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Meeting Students Where They Are: Using Rubric-based Assessment to Modify an Information Literacy Curriculum

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Abstract

The authors conducted a performance-based assessment of information literacy to determine if students in a first-year experience course were finding relevant sources, using evidence from sources effectively, and attributing sources correctly. A modified AAC&U VALUE rubric was applied to 154 student research papers collected in fall 2015 and fall 2016. Study results indicate that students in the sample were able to find relevant and appropriate sources for their research papers; however, they were not using evidence to effectively support an argument or attributing sources correctly. The authors discuss changes to the library instruction curriculum informed by the assessment results.

Keywords: information literacy, first-year students, rubric assessment, library instruction, one-shot

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Meeting Students Where They Are: Using Rubric-based Assessment to Modify an Information Literacy Curriculum

The Information Literacy & Undergraduate Support Department at the University of Northern Colorado's James A. Michener Library helps develop information literate students through a combination of course-integrated sessions and credit-bearing courses. University 101 (UNIV 101), a first-year experience course that aims to assist students in the transition from high school to college, is an elective with a broad focus on reading, writing, critical thinking, and communication skills. Course objectives include using effective research skills to retrieve and evaluate information from a variety of sources. The library session is a required component of the UNIV 101 curriculum and supports a research paper assignment requiring students to cite a minimum of six peer-reviewed sources.

In 2014, librarians at the University of Northern Colorado developed a common lesson plan for the UNIV 101 sessions that focused on understanding peer review, developing keywords, and using a bibliography to find additional sources. Assessing the session learning outcomes involved two multiple-choice questions that asked students about the most important source criteria for their assignment and the discovery tool features that assist with finding appropriate sources. Data from this assessment showed students understood what types of sources they needed to find and the most useful database tools to use. However, anecdotal evidence from course instructors indicated that students were not using appropriate peer-reviewed sources in their research papers. Based on this feedback, the librarians revised the session lesson plan for 2015 to focus on finding and identifying peer-reviewed articles. Formative assessment during the session and subsequent review of students' sources collected through an online worksheet suggested that students were better skilled at finding peer-reviewed articles on their topics than course instructors perceived. In order to determine if and how students were incorporating these sources into their research papers, the authors began the present performance-based assessment of UNIV 101 students' information literacy skills.

The purpose of this study was to assess information literacy skills among students enrolled in UNIV 101. To do so, the authors applied a modified Association of American Colleges and Universities (AAC&U) VALUE rubric to student papers collected in fall 2015 and fall 2016. Specifically, this study asked the following questions:

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- Are students finding relevant and appropriate sources for their final research papers?
- Are students using evidence from sources effectively?
- Are students attributing sources correctly?

By conducting this assessment, the researchers hoped to collect baseline data on first-year students' information literacy abilities and use direct assessment of student learning to improve course-integrated library sessions.

Literature Review

Although assessment has become common practice in information literacy instruction, library literature often focuses on student perceptions of instruction or on self-assessment of skills. In a 2012 review of the literature, Schilling and Applegate found self-reported attitudinal surveys to be the most common method of assessing information literacy. While acknowledging that attitudes are important to the learning process, they argue for increased use of methods that provide direct evidence of student skills. Performance-based assessment works well for collecting this evidence, allowing students to demonstrate understanding and to apply knowledge and skills in a variety of complex situations (Marzano, Pickering, & McTighe, 1994). Benefits of performance-based assessments include the ability to assess higher-order thinking skills, such as synthesis, and the ability to use results to improve teaching and learning (Oakleaf, 2008). Rubrics are increasingly being used for performance-based assessment of students' information literacy skills. The predetermined standards of rubrics contribute to more consistent scoring of student work, and the level of detail in rubrics provides rich data that librarian instructors can use to identify gaps in student understanding and adjust instruction programs accordingly (Oakleaf, 2008).

Rubric-based Analysis of Sources

Librarians have used rubrics often to evaluate students' abilities to find, evaluate, and cite sources. Knight (2006) applied a rubric mapped to the ACRL *Information Literacy Competency Standards* to first-year students' annotated bibliographies to determine if students were meeting the course learning objectives related to finding reputable sources, evaluating credibility, citation correctness, and thoroughness of annotations. Carbery and Leahy (2015) also assessed first-year students' annotated bibliographies using a locally developed rubric that included source variety, citation quality, and completeness of annotations. While applying a rubric to annotated bibliographies can measure students' abilities to find,

evaluate, and cite sources, analyzing bibliographies alone cannot reveal students' ability to use those sources as evidence in support of an argument.

Rubric-based studies evaluating campus outcomes for information literacy also have focused primarily on finding, evaluating, and citing sources. Diller and Phelps (2008) looked at a small sample of ePortfolios created by entry-level and transfer students as part of campus assessment of general education. Their rubric measured a broader range of information literacy abilities including determining an information need, designing a search strategy, evaluating information, and using information effectively, ethically, and legally; however, use of evidence was not included among their campus information literacy and communication outcomes. Hoffmann and LaBonte (2012) similarly applied a rubric to research assignments created by first- and third-year students over a three-year period. In addition to annotated bibliographies, they assessed problem/solution papers, narratives, and group and individual research papers. However, their analysis was limited to search strategy, source variety, and evaluation in alignment with their campus general education outcomes for information literacy. While the decision to align information literacy assessment with campus outcomes is sound, there remains a lack of information about students' ability to use sources as evidence.

Some studies have sought to assess how students used source material in their papers by examining in-text citations and quotes in student work. Samson (2010) developed an assessment instrument that identified quantifiable measures for each of the ACRL standards to compare the information resource use of first-year students to capstone students. The instrument included source type and quantity; the number of short quotes, long quotes, and in-text citations; the presence of a thesis or original hypothesis; and accuracy of citation style. However, the instrument did not assess whether the evidence presented in the quotes and in-text citations supported the thesis or hypothesis. McClure, Cooke, and Carlin (2011) used citation analysis to examine source quantity, quality, and citation accuracy in first-year students' final essays. They then used frequency and length of in-text citations and quotes to assess how well students were using sources in their writing, but again they did not investigate how the sources were used in context. This method of counting in-text citations and quotes appears ill-suited for determining how well a student has incorporated information into their knowledge base. As Lundstrom, Diekema, Leary, Haderlie, and Holliday's (2015) work on information synthesis suggests, neither the number of citations in a paragraph nor the number of paragraphs with a citation are effective measures of synthesis in student research papers.

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Rubric-based Analysis of Evidence

A limited number of rubric-based studies of information literacy have recognized the importance of understanding how students use sources in their writing. Emmons and Martin (2002) examined over 200 bibliographies to compare the quantity, variety, currency, and accuracy of sources selected by students in a first-year writing course, before and after implementing an inquiry-based library instruction program. However, as they argue, "student research is not just searching for sources" (p. 550), so they also read and applied a rubric to 60 research essays to evaluate how students engaged sources in their writing. Scharf, Elliot, Huey, Briller, and Joshi (2007) applied a rubric to 100 research papers to assess graduating senior students' abilities to use, cite, and integrate appropriate sources. Rosenblatt (2010) also examined a small number of upper-division students' research papers, combining citation analysis with a rubric to determine if students were able to find and synthesize relevant sources.

Several recent studies similarly have used rubrics to assess first-year students' abilities to find, cite, and use appropriate sources. Luetkenhaus, Borrelli, and Johnson (2015) analyzed 275 final research papers from students in a required first year course using a locally developed rubric that mapped to institutional learning outcomes for information literacy and critical thinking. The Claremont Colleges Library employed a rubric-based methodology to assess first-year students' information literacy skills and how varying levels of librarian involvement with the course affected student learning. Their rubric, modified from a rubric developed by Carleton College, assessed attribution, evaluation of sources, and communication of evidence (Booth, Lowe, Tagge, & Stone, 2015; Lowe, Booth, Stone, & Tagge, 2015). More recently, Davidson Squibb and Mikkelsen (2016) evaluated the impact of a new introductory writing curriculum on students' information literacy skills by applying a course-specific rubric, which included source suitability, citation style, argument, and evidence to final papers.

AAC&U VALUE rubrics

While most rubric-based assessments of student research projects have developed the rubric locally, a growing number have adopted AAC&U VALUE rubrics. The Rubric Assessment of Information Literacy Skills (RAILS) project used the AAC&U VALUE rubrics as a starting point for their research, which examined 1,000 student artifacts from nine institutions (Belanger, Zou, Mills, Holmes, & Oakleaf, 2015). Brown and Souza-Mort (2015) used the Information Literacy VALUE Rubric to assess artifacts produced by community college students. Holliday et al. (2015) used a modified version of this rubric to compare

students' research skills at progressing levels in the curriculum. Turbow and Evener (2016) also explored using this rubric to assess information literacy among graduate students in the health sciences. Although they agreed that the Information Literacy VALUE Rubric was appropriate for evaluating graduate students, some raters found it difficult, if not impossible, to score the "Access the needed evidence" category because students were not required to describe their search strategies in the assignment (Turbow & Evener, p. 211). Lundstrom et al. (2015) took a different approach to adopting the rubrics by using criteria from the Inquiry and Analysis VALUE Rubric rather than the Information Literacy VALUE Rubric in their study of a librarian-led information synthesis lesson.

While there is ample evidence to support the use of rubrics for performance-based assessment of information literacy, many of the examples in the literature focus on students' abilities to find, evaluate, and cite sources. There remains limited research discussing the assessment of students' ability to use information sources effectively as evidence to support an argument. The present study adds to this body of literature by discussing performance-based assessment of students' abilities to both find sources and use evidence.

Methods

Rubric

After reviewing the AAC&U VALUE rubrics, the authors designed the project rubric based on three of the AAC&U VALUE rubrics: Communication, Critical Thinking, and Information Literacy. The University of Northern Colorado recently adopted portions of these rubrics for assessment of general education, which influenced the decision to use them in the present study. Furthermore, the authors wanted to explore students' use of evidence and skill in using sources rather than simply looking at source choice. Of particular interest was how students used sources to communicate information and how students used that information to support an argument. The project rubric combined the Sources and Evidence dimension from the Communication Rubric, the Evidence dimension from the Critical Thinking Rubric, and the Access and Use Information Ethically and Legally dimension from the Information Literacy Rubric (see Appendix A for the final rubric).

The AAC&U VALUE rubrics are developmental rubrics designed to measure student attainment of learning outcomes over the course of their undergraduate careers. The Benchmark (1) and Capstone (4) levels of the rubrics describe the levels of learning that students are expected to demonstrate at the beginning and completion of their degree

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respectively. Thus, the authors expected to see first-year students who were enrolled in a course targeting research and writing skills and had attended a library session to perform at the Lower Milestone (2) level of the rubric.

Sample

In total, the authors scored 154 UNIV 101 student research papers collected over two semesters using the modified VALUE rubric. In fall 2015, 124 papers were scored (out of 458 enrolled students). The UNIV 101 program coordinator provided a random sample of 269 research papers written by students enrolled in all 18 sections of the course. The authors eliminated 143 draft papers from the sample based on dates on the title pages. Two duplicate papers were also eliminated. The authors scored a smaller sample of 30 UNIV 101 research papers (out of 502 enrolled students) from fall 2016 due to time limitations. The program coordinator provided two papers each from 15 of the 22 UNIV 101 sections taught that semester. The authors did not need to use date criteria to remove drafts from this sample because final papers were requested specifically. Identifying information was removed from the papers and they were assigned numbers before scoring began.

Rating Procedure

The authors completed a norming process, which is used "to achieve consistent and reliable use of a rubric among numerous raters" (Holmes & Oakleaf, 2013, p. 599). For the first round of norming, all three researchers read and independently applied the rubric to 20 papers from the fall 2015 sample. Percent agreement was calculated between coders (Table 1), then coders met to revise the rubric and reach 100% consensus on five of the paper scores (MacQueen, McLellan-Lemal, Bartholow, & Milstein, 2008). For the second round of norming, each researcher independently rescored the remaining 15 papers from the first round of norming with the revised rubric. The researchers reconvened to discuss the papers, agree on the scoring, and identify exemplars for the rubric levels to assist with consistent scoring over time.

Table 1: Percent Agreement between Rater Pairs

Rubric Category	Pair 1		Pair 2		Pair 3	
	Round 1	Round 2	Round 1	Round 2	Round 1	Round 2
Sources	45%	69%	75%	77%	50%	62%
Evidence	60%	77%	50%	54%	45%	62%
Access & Use	40%	62%	45%	23%	30%	31%

Percent agreement from the second round of norming is included in Table 1. These numbers generally indicate better agreement among raters, but the researchers did not reach 85% agreement or higher sufficient to score independently (MacQueen et al., 2008). Consequently, two raters read and scored the remaining papers. Each pair of raters met to discuss disagreements in scoring in order to reach 100% consensus on the rubric scores. Three rater pairs shared the scoring equally. For the fall 2015 analysis, each researcher independently scored 70 papers.

The researchers used the same rating procedure for the fall 2016 analysis except there was only one round of norming, and there were no changes to the rubric. For the fall 2016 analysis, each rater independently scored 18 or 19 papers.

Findings

Fall 2015 Findings

Across the 124 paper sample, student performance in each rubric category averaged between the Benchmark (1) and Lower Milestone (2) level. Mean scores for fall 2015 showed that students only met the expected Lower Milestone in the sources category of the rubric, suggesting that students were able to find relevant and appropriate sources for their research papers. However, students were not using the sources effectively as evidence nor were they accurately attributing their sources. Figure 1 shows the distribution of rubric scores for fall 2015.

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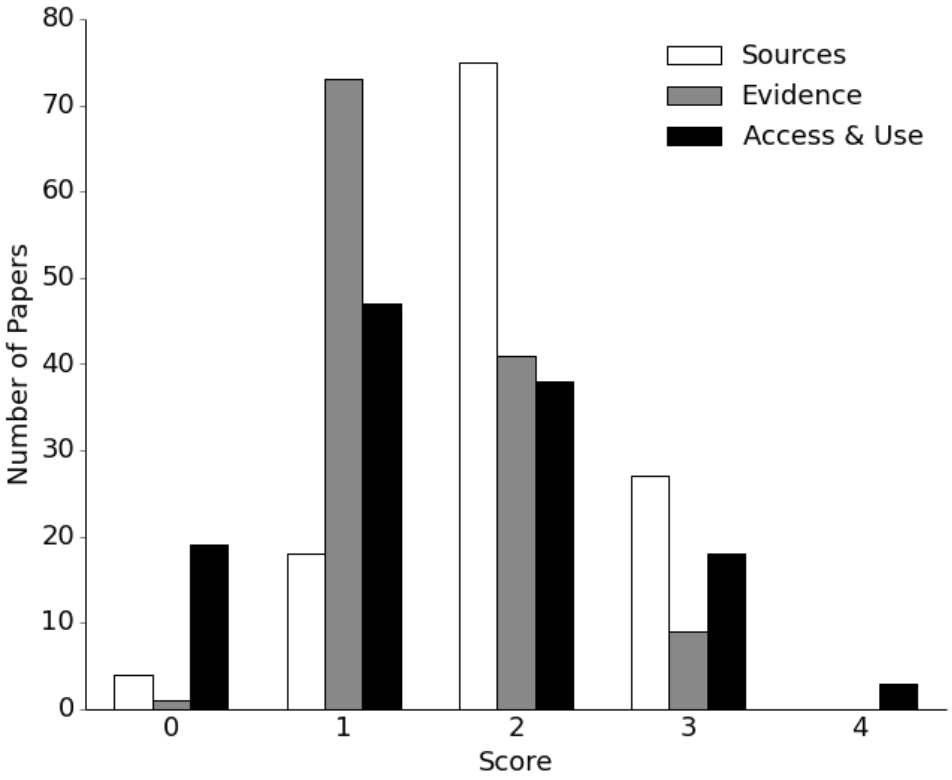
Figure 1: Fall 2015 scores observed for rubric categories



Sources, Evidence, and Access & Use (n=124). Mean score for Sources category was 2.01; Evidence was 1.47; and Access & Use was 1.5.

The Sources category, which indicates how well a student is able to find relevant and credible sources, had the highest mean of 2.01 out of 4. Over half of the papers (60%) scored at the Lower Milestone and an additional 22% scored at the Upper Milestone level. Fifteen percent scored at the Benchmark level, while 3% did not meet Benchmark level performance. Students who scored at the Lower Milestone in the Sources category typically submitted quality reference lists that included relevant, credible—often primarily peer-reviewed—sources. Figure 2 shows an example of a reference list that scored at the Lower Milestone level.

Figure 2: Example of a student reference list

References

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Desquilbet, M., & Poret, S. (2013). How do GM/non GM coexistence regulations affect markets and welfare? *Eur J Law Econ European Journal of Law and Economics*, 37(1), 51-82. Retrieved October 18, 2015, from Summon.

Gaivoronskaia, G., & Hvinden, B. (2006). Consumers with allergic reaction to food: Perception of and response to food risk in general and genetically modified food in particular. *Science, Technology & Human Values*, 31(6), 702-703. Retrieved October 21, 2015, from Summon.

Siipi, H. (2015). Is genetically modified food unnatural? *J Agric Environ Ethics Journal of Agricultural and Environmental Ethics*, 28, 807-816. Retrieved October 21, 2015, from Summon.

Zhu, X., & Xie, X. (2015). Effects of knowledge on attitude formation and change toward genetically modified foods. *Risk Analysis*, 35(5), 790-810. Retrieved October 20, 2015, from Summon.

This paper scored at the Lower Milestone (2) level in the Sources category.

Evidence, which gauges how well a student can use information to support a conclusion, was the lowest scoring category with a mean score of 1.47. In this category, a majority of papers (59%) scored at the Benchmark level, a third (33%) were at the Lower Milestone, 7% at the Upper Milestone, and only 1% did not meet Benchmark level performance. Figure 3 shows an excerpt from a paper that scored at the Benchmark level (the corresponding reference list is shown in Figure 2). Students who scored at this level may have found appropriate sources, but reading their papers to assess how they used these sources revealed problems with synthesis and analysis. Students at the Benchmark level attempted to use sources as evidenced by the use of in-text citations (Figure 3). However, students at this level often took information from sources without interpretation or evaluation as seen in the first sentence of the excerpt:

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> The astonishing ability of GMOs to shape to their environment offers promising results in meeting some of the greatest goals set forth in this century (Bawa & Anilakumar, 2012).

Furthermore, students at the Benchmark level did not consistently support ideas with evidence. In this excerpt, the student claims that "advances in GMOs" can eliminate genes that cause allergic reactions, specifically gluten, without providing a citation.

Figure 3: Excerpt from a student paper

GMOs & Consumers

The astonishing ability of GMOs to shape to their environment offers promising results in meeting some of the greatest goals set forth in this century (Bawa & Anilakumar, 2012). Many people in society cannot eat a specific food due to health concerns, such as allergies. With the new advances in GMOs and the gene modifications, specific foods can be engineered to eliminate the precise genes that would cause the allergic reactions. Whether those allergies are life threatening or not, it is still a hassle to not eat a specific food. Gluten is a key example of this. Some of the most popular foods have gluten in them, including fried chicken, bread, and pasta. Now, thanks to some breakthroughs in the genetic engineering of this specific food, gluten could be removed from these foods to make them enjoyable to a wider variety of consumers. A study indicated that the number of people suffering from fatal food related allergic reactions is increasing (Gaivoronskaia & Hvinden, 2006). GMOs can reduce, if not eliminate, the chances of fatal anaphylactic reactions. The science is there, the results are there, but there is one obstacle in the way of GMOs being the dominant food source. It is the consumer's attitudes, preferences, and morals.

This paper scored at the Benchmark (1) level in the Evidence category.

The Access and Use category measures a student's ability to use information ethically through appropriate citation. The mean score in this category was 1.50, very close to the mean for Evidence, but the scores were more distributed in the Access and Use category. More than a third of the papers (38%) scored at the Benchmark level, approximately a third (31%) scored at the Lower Milestone, and the remaining papers were split between the Upper Milestone (14%) and below Benchmark (15%), with a small percentage of papers (2%) scoring at the Capstone level. Using information in ways not true to context was a common problem seen in the Access and Use category. Figure 3 shows an example of this problem.

Here the student refers to a study on "fatal food related allergic reactions" and cites Gaivoronskaia and Hvinden. However, the student's reference list (Figure 2) shows that the Gaivoronskaia and Hvinden study is actually about perceptions of genetically modified food among people with food allergies. Because the student used information found in the introduction or literature review section and did not cite the article as a secondary source, it is classified as a citation error.

Curricular Changes

A number of changes were made to the library session for fall 2016 based on what was learned from the fall 2015 analysis of UNIV 101 student papers. Many students appeared to be using information found in the introduction or literature review of studies rather than the results of the research, making it difficult for them to form an argument based on evidence. The authors speculated that this problem represented an unmet student need and that students would benefit from instruction on how to read and understand studies in order to leverage them as evidence.

First, the library session was lengthened from 50 to 75 minutes. This change allowed the activity on identifying peer-reviewed articles to remain, which assessment results suggested was helping students identify appropriate sources, while also providing time for a new activity about reading research papers. For students who struggled to use evidence to support their arguments, the library instructor showed how study results are often the most important part of a study and suggested that it is therefore helpful to read the discussion or conclusion section of an article first. To reinforce this point, students worked in pairs and then as a class to determine whether a study's conclusions were relevant to a sample research question. Students were also encouraged to use reference lists, literature reviews, and news reports about studies to track original sources rather than relying on the secondary sources (see lesson plan in Appendix B). Finally, optional workshops were offered for any UNIV 101 students who wanted help with properly citing and formatting sources. All fall 2016 UNIV 101 library sessions used this revised lesson plan.

Fall 2016 Findings

There was no observable improvement in mean scores in fall 2016. Across the 30 paper sample, the Sources category again had the highest mean score of 1.87 out of 4. Over half of the papers (60%) scored at the Lower Milestone level, 17% scored at the Upper Milestone and Benchmark levels, and 7% failed to meet Benchmark level performance. The mean score for Access and Use was 1.37. Nearly half (43%) of the papers scored at the Benchmark level,

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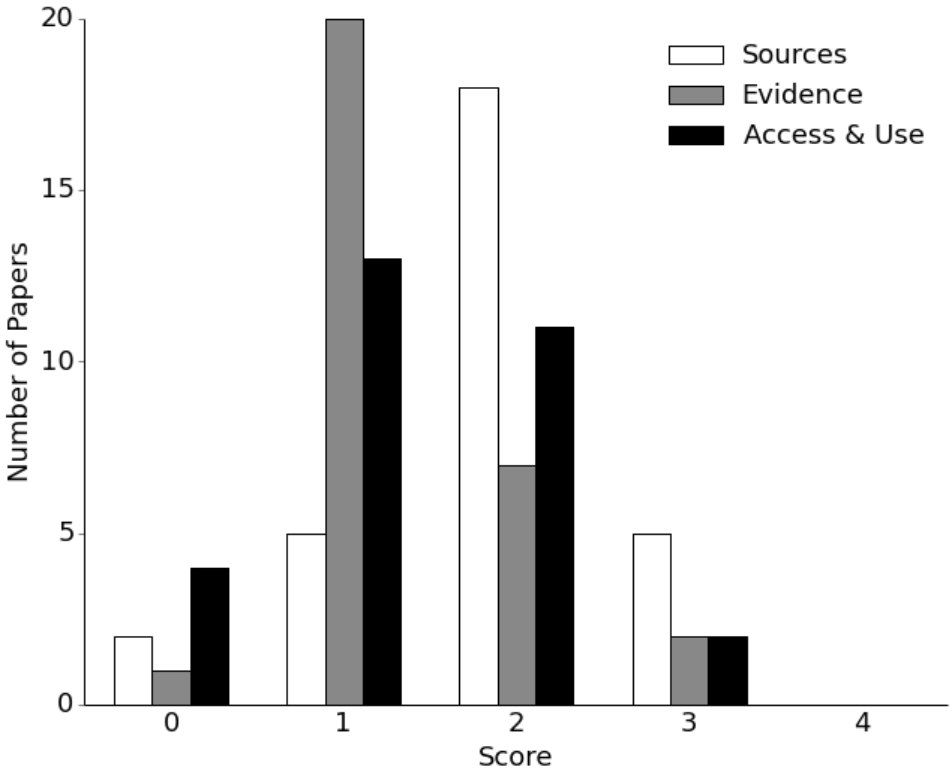
over a third (37%) at the Lower Milestone level, 13% below Benchmark, and 7% at the Upper Milestone level. Evidence again had the lowest mean score, though at 1.33 it was very close to the Access and Use mean. A majority of papers (67%) scored at the Benchmark level, 23% at the Lower, and 7% at the Upper Milestone levels, while 3% scored below Benchmark level. Figure 4 shows the distribution of rubric scores.

Figure 4: Fall 2016 scores observed for rubric categories



Sources, Evidence, and Access & Use (n=30). Mean score for Sources category was 1.87; Evidence was 1.33; and Access & Use was 1.37.

Discussion

The findings suggest that first-year students enrolled in UNIV 101 were able to find relevant and appropriate sources for their final research papers. However, students struggled to use evidence from those sources effectively, often failing to offer an interpretation or evaluation of them. Students also struggled to attribute sources correctly. Students used information found in the introduction or literature review of research papers instead of the reported research results. As an example, students commonly referred to studies that, when examined, were focused on topics irrelevant to their own. While this problem was considered a citation error, the authors believe it represents a fundamental

misunderstanding of what matters in peer-reviewed research articles and how to use them as evidence.

The findings of the present study are consistent with much of the previous research on students' abilities to find and use sources effectively. Students can find relevant and appropriate sources for their research needs (Carbery & Leahy, 2015; Samson, 2010), but often struggle to analyze or synthesize that information (Davidson Squibb & Mikkelsen, 2016; Emmons & Martin, 2002; Holliday et al., 2015; Luetkenhaus et al., 2015; Rosenblatt, 2010; Scharf et al., 2007). Where the present findings differ is in students' ability to attribute sources correctly. Previous research suggests that students can adequately cite sources (Carbery & Leahy, 2015; Knight, 2006; Luetkenhaus et al., 2015), but UNIV 101 students performed poorly in this rubric category. This difference could be because the researchers looked for a broad range of citation behaviors necessary for ethical use of information including appropriate choice of in-text citations and references, paraphrasing, summary, or quoting, attention to the original context, and recognition of common knowledge. One institution in the RAILS project applied the Access & Use Information dimension of the Information Literacy VALUE Rubric in a similar way, scoring adherence to citation style conventions, recognition of common knowledge, and appropriate use of paraphrasing, summary, or quoting. Those results, like the present study, suggest that students are not consistently demonstrating these citation behaviors (RAILS, 2014).

Limitations of this study, including the smaller sample size for fall 2016, make it difficult to compare the mean scores from fall 2015 to fall 2016. Another limitation was the uncertainty about whether analyzed papers were drafts or final papers. Papers from the fall 2015 sample dated before the assignment deadline for the draft paper were eliminated, but this procedure was not followed for the fall 2016 sample because final papers had been requested from the UNIV 101 program coordinator. However, dates on some of the papers in fall 2016 sample suggested drafts may have been included. The researchers also may have erroneously eliminated some papers from the fall 2015 sample if students had not changed the dates on their title pages before submitting the final paper.

Though the results did not show improvement in students' papers between fall 2015 and fall 2016, the authors believe the instructional shift was merited based on two semesters of data suggesting first-year students enrolled in UNIV 101 can find sources but struggle to use them as evidence. The authors are by no means the first to examine ways of teaching students how to better use the information they find (e.g., Bronshteyn & Baladad, 2006;

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Lundstrom et al., 2015; MacMillan & Rosenblatt, 2015; Woodward & Ganski, 2013). Some will argue that reading and synthesizing information is the purview of disciplinary faculty, not librarians. However, the authors agree with MacMillan and Rosenblatt's assertion:

> In demonstrating our value to our institutions we have to show that our concern for information literacy does not stop when the student find the 10 articles mandated by the instructor, but continues to the point where the student has used those resources effectively, a task that cannot be accomplished without reading. (p. 761)

Furthermore, this shift maps well to the spirit of the *Framework for Information Literacy for Higher Education*, which suggests more broadly that information literacy instruction needs to focus less on helping students find sources and more on preparing students to participate in scholarly conversations (Association of College and Research Libraries, 2015).

Future research on information literacy should focus on students' abilities to use sources as evidence rather than their abilities to find them. To understand students' information literacy abilities librarians must look beyond the reference list and closely examine how students use sources in context. In the future, the researchers plan to analyze a larger sample of papers to assess if the decrease in mean scores observed between fall 2015 and fall 2016 persists. The researchers also plan to undertake a longitudinal assessment project and collect research papers written by students during their sophomore, junior, and senior years to analyze how their information literacy skills change over the course of their academic careers.

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Appendix A

University of Northern Colorado Information Literacy Rubric (adapted from AAC&U VALUE rubrics)

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	Milestone 3	Milestone 2	Benchmark 1	Notes:
Sources (Written Communication VALUE rubric)	Demonstrates skillful use of high quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing.	Demonstrates consistent use of credible, relevant sources to support ideas that are appropriate for the discipline and genre of the writing. • Consistently supporting ideas with varied sources throughout (see paper 60)	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing. • 2 or more peer reviewed sources used (see paper 18) • Contains sections where student is not using sources to support ideas (see paper 58 & 75)	Demonstrates an attempt to use sources to support ideas in the writing. • 1 or fewer peer reviewed sources used • Or more than 1 peer reviewed source but most evidence taken from poor sources (see paper 77)	Pay attention to page length of articles from journals to spot opinion pieces. News, websites, and other non-peer reviewed sources can be considered credible.
Evidence Selecting and using information to investigate a point of view or conclusion. (Critical Thinking VALUE Rubric)	Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning. • Lays out argument and supports throughout (see paper 60)	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are mostly taken as fact, with little questioning. • Some argument but not fully coherent (see paper 71)	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question. • No argument / definitional (see paper 18) • Does some interpretation or attempts to make an argument but doesn't make sense (see paper 24 and 58) • Shares opinion but doesn't use evidence to back it up (see paper 75)	Treat interpretation/evaluation and questioning viewpoints of experts as either or. Analysis must be students (i.e. not copied from a source).
Access and Use Information Ethically and Legally (Information Literacy VALUE rubric)	Students use correctly all of the following information use strategies • Use of citations and references • Choice of paraphrasing, summary, or quoting • Using information in ways that are true to original context • Distinguishing between common knowledge and ideas requiring attribution	Students use correctly three of the following information use strategies • Use of citations and references • Choice of paraphrasing, summary, or quoting • Using information in ways that are true to original context • Distinguishing between common knowledge and ideas requiring attribution	Students use correctly two of the following information use strategies • Use of citations and references • Choice of paraphrasing, summary, or quoting • Using information in ways that are true to original context • Distinguishing between common knowledge and ideas requiring attribution	Students use correctly one of the following information use strategies • Use of citations and references • Choice of paraphrasing, summary, or quoting • Using information in ways that are true to original context • Distinguishing between common knowledge and ideas requiring attribution	See below.

Use of citations and references

- Errors make accessing original source difficult
    - No page numbers for in-text citation quote (missing from Ref. list o.k.)
    - No URL for website
- Stylistic mistakes (e.g. doi, capitalization, only one author cited but can still match to Ref list) are allowed

Choice of paraphrasing, summary, or quoting

- All papers should have quotes – if not, is the student really paraphrasing
- Quote needs to make sense but if it seems like a Freshman would have a hard time paraphrasing it, consider it correct (see paper 54)
- See quote on paper 79, p. 4 as an example of an o.k. quote

Using information in ways that are true to original context

- Examples of using information in ways that aren't true to original context include:
    - Citing someone citing someone else
    - Not using the research of the study. Remember to look at source titles in Reference List to check for specific topics not discussed in student paper
    - Obviously using information from the abstract (look for titles in foreign languages)

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Appendix B

University of Northern Colorado UNIV 101 Library Session Lesson Plan

SET-UP
• Session worksheets (1/person) – peer-review checklist and find peer-reviewed articles prompts. • Peer review packets (2 people/packet) – folder that contains 3 different types of articles. • Research studies (1/person) – an example of a scholarly research study.
INTRODUCTION (15 min)
Introduce yourself and encourage students to meet their neighbor, as they will be working with partners in today's session. **Pass out worksheets at this time.** Review UNIV 101 paper assignment & types of sources they are required to have for this assignment (6 peer-reviewed articles). Discuss that they already know how to search – shopping online, Google, searching YouTube. *This session is not about searching, it's about what you do after the searching*
ACTIVITIES
What is Peer Review (20 min) Go over peer review checklist. Read this to them or ask different students to read each characteristic. Have students look at articles (folders) with partner and use the checklist to determine which articles are peer reviewed. Bring students back for a group discussion.
How to Read a Study (20 min) Explain that in scholarly articles, the important information is at the end and so it is helpful to read the abstract for an article and then skip to the end and read the conclusion of the article. Have students try this trick with the scholarly article about residential segregation. They should read the abstract and then read the discussion/conclusion section and determine what the author has concluded in their study. They can work with their partner. Discuss with partner whether they would use this paper if they were doing a research paper on this topic. Discuss as a class and ensure that students can determine what the findings of the research study are. Explain that if the findings of the article are not relevant, they should find a different article.
Using a Literature Review (5 min) On big screen, project three newspaper headlines about different studies saying coffee causes or cures cancer Ask students how they might cite the studies that are being reported on. (They should find the actual study). This is to ensure they are getting accurate and complete information. Explain that this is how the literature review or background section works in a research study. Literature reviews might have just a one-sentence summary of a huge study, so students should find the full study.

Reading the literature review and using the reference list of a study is a helpful way to find more sources. It saves time too!
Using Summon (15 min) Briefly show the students the library discovery tool, Summon – how to get to it and what it is searching. Have students use Summon to find 2 peer-reviewed articles on their UNIV 101 topic. One they should find in Summon and one they should find using the reference list of the first article. Students should fill out their worksheet with the sources they find and turn it in to their instructor.
WRAP-UP (5 min)
• Tell them where to go for help (offices with UNIV 101 librarian) • Tell them to turn in their worksheet to course instructor to get credit for attending the session. • Remind them of APA workshops.

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