

In Search of Value-Added Information Literacy: A Citation Analysis Study

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A university education should provide students with the ability to read, evaluate, and engage with multiple types of sources. For this reason, information literacy is a core competency at our university. It is also a competency desired by our state higher education agency.

This study assesses whether students who graduate from our university have a greater ability to interact with sources than students who are in their first year at the university. Does their college education truly provide value-added information literacy?

This research project was inspired by the Citation Project, a renowned nation-wide effort to document freshman students' source use in papers. The primary goal of the Citation Project, though, is to prevent plagiarism. In our localized version, the goal was to evaluate not just the accuracy of citing, but how and what types of sources are used. Unusual among studies of this kind, we compared freshman papers and senior capstone papers. Extrapolating from the Citation Project national results, we expected our freshmen source use to be elementary. Would that change at the senior level?

We used a methodology developed by University of Richmond (UR) librarians, with their permission and assistance. Student papers were collected from professors and an appropriate sample was selected. The sources within the bibliographies were then compared with the quotations, paraphrases, and summaries in the paper. Each citation was coded as to type of source and kind of source use. IRB was gained for all studies, and we received grants from our campus assessment office in order to hire students.

In Study 1, we collected papers from three sections of our freshmen composition course, known as CORE, each taught by a different professor, and for our senior papers, we drew from 5 courses, each in a different department, representing three colleges at our university. After verifying that the students fit the study criteria, a sample of papers were selected and blinded. A library student worker located the sources cited in the paper. Two English graduate students were hired with the grant money and trained to code the papers. UR librarians Carol Wittig and Carrie Ludovico invaluable assistance in the training. The assessment librarian then aggregated and analyzed the data using SPSS.

Questions we wanted answered:

- Do the students use more quotes than paraphrases or summaries, which could indicate an inadequate understanding of the original?
- When they quote, do they do so correctly?
- Are they incorporating secondary sources well, or are they citing them as if it were the primary author speaking?
- Are their paraphrases faithful, or are they 'patchwriting' (original text with just a few words changed)?

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- Are they actually using the scholarly sources listed in their bibliographies?

Our coders analyzed 1219 citations from 50 papers. Seniors used slightly more books and journals; this difference seemed to be driven by assignment requirements rather than student choice. In both populations, quoting was the preferred way to include a source. We found a consistent level of citation errors in both groups: the cited material was not found in the original source, or text was not appropriately attributed. Overall, there were more similarities than differences between freshman and senior papers.

For Study 2, completed in 2016, we focused on the senior cohort. The sample was drawn from senior papers remaining in the original pool of papers used in 2014. Twenty-five papers were from seniors who completed the CORE here at Radford University. Twenty-eight papers were from those who tested out of the CORE or transferred in. The data from the worksheets was summarized using descriptive statistics (frequencies and percentages). No inferential statistics were used. A total of 1146 citations from 53 papers were analyzed. The CORE senior papers had 714 citations (mean per paper = 28.6), while Non-CORE senior papers provided 431 citations (mean per paper = 15.4).

In many ways, the two groups performed similarly, probably because they were working with the same assignment guidelines. But there were distinct differences between the two groups in terms of their source usage. Non-CORE students did not cite as much within their papers, possibly indicating that while they found sources, they may not have incorporated them into their arguments. Non-CORE students also relied more heavily on Websites, possibly indicating a lack of familiarity with library databases.

On the other hand, non-CORE students used the higher level skills of paraphrasing and summarizing with much more frequency. Perhaps we scare our CORE students to death about plagiarism, which is why they use more quotes as seniors. They never move to paraphrasing/summarizing. Nonetheless, CORE students find and use a lot more sources, and do a better job of citing them.

Appendix A. Summary of Study 1 Findings

Source Type	Freshmen (N)	Freshmen (%)	Seniors (N)	Seniors (%)
Books	12	2.4%	73	10.2%
Ebooks	16	3.2%	37	5.2%
Government Docs	1	0.2%	86	12.0%
Journals	99	19.6%	253	35.4%
Magazine (Popular)	10	2.0%	2	0.3%
Multi-media	4	0.8%	1	0.1%
News Sources	29	5.8%	7	1.0%
Pamphlet	1	0.2%	6	0.8%
Personal Communication	27	5.4%	32	4.5%
Reference	2	0.4%	1	0.1%
Websites	116	23.0%	128	18.0%
Cited source not found	187	37.1%	89	12.4%
Total	504	100.0%	715	100.0%

Quotation Use	Freshmen (N)	Freshmen (%)	Seniors (N)	Seniors (%)
Text copied and quoted	131	26.0%	232	32.4%
Text copied but not quoted	19	3.8%	52	7.3%
Quotations not used in citation	354	70.2%	431	60.3%
Total	504	100.0%	715	100.0%

Use Type	Freshmen (N)	Freshmen (%)	Seniors (N)	Seniors (%)
Summarizing	57	11.3%	83	11.6%
Paraphrasing	65	12.9%	93	13.0%
Patchwriting	39	7.7%	67	9.4%
Numbers or statistics	17	3.4%	73	10.2%
Not used	326	64.7%	399	55.8%
Total	504	100.0%	715	100.0%

TABLE 4
Citation errors of form and use found in the student paper sample

Errors of Form	Freshmen (N)	Freshmen (%)	Seniors (N)	Seniors (%)
Inaccurate author	6	1.2%	19	2.7%
Inaccurate page	71	14.1%	183	25.6%
Inaccurate source	26	5.2%	37	5.2%
Broken link	0	0.0%	3	0.4%
Errors of Use				
Abstract cited	27	5.4%	31	4.3%
Inaccurate quotation of text	7	1.4%	7	1.0%
In-text citation only	13	2.6%	31	4.3%
Not a primary source	10	2.0%	26	3.6%
Not found in given source	30	6.0%	64	9.0%
Uncited but should have been	195	38.7%	97	13.6%
No errors found	119	23.6%	217	30.3%
Total	504	100.0%	715	100.0%

Appendix B. Summary of Study 2 Findings

Source Type	CORE Seniors (N)	CORE Seniors (%)	Non-CORE Seniors (N)	Non-CORE Seniors (%)
Books	73	10.2%	65	15.1%
Ebooks	37	5.2%	9	2.1%
Government Docs	86	12.0%	0	0.0%
Journals	253	35.4%	170	39.4%
Magazine (Popular)	2	0.3%	2	0.5%
Multi-media	1	0.1%	0	0.0%
News Sources	7	1.0%	0	0.0%
Pamphlet	6	0.8%	0	0.0%
Personal Communication	32	4.5%	0	0.0%
Reference	1	0.1%	3	0.7%
Websites	128	17.9%	141	32.7%
Cited source not found	89	12.4%	41	9.5%
Total	715	100%	431	100%

Quotation Use	CORE Seniors (N)	CORE Seniors (%)	Non-CORE Seniors (N)	Non-CORE Seniors (%)
Text copied and quoted	232	32.4%	105	24.4%
Text copied but not quoted	52	7.3%	24	5.6%
Quotations not used in citation	431	60.3%	302	70.1%
Total	715	100%	431	100%

Use Type	CORE Seniors (N)	CORE Seniors (%)	Non-CORE Seniors (N)	Non-CORE Seniors (%)
Summarizing	83	11.6%	74	17.2%
Paraphrasing	93	13.0%	80	18.6%
Patchwriting	67	9.4%	52	12.1%
Numbers or statistics	73	10.2%	35	8.1%
Not used	399	55.8%	190	44.1%
Total	715	100%	431	100%

TABLE 4
Citation errors of form and use found in the student paper sample

Errors of Form	CORE Seniors (N)	CORE Seniors (%)	Non-CORE Seniors (N)	Non-CORE Seniors (%)
Inaccurate author	19	2.7%	0	0.0%
Inaccurate page	183	25.6%	84	19.5%
Inaccurate source	37	5.2%	9	2.1%
Broken link	3	0.4%	5	1.1%
Errors of Use				
Abstract cited	31	4.3%	22	5.1%
Source is Google Books	0	0.0%	3	0.7%
Inaccurate quotation of text	7	1.0%	2	0.5%
Internally cited only	31	4.3%	32	7.4%
Reference list only (no internal citations)	0	0.0%	40	9.3%
No reference list provided	0	0.0%	30	7.0%
Not a primary source	26	3.6%	1	0.2%
Citation not found in given source	64	9.0%	32	7.4%
Uncited but should have been	97	13.6%	41	9.5%
Error not specified by coder	0	0.0%	21	4.9%
No errors found	217	30.3%	109	25.3%
Total	715	100%	431	100%