

Impact of a Library Instruction Session on Bibliographies of Organic Chemistry Students

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Background

Students in Chemistry 254: Organic Chemistry for Majors were required to write a paper about an organic name reaction. The students were to explain the history and significance of the reaction and provide spectra for a chemical involved in the reaction, using journal articles that were cited in appropriate ACS Style.¹

Objectives

This study aims to determine whether attending a library instruction session can improve students' bibliographies. Metrics included use of scholarly sources, properly citing articles and spectra, and correct use of ACS Style.

Methods

Prior to submitting their assignment, students had the option of attending a library instruction session covering SciFinder, sources for spectra, ACS Style, and print resources about organic name reactions. Once assignments were submitted, the papers were anonymized and assessed on the metrics listed in the next column.

Participants

- Students in Chemistry 254: Organic Chemistry
- Chemistry Majors
- Second-Year Students
- Students self-selected as to whether or not they would attend a library instruction session
- 25 students attended a session; 28 did not

Metrics

Scholarly Sources

The assignment required students to cite peer-reviewed articles (no books, websites, or news articles).

Citing Spectra

Students were required to include and cite spectra for one compound related to their chosen Name Reaction. The spectra needed to come from a verified source (not SDBS).

ACS Style

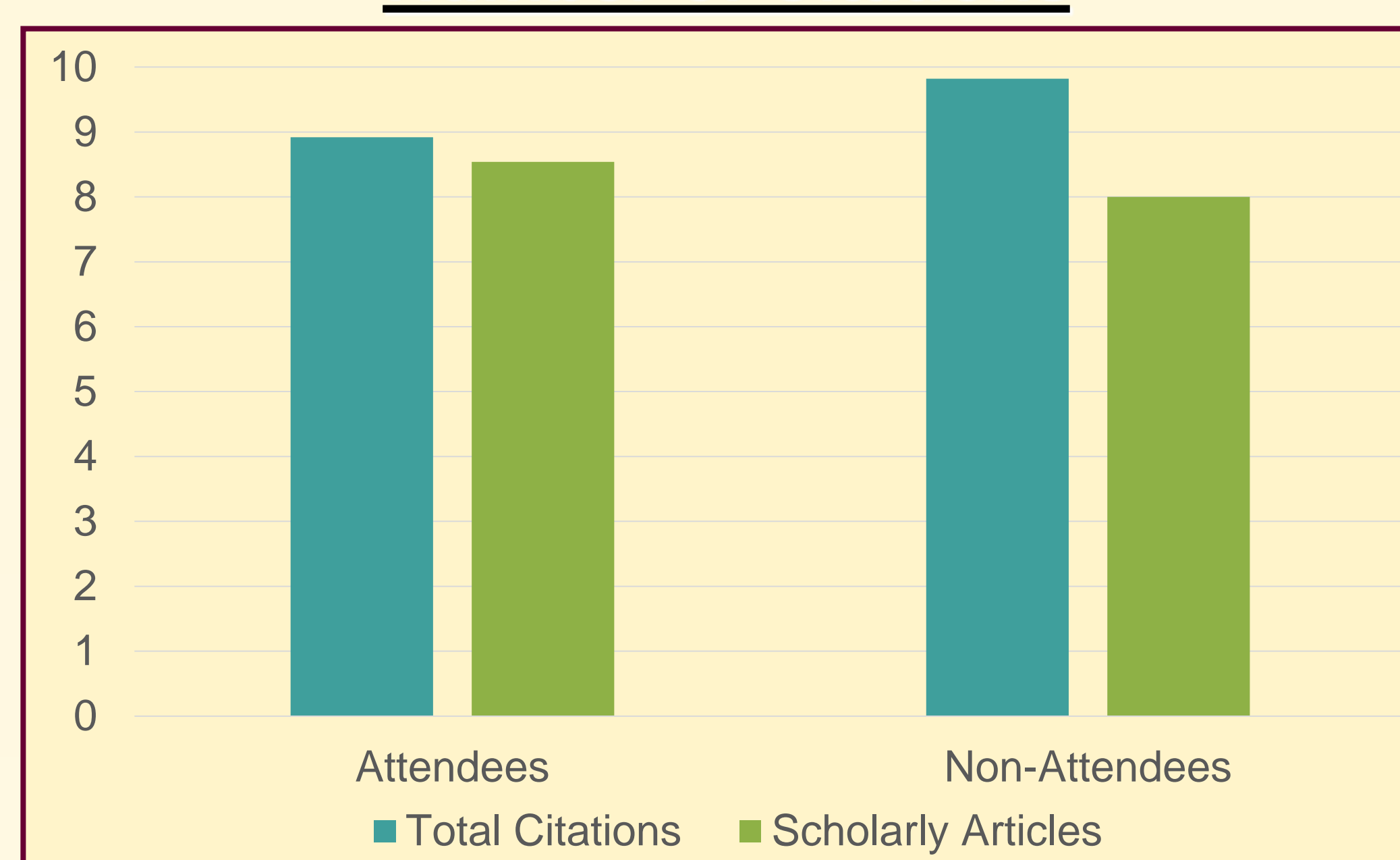
Students needed to compose their bibliographies using proper ACS Style.

Results

Scholarly Sources

- Disregarding spectrum citations, session attendees had on average 8.92 citations, of which 8.54 were scholarly articles (96%).
- Session non-attendees averaged 9.82 citations, of which 8.00 were scholarly articles (81%).

Number of Citations

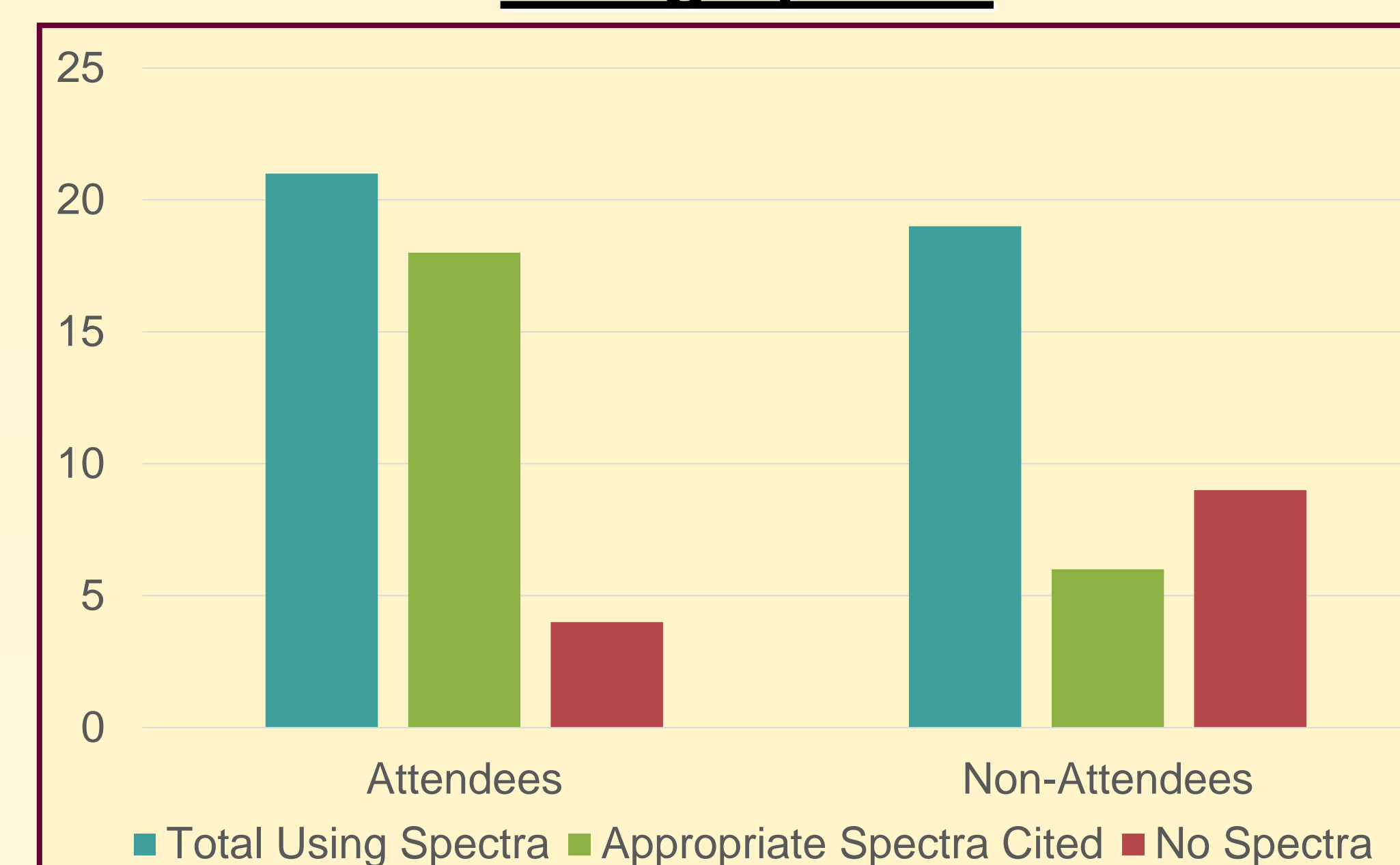


Results

Citing Spectra

- 13 students (25%) did not include spectra in their papers: 4 session attendees (16%) and 9 non-attendees (32%).
- Of the 21 attendees who included spectra, 18 cited appropriate spectra (86%).
- Of the 19 non-attendees, only 6 used and cited appropriate spectra (32%).

Citing Spectra



ACS Style

Largely unsatisfactory, regardless of instruction session attendance.

Common errors:

- Including Article Titles (75%)
- No Formatting: Bolds, Italics (60%)
- No Journal Title Abbreviations (57%)
- Using Other Citation Styles (21%)

Limitations

- Self-selection: better students attend?
- Percentage of grade: worth dedicating much time to assignment?

Conclusions

- Students who attended a library instruction session received on average 14% higher bibliography scores (82% vs. 68%) than those who did not.
- Those students who attended a library instruction session were more likely to use and cite scholarly sources.
- Students who attended a session were more likely to use and cite spectra from a verified source.
- Whether or not a student attended a library instruction session, their use of ACS Style was unsatisfactory. This represents room for better instruction in future library sessions.

Future Directions

- Why did session non-attendees cite more sources?
- Modified experiment: all students write a bibliography before and after attending a library instruction session.
- Explore data further: Range of years cited, breadth of journals used.
- Cost analysis of journals cited.

References

1. <http://www.users.miamioh.edu/kromerjd/assignment.pdf>

Special thanks to Dr. Ben Gung for allowing me to work with his students.