less successful in English 101 than students completing Library workshop hours. The workshop associated with the highest English 101 success rate was Improving Library Research.

Figure 16. English 101 Outcomes



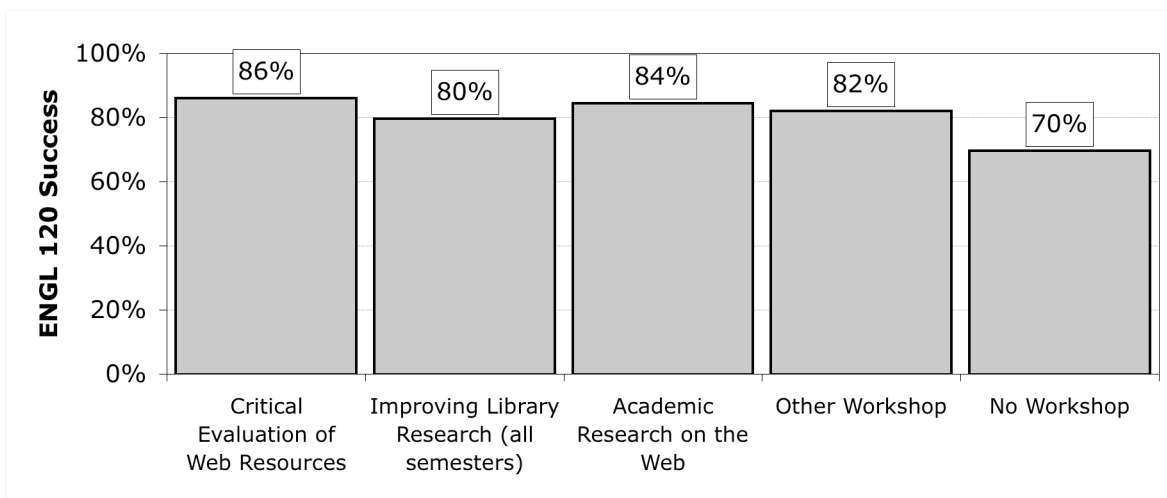
The next graph shows outcomes in English 120. Non-completers were again the least successful group of students. Completers of the Critical Evaluation of Web Resources workshop were the most successful group in English 120.

Figure 17. English 120 Outcomes



The next graph shows outcomes in ESL 151. Students completing the Academic Research on the Web workshop were more successful than other students in ESL 151.

Figure 18. ESL 151 Outcomes



Conclusions

This report presents evidence that two components of the Information Competency program, Library workshops and Library courses, were positively associated with student success. The following statistically significant results were found for the Library 101 and 191 courses across 15 semesters.

- ◆ Students who passed Library 101/191 had slightly higher semester GPA's (a difference of 0.21 points) than a matched comparison group of students who did not pass Library 101/191.
- ◆ Students who passed Library 101/191 completed 1.2 more semester units on average than the matched comparison group.
- ◆ Students who passed Library 101/191 were more likely to persist to the next semester (by 11 percentage points) than the matched comparison group.
- ◆ Students who passed Library 101/191 completed an average of 0.8 more units in the next semester than the matched comparison group.
- ◆ Students who passed Library 101/191 had higher cumulative GPA's (a difference of 0.16 points) than the matched comparison group.
- ◆ Students who passed Library 101/191 completed 6.4 more cumulative units on average than the matched comparison group.

However, pairing Library 191 classes with English 101 sections did not result in significantly better performance in Library 191, English 101, or on long-term measures of success.

The following statistically significant results were found for the Library workshops.

- ◆ Students completing Library workshop hours had significantly higher success rates in their associated English 101, English 120, and ESL 151 classes than other students in the same classes. Because in many cases workshop completion was a class assignment, this is not strong evidence that Library workshops are effective. Evidence for the

effectiveness of the workshops comes from the somewhat better performance in English 101 of students who had completed workshops as part of their English 120 class. The English 101 success rate of workshop students was four percentage points higher than that of non-workshop students coming from English 120.

- ◆ Students completing Library workshops had higher cumulative collegewide GPA's than students taking English 101, English 120, and ESL 151 without completing workshops (a GPA difference of 0.27 points).
- ◆ Students completing Library workshops completed more cumulative units, as of Spring 2007, than students taking English 101, English 120, and ESL 151 without completing workshops (a difference of 6.6 total units).

The results show that both Library workshops and Library courses were associated with more positive short-term and long-term student outcomes. It is not possible to conclude that these information competency interventions caused positive outcomes because of the self-selection problem. Students chose whether to complete Library workshops and to take Library courses; presumably, more motivated and academically skilled students were more likely to choose these activities.

However, the comparisons presented here took the self-selection bias into account. Workshop students were compared with other students enrolled in the same courses so the English skill levels of both groups were presumably comparable. Library 101/191 students were matched with students with similar academic ability (measured by previous GPA, enrollment status, and term units attempted). It is reasonable to conclude that both components of the information competency program are associated with short-term and long-term student success.