Gains and Gaps in OER: Using Rubrics to Assess the Impact of OER on Writing and Information Literacy Skills in the Literature Classroom

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abstract: Open educational resources (OER) reduce the textbook cost burden for students, but we must examine whether students using OER are learning the necessary skills to succeed in their academic work. This study used rubrics to examine student essays and evaluate whether students using OER and those using commercial textbooks varied in how they developed the analysis and research skills necessary for studying and writing about literature. Results showed that in nearly all categories of the writing rubric, students in OER-only classes scored significantly higher than students in classes using commercial textbooks, while those in classes using a commercial textbook tended to demonstrate stronger information literacy skills. This study identifies trends to address in revision of OER and pedagogy practices in addition to giving insight into student performance.

Introduction

As creation and use of open educational resources (OER) has gained in popularity over the past 20 years, questions have arisen regarding OER's efficacy.[1] The researchers on this study are responsible, in varying degrees, for the adaptation or creation of four OER currently in use by the English department of Texas A&M University. This study focuses specifically on the text *Surface and Subtext: Literature, Research, Writing*, an OER created for use in the department's multi-section course,

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English 203: Introduction to Writing about Literature. This is a general education course, which may be taken at any point in a student's degree plan. Students in these classes range from freshmen to seniors and represent majors from across the university. The OER was written and edited by faculty within the department, including several of the study's researchers, and contains an introduction to many genres of literature, such as poetry, short stories, and novels, as well as public domain examples of those genres like *Jane Eyre*. In addition, the OER focuses on developing writing skills, providing both a chapter on researched writing and example essays demonstrating how to write a literary analysis for each genre.

While OER provide an excellent means of cutting costs for students, it is also important to ensure that students using this text are acquiring the skills necessary to succeed in analysis and research when studying and writing about literature. OER assessment provides data indicating where students' strengths and challenges lie in the course. This assessment is critical to student success and enables faculty authoring or adapting OER to make changes tailored to student needs, as well as to their own pedagogical aims. Because OER are living documents that are much easier to revise and update than conventional textbooks, and because, in fact, OER come with the expectations of revision and expansion (both by their creators and their users), assessment emerges as a necessary and desirable aspect of OER use.

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Librarians and English faculty jointly developed this study to evaluate the writing and information literacy skills of their students, and, in the process, the researchers garnered ideas for how they might strengthen the course's OER textbook to better meet students' writing and research needs. Specifically, the research questions driving this study are:

1. **Do** students in classes with assigned OER perform the desired writing and information literacy skills similarly to those in classes with traditional textbooks?
2. **What** areas of the assigned OER can potentially be revised and strengthened, based on student performance, and in what ways?

Literature Review

With the increased need for accountability and evidence of student learning, there has been a push for assessment in higher education. While these assessments often tell a story of student mastery and gaps in learning, they also open a path for evidence-based curricular improvement. These sorts of evidence-based improvements should be developed through systematic assessment, and Amie A. Manis, Lisa W. McKenna, and Stacy Sculthorp note that "faculty, who commonly play a key role in instructional design, student engagement, and assessment, are essential to setting the foundation for and implementing systematic assessment of learning."[2]

Rubric-based assessments are common in writing studies and in library science as a strategy for understanding the effectiveness of a curriculum. In general, rubric-based assessment is a popular assessment strategy, and a 2015 Association of American Colleges and Universities (AAC&U) survey of administrators found that among their "member institutions that assess outcomes in general education the most commonly used approach to assessing outcomes is the use of rubrics applied to samples of student work…"[3]

Writing Skills

Rubric-based grading is central to writing programs. Rubrics provide a degree of standardization to ensure uniform grading practices and a way for students to quickly understand the expectation for an assignment.[4] Beyond the classroom, rubrics allow instructors to create uniform standards across the curriculum. For example, when the Brigham Young University (BYU) English department revised its writing curriculum, rubrics were created and shared so faculty could more uniformly assess student performance in this revamped curriculum.[5] Rubrics are also useful for faculty in sciences, such as biology, who have adopted rubrics for writing intensive courses.[6] In addition, some have attempted to create university-wide rubrics that could be tailored to specific disciplines.[7] Despite the ubiquity of rubrics in writing programs, they do have their detractors. Maja Wilson argues that "the reductive categories of rubrics don't honor the complexity of what we see in writing and what our students try to accomplish."[8] Such criticism might be more necessary than ever given the ways in which AI might be harnessed to meet rubric standards, creating as a result a uniformity of thought and writing. Nonetheless, rubrics remain the most effective way to grade student writing in uniform ways that meet course, departmental, and university expectations. One such example is described by Scott Warnock who outlines the process that Drexel University's LeBow College of Business piloted to assess student writing within the program.[9] The pilot was later expanded and repeated over several years, allowing the researchers to target specific outcomes and respond to results with curricular adjustments.[10] In the expanded study, Scott Warnock et al. found that students consistently did not score well on the use of evidence and research in their writing, stating that "perhaps using evidence in writing is inherently difficult, and if students are going to improve in this skill, more systemic change and training are necessary."[11]

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Information Literacy

Rubrics have also become a common method of evaluating student information literacy skills. One of the most prominent uses of rubrics in libraries was the Rubric Assessment of Information Literacy Skills (RAILS) project, which was an Institute of Museum and Library Services (IMLS)-funded research project supporting and researching use of rubrics for information literacy skills assessment.[12] Pre-dating the RAILS project, Lorrie A. Knight worked with faculty in a required first-year course to develop a rubric to as-

sess information literacy skills, after which the results of the study were used to inform revision of the library's online tutorial supporting the course.[13] More recently, librarians at Utah State University used a rubric-based assessment of student composition papers to benchmark student skills and later to determine whether curricular changes made in response to identified areas of weakness improved student information literacy skills.[14]

In addition, rubric assessment projects have offered an opportunity for librarians to collaborate with faculty to better understand student learning. For example, at Dominican University, librarians and English faculty collaborated to evaluate student writing and information literacy skills on an annotated bibliography assignment.[15] Librarians who have worked on rubric-based assessment projects with faculty have noted that these projects improved relationships between the library and partner organizations, explaining that "existing partnerships were enriched by the collaborative development of rubrics and shared scoring of student work."[16]

OER

Many researchers have assessed the impact of OER on student learning. This impact has been measured in many forms. Perhaps the most common topic of study is the impact on student grades. According to multiple meta-analyses of studies of the impact of OER on student academic performance, students using OER perform no differently or perform better than those using commercial textbooks.[17] Other researchers have examined faculty perceptions of the impact of OER on student learning. In a survey of educators across 15 different networks, Martin Weller et al. perceived OER-related gains in student engagement with material, though educators were less likely to perceive gains in student performance.[18] Several studies make direct comparisons between OER and commercial textbooks in the same course. For example, Isabelle Chang found that students using OER in a general education quantitative literacy course had comparable academic performance to students using commercial textbooks, and that students using OER "apparently were better prepared, would attend class more regularly, and had better assimilation of the course content and comprehension of the lecture material."[19] Similarly, in her study on an online Spanish language course, Priya Panday-Shukla found that there were no significant differences in student academic outcomes whether they were using an OER or commercial textbook, although she found that students using the OER showed more engagement in the learning process.[20]

In addition to these studies focused on overall academic performance in a course, some researchers have examined the impact of OER on specific student learning outcomes. Erin E. Hardin et al. assessed the impact of an OER on student content knowledge and critical thinking in an undergraduate psychology course, finding that students using OER showed similar critical thinking skills and improved content knowledge in comparison to those using a commercial textbook.[21] The study described here furthers the conversation around OER and student learning by examining the impact of OER on specific course-related skills: writing and information literacy.

Methodology

The authors examined authentic artifacts of student learning in order to evaluate student information literacy and writing skills. After receiving approval from the campus institutional review board, the researchers asked instructors of the campus introduction to writing about literature course to share the study consent form with students. Instructors of students who consented to participate in the study retrieved student research papers from the learning management system at the end of the semester. These research papers were then stripped of identifying details, including student and instructor names and section numbers.

The Dataset

The dataset was gathered over a two-semester period and was composed of 96 papers from six different instructors, including two of the researchers. Although instructor and section information was redacted before papers were analyzed, this information was first used to determine the type(s) of textbook used in each student's class. Four types of textbook use emerged, as are detailed in Table 1.

Table 1.
The dataset

Textbook Type	Number of Papers
Commercial	24
OER	20
Both Commercial and OER	25
No Textbook	27

For the purposes of this study, the term "textbook" can mean a variety of things. In the context of a literature class, a textbook could be a collection of readings, a writing handbook, or a combination of the two. This study did not examine different types of textbooks; instead, it focused on whether the materials were provided commercially or as an OER.

The Rubric

Papers were evaluated using a rubric developed by the researchers, available in the Appendix. The rubric was designed to evaluate both writing and information literacy. In terms of writing skills, the researchers focused on concerns of both higher and lower order, structuring the rubric to focus most heavily on high-order matters, an approach that reflects the focus of the OER chapter on writing and research. The researchers were

interested in whether students demonstrated an awareness of their rhetorical situation in writing, if they included a thesis to focus the paper, and if they provided and analyzed evidence in order to support their main argument. Mid-range concerns included evaluation of both paper and paragraph focus and coherence, and the final rubric category, Readability, focused on proofreading, grammar, punctuation, and style, all of which fall into the category of lower-order concerns. For information literacy assessment, the researchers chose to focus on skills commonly measured by assignment sheets for this course. Specifically, the information literacy aspect of the rubric concentrated on source quality and usage as well as citation formatting.

Megan Oakleaf observed, "Many of the limitations of a rubric approach to assessment are rooted in poor rubric construction. Not all rubrics are well written, and crafting a good rubric requires time, practice, and revision."[22] Given this, the researchers agreed that when scoring papers culled from multiple classes taught by multiple instructors, it was impossible to create a rubric that would perfectly address all potential issues. There would be some gaps, so frequent communication between researchers was key to identifying and addressing issues. It was important to remember that the goal was not to create a perfect rubric, but rather to identify areas for improvement and other learning gaps that could inform classroom practice, assignment creation, teacher training, or OER development.

After drafting the rubric, the researchers performed norming exercises to make sure the rubric was usable and understood by all the researchers. When gaps in understanding appeared, a series of adjustments were made to the rubric or the team came to a shared understanding of how to apply a particular category. For example, the team discussed citing correctly versus citing correctly in MLA style, which informed the fine-tuning of the In-text Citation Format and Reference List Format portions of the rubric. It was also decided that Source Quality could only be determined if the student used sources outside the primary text. To assess the Rhetorical Situation category, the researchers began by weighting different aspects of the rhetorical situation—audience versus genre, for example—so norming sessions involved defining what aspects would be observed as part of the Rhetorical Situation rubric category. Also, because Essay Organization and Paragraph Organization were broken into different categories, the researchers paid particular attention to avoiding conflation of the two. The same applied to the categories Evidence and Analysis of Evidence.

Two pairs of researchers evaluated each paper in the dataset, with each pair focused on a specific skill set (information literacy or writing). Two librarian researchers evaluated the papers for evidence of information literacy skills, while two writing-focused researchers examined the papers for writing skills. Each pair of researchers had a similar amount of experience teaching either information literacy or writing. Each paper was assigned a score between 1 (unsatisfactory) and 5 (excellent) for each rubric category. Papers for which a particular skill could not be evaluated were assigned a null score for that category. For example, if a student did not use any sources in their paper, the evaluators were unable to determine the student's ability to cite sources correctly and therefore assigned a null score which would not be factored into the data analysis. In some cases, the evaluators were unable to assign a score for a particular rubric category for an entire group of papers. To achieve consistency, every paper was scored by all four

researchers. Each evaluator entered their rubric scores into a spreadsheet and then each evaluator pair met to review and reconcile their scores for each paper.

Reflection

In addition to creating and norming the rubrics, as they were scoring, the team kept notes for consistency and to track reactions to the scoring process. After all the papers were completed, these reflections were gathered and discussed. Once the rubric data had been analyzed, another round of discussion and notetaking took place to capture free-form thoughts based on the data.

Data Analysis

The researchers imported the spreadsheet of reconciled rubric scores into Stata 18 for analysis. First, the researchers ran descriptive statistics for each type of textbook and each rubric category (see Table 2).

In addition to descriptive statistics, simple regression was used to determine whether there were significant differences between the groups that used different textbooks (see Table 3). Robust standard errors were used during regression to account for non-normality in the data. For each regression, the commercial textbook group was used as the reference group; the researchers measured the difference between the rubric scores of the OER Only, both OER and commercial, and no textbook groups and the commercial textbook group.

Results and Discussion

Regression results indicate that there were several significant differences between students in classes using commercial materials only and those in classes using other types of materials, including the OER textbook.

Writing Skills

Both researchers recognized typical writing challenges in the papers: some students struggled to write thesis statements that contained both a topic and a comment or argument about that topic, while others struggled with paper organization, including the inclusion of clear and reflexive topic sentences, logical transitions, and coherent sentence order.

Rubric scores analysis indicated that students in classes using only an OER textbook scored significantly higher than students using commercial textbooks in nearly all categories of the writing rubric.

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Table 2.
Descriptive statistics

Rubric Category	Textbook Type	Number of Observations	Mean	Standard Deviation	Max	Min
Rhetorical Situation	All Groups	96	3.51	.615	2	5
	Commercial	20	3.3	.571	2	4
	OER Only	27	3.74	.594	3	5
	Both OER and Commercial	24	3.33	.637	2	4
	No Textbook	25	3.6	.577	3	5
Thesis Argument	All Groups	71	3.35	.758	2	5
	Commercial	20	3.1	.641	2	4
	OER Only	27	3.74	.859	2	5
	Both OER and Commercial	24	3.13	.537	2	4
	No Textbook	N/A	N/A	N/A	N/A	N/A
Essay Organization	All Groups	96	3.45	.596	2	5
	Commercial	20	3.15	.366	3	4
	OER Only	27	3.63	.629	2	5
	Both OER and Commercial	24	3.38	.576	3	5
	No Textbook	25	3.56	.651	3	5
Paragraph Organization	All Groups	96	3.34	.577	2	5
	Commercial	20	3.25	.444	3	4
	OER Only	27	3.41	.572	2	4
	Both OER and Commercial	24	3.33	.637	2	5
	No Textbook	25	3.36	.638	3	5

Rubric Category	Textbook Type	Number of Observations	Mean	Standard Deviation	Max	Min
Evidence	All Groups	71	3.39	.621	2	5
	Commercial	20	3.1	.447	2	4
	OER Only	27	3.63	.629	3	5
	Both OER and Commercial	24	3.38	.647	2	5
	No Textbook	N/A	N/A	N/A	N/A	N/A
Analysis of Evidence	All Groups	71	3.37	.615	2	5
	Commercial	20	3.2	.523	2	4
	OER Only	27	3.56	.641	3	5
	Both OER and Commercial	24	3.29	.624	2	5
	No Textbook	N/A	N/A	N/A	N/A	N/A
Readability	All Groups	96	3.28	.627	2	4
	Commercial	20	3.2	.410	3	4
	OER Only	27	3.52	.643	2	4
	Both OER and Commercial	24	3.17	.702	2	4
	No Textbook	25	3.2	.645	2	4
In-Text Citation Format	All Groups	96	2.375	.811	2	5
	Commercial	20	2.5	1	2	5
	OER Only	27	2.26	.656	2	4
	Both OER and Commercial	24	2.42	.776	2	5
	No Textbook	25	2.36	.860	2	5

Rubric Category	Textbook Type	Number of Observations	Mean	Standard Deviation	Max	Min
Reference List Format	All Groups	95	2.36	.683	2	5
	Commercial	19	2.42	.692	2	4
	OER Only	27	2.30	.542	2	4
	Both OER and Commercial	24	2.33	.761	2	5
	No Textbook	25	2.4	.764	2	5
Use of Cited Sources	All Groups	96	4.24	.750	2	5
	Commercial	20	4.7	.733	2	5
	OER Only	27	4.26	.712	3	5
	Both OER and Commercial	24	3.96	.751	2	5
	No Textbook	25	4.12	.666	3	5
Source Quality	All Groups	93	4.28	1.254	1	5
	Commercial	18	4.22	1.263	2	5
	OER Only	26	3.69	1.569	1	5
	Both OER and Commercial	24	4.63	1.013	2	5
	No Textbook	25	4.6	.866	2	5

Table 3.
Regression results

		Estimate	Robust Standard Error	t-value	*p-value*
Rhetorical Situation	Commercial (Reference Group)				
	OER Only	.441	.171	2.57	.012*
	Both OER and Commercial	.033	.182	.18	.855
	No Textbook	.3	.172	1.75	.084
Thesis Argument	Commercial (Reference Group)				
	OER Only	.641	.219	2.93	.005*
	Both OER and Commercial	.025	.180	.14	.890
Essay Organization	Commercial (Reference Group)				
	OER Only	.480	.146	3.28	.001*
	Both OER and Commercial	.225	.143	1.57	.119
	No Textbook	.41	.154	2.67	.009*
Paragraph Organization	Commercial (Reference Group)				
	OER Only	.157	.148	1.06	.291
	Both OER and Commercial	.083	.163	.51	.611
	No Textbook	.11	.161	.68	.497
Evidence	Commercial (Reference Group)				
	OER Only	.530	.157	3.37	.001*
	Both OER and Commercial	.275	1.65	1.66	.101
Analysis of Evidence	Commercial (Reference Group)				
	OER Only	.356	.170	2.09	.040*
	Both OER and Commercial	.092	.173	.53	.597

		Estimate	Robust Standard Error	t-value	*p-value*
Readability	Commercial (Reference Group)				
	OER Only	.319	.154	2.07	.041*
	Both OER and Commercial	-.033	.170	-.20	.845
	No Textbook	.000	.158	0.00	1.000
In-Text Citation Format	Commercial (Reference Group)				
	OER Only	-.241	.256	-.94	.350
	Both OER and Commercial	-.083	.273	-.31	.761
	No Textbook	-.14	.281	-.50	.620
Reference List Format	Commercial (Reference Group)				
	OER Only	-.125	.189	-.66	.512
	Both OER and Commercial	-.088	.222	-.40	.693
	No Textbook	-.021	.220	-.10	.921
Use of Cited Sources	Commercial (Reference Group)				
	OER Only	-.441	.213	-2.07	.042*
	Both OER and Commercial	-.742	.224	-3.31	.001*
	No Textbook	-.58	.211	-2.74	.007*
Source Quality	Commercial (Reference Group)				
	OER Only	-.530	.427	-1.24	.218
	Both OER and Commercial	.403	.361	1.12	.267
	No Textbook	.378	.343	1.10	.273

Note: **p<.05

may be positively impacted by OER textbooks. Further, it suggests that mixing OER and traditional textbooks may not have the same impact as using an OER textbook alone.

Within the OER Only category, a more specific narrative emerged from the data. In the rubric categories of Rhetorical Situation and Thesis Argument, the OER Only essays scored a mean of 3.74 each. Similarly, students using OER scored a mean of 3.63 in the rubric category Essay Organization, while in Paragraph Organization they scored a mean of 3.41. In Evidence and Analysis of Evidence, they scored 3.63 and 3.56, respectively. Finally, in Readability, students in the OER Only sections scored a mean of 3.52. Overall, these scores are encouraging because the OER Only sections received average scores above the midpoint of the rubric and outscored the other sections by every metric. However, since students scored 3.6 or higher in four of the rubric categories, lower-scoring categories need attention. Those lower-scoring categories may indicate that the OER could still use improvement in areas concerning paragraph organization, evidence analysis, and readability.

Information Literacy

In contrast to findings on the writing part of the rubric, analysis of the information literacy scores revealed that students who used a commercial textbook tended to perform better than those who used another type of textbook. In terms of citation formatting, students using a commercial textbook received higher scores on the rubric than students in any of the other textbook categories, although the differences were not statistically significant. Additionally, students using a commercial textbook scored significantly higher in the Use of Cited Sources category, which evaluated whether students' sources appeared both in the text and in the reference list. In this category, students using only an OER received markedly lower scores than any of the other groups, including students who were not assigned any textbook at all. Similarly, students using only an OER textbook received lower scores on the Source Quality category of the rubric, although the differences were not statistically significant. Notably, students using an OER textbook did not score higher than students using a commercial textbook in any information literacy category of the rubric.

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Although this finding is discouraging, many factors may contribute to this result. It is possible that the OER textbook's information literacy section is inadequate in its coverage of particular topics. It is also possible that instructors may use the different textbook resources differently. For example, an instructor may use a textbook as a ready resource for readings, such as poetry and short stories, for class but may not use the embedded citation resources at all. Additional outreach to instructors to better understand their students' needs and provide more robust information literacy support may improve this outcome.

Reflection on the Scoring Process

Although the rubric scores provided the researchers with useful information about the efficacy of the textbooks, so did the actual process of scoring the papers. Reviewing nearly 100 papers from different instructors using different types of textbooks gave the researchers new insights into how students were using information and how they were developing as writers.

Rhetorical Situation

The researchers did not review the assignments for which the papers were written. Instead, they assumed the rhetorical situation to be a general academic audience, including the students' instructor and peers. Given this general rhetorical situation, the researchers paid particular attention to academic conventions such as tone and diction, but also to rhetorical considerations, such as standards of argumentation and emotional appeals. Different batches of prompts create different rhetorical situations, but all still meet certain general academic conventions of writing, particularly as they relate to style. Regarding the essays that were argumentative research essays, the researchers often examined the introduction and conclusion closely because the ability to enter into and exit out of academic conversations is readily exhibited in the rhetoric of the introduction and conclusion. Since the non-argumentative assignments were not traditional literary analysis essays, the researchers focused instead on appropriate tone and diction. In this set of papers, students did not tend to have issues with formality but more with an understanding of audience, occasion, academic conventions, and how to frame a problem. Often students with lower scoring papers would end the introduction on a question rather than posing a question and proposing an answer in the form of a thesis.

Thesis Argument

Thesis statements in academic writing generally follow conventions that make them easy to track and follow. Typically, the introductory section ends with a few sentences in which the argument is made manifest in the form of a topic (the subject of the paper) and a comment (why that subject and the writer's unique perspective on it matter). Rhetorically, the thesis must contain an enthymeme, an argumentative statement that combines a claim with reasons (I argue X, based on Y). The best theses would elaborate upon the claim in a critical way by asking versions of "So what?" or "Why should the reader care?". Often the essays scored by the researchers did not include comments containing analysis until the conclusion. In such instances, the topic may have been present in the introduction but not yet formed into an argument.

Organization

In the Essay Organization rubric category, the researchers considered two factors. First, they considered the overall essay organization. Typically, global cohesion should stem naturally from the thesis statement. That is, some organizational plan should be apparent from the start. The logic of that organization was then checked against the essay to confirm that it adhered to that general plan. Typically, keywords from the introduction

or thesis can be used in topic sentences to create a sense of global cohesion. Of course, the essay's conclusion should not introduce any new information. Second, they considered the internal paragraph organization. A paragraph typically begins with a topic sentence that connects thematically and conceptually back to the overall argument and organizational plan. After the topic sentence, some shared context is necessary, in this case enough context to orient the reader to the text being analyzed in the essay. Since this was a literary analysis, the researchers made sure that primary quotes from the literature were included in the analysis. Some of the lower-scoring essays adhered to the five-paragraph format, a commonly taught but simplified model of academic writing. Adherence to this model resulted in mega-paragraphs with multiple topics. In general, essays that broke away from the five-paragraph format occasionally struggled with topic sentences, but generally followed the pattern of a topic sentence, context and argument, quotation to support the argument, and analysis of that quotation.

Evidence and Analysis of Evidence

When writing an argument, evidence is key. Since some of the essays did not make arguments, they did not require any evidence. The researchers did not grade those essays in this category. In a *literary* researched argument, primary evidence includes citations from the text. If the point is to analyze the language, then that language must be included for the reader to see. Essays were judged to determine if they reached a certain "critical mass" of primary evidence—was there enough textual evidence to reasonably support the thesis? While most of the scored essays did include enough textual evidence from and some analysis of the primary sources, there were a few essays that did not include any textual analysis at all. Secondary evidence includes research such as peer-reviewed articles. Here the student must show that they understand outside claims, and that they know how to situate their own thoughts vis-a-vis the thoughts of another. Though the writing skills scorers did not consider whether citations were written correctly, they did check to see that quoted information was being properly incorporated and contextualized. The higher scoring papers paid attention to the rhetoric of the quotation and analyzed it within the context of the essay's argument; the lower scoring papers tended to overgeneralize when discussing the quotation.

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Readability

Given the choice between clarity and correctness, the researchers favored clarity over correctness. They assessed Readability in terms of how well they understood the meaning of the prose. The majority of students in these courses are not English majors, and many of them have not written an argumentative essay since high school. Consistent and egregious errors such as fragments or run-ons were noted, particularly because such errors impeded clarity, but the researchers did not assign low scores so long as the writer's meaning was lucid.

Citation Formatting

In-text Citation Format scores indicate whether a student mastered the mechanics of the in-text format, with no extraneous or erroneous information included. While most students scored near the midpoint of the five-point rubric (average of 2.375), the researchers noted that sometimes the way students would discuss their source ("this article" "this journal") reflected a lack of understanding of what sort of source they were using. For example, occasionally students would refer to dissertations as articles or to articles as journals. This did not count against them in the scoring, but the researchers found it notable. Additionally, more 'creative' assignments that looked less like traditional research papers were more difficult to score and led to more norming discussions about how to 'count' an in-text citation.

Reference List Format scores reveal whether a student correctly formatted works cited entries with no extraneous or incorrect information. Often students would cite things as if they were a print version rather than one found in a database. The researchers strongly suspected that the students were using e-versions of the articles, but did not downgrade the scoring and gave the student the benefit of the doubt. The challenge the researchers faced in determining whether students cited the appropriate format for the source they used echoes that of Knight, who reported similar challenges when assessing student papers nearly 20 years ago.[23] This pattern suggests that additional help continues to be needed to ensure students understand what information format they are looking at and how to cite that format correctly.

Information Literacy and Local Practice

Local instructions about citation will greatly affect both a student's final product and the ability of an outside reviewer to gauge skill mastery. It is possible that a student's success in the information literacy portion of the scoring could be lower because local practice in the class may have been different.

Use of Cited Sources scores reflect whether students cited their sources in the text with a corresponding works cited entry for that source. Students often neglected to include the primary source in their reference list despite citing it within their paper. Given the consistency of this error, it is possible that this was as a result of guidance from their instructor, who may have told students that they only needed to cite the secondary texts used in the paper. Regardless, while the commercial textbook group's high score was statistically significant, this was a high scoring category for all groups, with only the both OER and commercial textbook group scoring lower than a 4.

Source Quality measured whether more than half the sources used came from scholarly books and articles, and that none of the sources were of poor quality. While "scholarly" has often been read as synonymous with "peer-reviewed," what constitutes "scholarly" in a class can vary based on the instructor's threshold for acceptable evidence given a particular topic. While the students in the OER Only group scored lower than the other groups, it is notable that all groups, including OER Only, scored above average (the midpoint score) for this category.

Improving the Assessment Tool

Since this was the first run of evaluating student research and writing skills with a particular eye toward OER usage, the focus was on creating an appropriate and usable rubric. While the researchers found the rubric satisfactory, the norming discussions and reflections revealed areas for improvement. The researchers could use the categories and descriptions to facilitate conversations with fellow instructors of English 203 to fine-tune the rubric for the future. Questions such as those related to "scholarly" materials could be explored so assessments could more accurately evaluate student progress. Further, the researchers could share the rubric with English 203 instructors prior to the next assessment cycle and specify the call for participation to include papers with similar assignment prompts. Additionally, now that a benchmark assessment has been completed, the researchers could discuss program goals with other instructors and identify categories aligned with these goals to target for intervention and improvement.

Future Steps and Actions Taken

From this data, the researchers could immediately pinpoint areas in which the OER could be improved. First and foremost, the citation sections of the text need to be bolstered. For example, following this assessment, the researchers reviewed the citation section of the *Surface and Subtext* OER and found that the textbook did not explicitly address MLA's requirement to cite all sources both in text and in the works cited list. Given this finding, the researchers suggested revisions to the OER textbook. In addition, perhaps citation examples and activities should be interspersed throughout all of the OER's chapters rather than confined to the chapter on Research and Writing. This would prevent students and teachers from neglecting best citation practices. Other weak areas included analysis of evidence, internal paragraph organization, and readability. Analyses of evidence and paragraph organization are closely related. Students seemed to readily grasp the global moves of a research argument, but local moves within specific paragraphs required more attention. As with the citation sections, activities such as close reading practice could be interspersed throughout the OER to bolster these areas.

Instructor Workshops

Instructor workshops might also help instructors understand which skills need more focus while also addressing differences in teaching. All instructors should be moving toward the common goal of equipping students to write a critical and researched argument about a work of literature. Providing the results of an assessment such as this one may be one way to start this conversation. Instructors should also be invited to critique and/or add to assessment rubrics, thereby ensuring that their input is respected. Supplemental resources are also needed to reach beyond internal workshops. These resources should focus on developing both consistency in methods as well as empowering instructors with freedom of choice within core curriculum requirements.

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Integrating Information Literacy Instruction

Whether instructors are giving specific instructions about including DOI or permalinks, or students are relying on citation generators, it is clear that many students are not referring to either the OER or the MLA Handbook for guidance on how to format these in reference list entries. More research can be done to investigate how instructors are incorporating information related to citation best practices and what tools they use to introduce this material. A study such as this would allow for more targeted revision of the OER and discussion of teaching practices.

Plagiarism, AI, and Attribution

During the course of this study, generative AI has been on the rise. Any disruptive technology that has the potential to upend current teaching practices leads to discussions (and some hand- wringing) about how to best teach students in these new environments. Often the discussions turn to the development of creative assignments that do not adhere to the traditional literary research paper. It was noted in this study that these creative assignments were more difficult to score and led to more norming discussions about how to count an in-text citation. The team considered how these creative assignments may be designed to reduce plagiarism (and now also minimize the use of generative AI) but can negatively affect a student's ability to demonstrate mastery related to proper attribution. However, the researchers are left with the question of whether students have mastered a skill if they can only perform it in one particular form or context. This also opens the discussion for how best to teach information literacy skills and design assignments that allow students to demonstrate their understanding and transfer that knowledge to other contexts.

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Future Studies

As has been noted many times throughout the results and discussion, there is a lack of knowledge about *how* instructors are integrating the OER in their classroom practice. While assessment studies like this can take stock of what knowledge is available in the OER and what the students produce, they do not account for what was actually assigned for reading, taught, and practiced in the classroom. A future study could be conducted to assess adoption of the OER in conjunction with OER usage at the classroom level to gain a better understanding of how instructors are incorporating this resource. In addition, study findings suggest that, while students using OER textbooks performed better than those using commercial textbooks in some rubric categories, students using both OER and commercial textbooks did not perform as well in those same categories. It is unclear why this could be the case, and future researchers could explore the potential impact of wholesale OER adoption versus use of a combination of OER and commercial resources.

Limitations

This study has several limitations. First, this study was conducted at a single R1 institution and its findings cannot be generalized to other institutions. Next, English 203 is a multi-section course that is taught by multiple instructors, each of whom has the academic freedom to choose their course materials, assignments, and readings. This freedom also includes the extent to which the instructor incorporates and/or references OER materials in the course. One instructor may have used the OER textbook exclusively; another may have used the OER solely for instructional content or for access to a particular reading. In addition, researchers have found that use of OER can impact faculty teaching practices, inspiring more reflection on pedagogy and use of additional teaching methods.[24] These differences in instructional practice may have influenced some or all of the differences in rubric scoring results.

Further, the researchers did not have access to the specific assignment sheets used for each essay. Without the prompts describing what students had been asked to do, it was difficult at times to score assignments. Similarly, the researchers scored against a rubric which had a strict interpretation of citation principles. As teachers, the researchers know that what instructors emphasize in class often translates to what the students do in their work, and instructors can have local practices that differ from standard practice. For example, some papers loosely cited sources within the text, and those sources appeared in the works cited list but were not referenced in a typical way.

Conclusion

While this study was developed to evaluate writing and information literacy skills, it also revealed ways in which the OER might be revised. The data showed that students in classes using only the OER textbook scored significantly higher than students using commercial textbooks in nearly all categories of the writing rubric, while those who were in classes using a commercial textbook tended to perform better in the information literacy portion of the rubric. Equally important, the process of this assessment work—the development of the rubric, norming discussions, and reflections—allowed the researchers a more intimate examination of potential assumptions, pedagogical gaps, and questions to explore in future research. This study is invaluable because it identifies trends that could be addressed in revision of both the OER and pedagogy practices, in addition to giving insight into student performance. Studies such as this one help surface performance trends and open conversations related to curricular practices for both graduate student training and instructors of multi-section courses.

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Appendix

Rubric

		N/A (cannot gauge)	1 point	2 points	3 points	4 points	5 points
Writing Skills	Rhetorical Situation	N/A	Missing	Inappropriate or irrelevant relation to rhetorical situation.	Awareness of rhetorical situation is present but vague.	Good awareness of rhetorical situation.	Excellent awareness of rhetorical situation.
	Thesis Argument	N/A	Missing	Topic only but vague or too broad.	Topic only but clear; or topic and comment but unclear argument.	Topic + Comment attempting analysis.	Topic + Comment containing analysis.
	Essay Organization	N/A	No clear organizational plan	Organizational plan attempted but most paragraphs do not reflect it clearly	Organizational plan attempted but some paragraphs stray from the plan or do not clearly reflect it	Clear organizational plan that almost always develops the paper's main idea/ argument.	Clear organizational plan that consistently reiterates and develops the thesis.

		N/A (cannot gauge)	1 point	2 points	3 points	4 points	5 points
	Paragraph Organization	N/A	No clear organizational plan	Organizational plan attempted but most paragraphs are missing transitions, logical ordering of sentences or focus	Organizational plan attempted but some paragraphs are missing transitions and logical ordering of sentences or contain too many topics and should be divided into separate paragraphs.	Clear organizational plan that develops each paragraph often using transitions, logical ordering of sentences, and clear focus.	Clear organizational plan in which all paragraphs reflect the paper's main idea or purpose, use effective transitions, order material logically, and are clearly focused.
	Evidence	N/A	Very little used and/or irrelevant to thesis. Literary terms are not used.	Evidence used but not introduced, contextualized, and/or incorporated into one of the writer's own sentences. Literary terms are used incorrectly.	Evidence used but only sometimes introduced, contextualized, and/or incorporated into one of the writer's own sentences. Literary terms are used sparingly.	Evidence used effectively and adequately; consistently introduced and contextualized; consistently incorporated into one of the writer's own sentences. Literary terms are used correctly if not always gracefully.	Evidence used effectively and more than adequately; all points supported by specific evidence; evidence is always introduced and contextualized smoothly; evidence is incorporated correctly at all times. Literary terms are used correctly and in appropriate contexts.

		N/A (cannot gauge)	1 point	2 points	3 points	4 points	5 points
	Analysis of Evidence	N/A	No analysis.	Attempt at analysis but unclear how evidence relates to the paper's main idea or purpose.	Attempt at analysis linked to paper's main idea or purpose but not always clear how the evidence advances the paper's main idea or purpose, or analysis is not expressed clearly.	Analysis consistently present to logically explain evidence but not always completely developed.	Analysis of all evidence, clearly relating it to the thesis argument and developing the argument significantly.
	Readability	N/A	Errors frequently obscure meaning.	Errors obscure readability at times.	Errors are distracting but meaning is still clear.	A few errors present but not distracting.	Few or no errors present.
	In-text Citation Format	N/A (cannot gauge)	In-text citations are not present.	In-text citations are present, though formatted incorrectly for MLA. Some citations may have incorrect information.	In-text citation formatting is inconsistent, though some are correctly formatted. No incorrect information, though extraneous information may be present, or using a non-MLA format.	Most in-text citations are correctly formatted in MLA format, though a few citations may have minor errors. No incorrect or extraneous information.	In-text citations are correctly cited in MLA format. No incorrect or extraneous information.

		N/A (cannot gauge)	**1 point**	**2 points**	**3 points**	**4 points**	**5 points**
	Reference List Format	N/A (cannot gauge)	Works Cited citations are not present.	Works Cited citations are inconsistently formatted or many may be missing information. Some citations may have incorrect information.	Works Cited citations are consistently in MLA format, though they may have formatting mistakes. Most citations have all of the required information. No incorrect information, though extraneous information may be present or links may be incorrectly formatted.	Works Cited citations are consistently formatted in MLA format. Citations are not missing any information, though they may have minor formatting mistakes. No incorrect or extraneous information.	Works Cited citations are correctly formatted in MLA format. No incorrect or extraneous information.

		N/A (cannot gauge)	1 point	2 points	3 points	4 points	5 points
	Use of Cited Sources	N/A (cannot gauge)	Citations are missing though sources are used.	Citations are only in the Works Cited or in-text (not both).	Both in-text and Works Cited references are present, though several sources are missing from one place or the other.	Most sources are cited in both the Works Cited or the in-text citation, though a small percentage may be missing.	All sources are cited both in-text and in the Works Cited.
	Source Quality	No sources used outside of the source text.	None of the sources come from scholarly books or articles. At least one source is poor quality.	Some sources come from scholarly sources, but at least one source is poor quality.	Sources do not come from scholarly sources, but none of the sources are poor quality.	Some sources come from scholarly books or articles. None of the sources are poor quality.	Most (more than half) of the sources come from scholarly books or articles. No sources are poor quality.

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