YOU CAN'T CATCH FRUIT FLIES IN A MOUSETRAP: TEACHING CONTEXTUAL EVALUATION OF INFORMATION

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INTRODUCTION

The importance of critically evaluating source material has long been a cornerstone of information literacy instruction. Despite our best efforts, there are still frustrations for both teachers and learners. One persistent problem identified by faculty is students’ tendency to cherry-pick specific quotes or passages, without engaging the source as a whole. Because they are scanning articles looking for citable sentences (Howard, Serviss, & Rodrigue, 2010), rather than engaging with source material in a more holistic way, students inevitably incorporate information into their own work without understanding the context of the cited passage or the context in which the cited source was created. This can lead to mischaracterization of the source and to citations that do not support the point being made.

We dutifully create instruction in accordance with best practice guidelines, such as the ACRL Framework, and regularly provide checklists like the CRAAP test as tools for evaluating a resource, but these tools fail to fully address the context in which the information being evaluated was produced, and completely ignore the context in which the student is currently working. This paper describes the problem of contextual evaluation in more detail and discusses how it has been addressed by a team of librarians and a faculty member as part of the redesign of a service learning course.

THE PROBLEM

Students are often asked to use existing research to make an argument, support a position or make recommendations. They are instructed to find credible, appropriate sources and synthesize them in order to craft a balanced and well-supported account. Such assignments are in many ways the embodiment of what we mean when we talk about information literacy, and is certainly something we hope any well-educated person is capable of doing. Too often, though, instructors come to the library in states of disbelief, annoyance or resigned dismay to report that their students are struggling to effectively find and evaluate timely, appropriate research and to adequately understand and incorporate what they find into a coherent narrative.

At the Business Library where I work, we have noticed that students will often cite studies and statistics that are inappropriate for the argument or point they are trying to support. Tasked with creating a proposal to engage U.S. College students in volunteerism, for example, they may cite a statistic about rates of volunteerism among college students without acknowledging that the cited study was done in New Delhi. Fontichiaro and Oehrli (2016) observe that students often imbue numbers and statistics with authority, even when they haven’t engaged in any critical analysis of the source from which they have plucked those numbers, but it isn’t only statistics that get mishandled in this way. Asked to provide a marketing plan for a small brewery startup, they may recommend something that increased sales for a national juggernaut like Budweiser. In each case, the mismatch between the context in which the data was produced and the context to which it is being applied is either overlooked entirely or is apparently seen as unimportant, but it is problematic either way. In short, there often seems to be a lack of awareness or acknowledgment that what is true in one setting is not necessarily valid in another. These examples are drawn from Business and Public Affairs students, but this problem is certainly not specific to them. Any assignment which asks a student to use existing research in order to support a position, analyze a problem, propose a solution, or present an overview may result in this kind of misuse of data.
Of course, what instructors hope will happen with research-based assignments is a much deeper engagement with—and synthesis of—the intellectual landscape of the topic at hand. As librarians, we are often called upon to help students achieve this goal but, as has been extensively lamented, it is impossible to instill academic excellence in 45 minutes. Fortunately, the limitations of the one-shot instruction session seem to have become clear to a wider range of stakeholders, including some administrators and faculty. We are seeing more examples of librarians "embedded" in courses and more programs that take a longer view of the learning arc for information literacy, one example of which is the Information Literacy Grant program offered through the Indiana University Libraries. For the past eight years, this program has supported integration of Information Literacy in new or existing courses by facilitating partnerships between teaching faculty and librarians in which course content and assignments are restructured to provide more opportunities and guidance for students to improve their information seeking, critical analysis and source integration skills. These longer-term projects are meant to address information literacy in a more systematic and in-depth way than the typical one-shot allows.

It was through one of these grants that a colleague and I were asked to work with a faculty member on a service learning course in which student groups work with a real-world client to make recommendations based on the organization's stated mission and identified problem(s). Clients range from businesses to non-profits to townships. Students were struggling to an extent with finding secondary research, sometimes citing sources that were not authoritative, but were also using sources that, while appearing in respectable, peer-reviewed publications, did not actually support their conclusions and recommendations because of one or more mismatches in the contexts of the source and the situation to which it was being applied. So far, we have worked with the class over the course of three semesters.

**OUR PEDAGOGICAL APPROACH**

The whole point of the grant program which made this project possible is to provide sustained engagement with information literacy and it is fair to say that repeated exposure is often an important aspect of learning. In the case of higher order thinking skills such as source evaluation, it is not the repetition of the concepts that is important (the idea that a given piece of information is not applicable to every situation is easy to grasp), but the repeated application of the process that helps learners incorporate effective practices into their own intellectual toolkit. To that end, we used what Hess and Azuma (1991) refer to as a “sticky” approach: “Taking time on the same topic, looking at it from varied perspectives and in a variety of conceptual frameworks” (p. 7). We developed three exercises to engage students in contextual evaluation at different points in their research process and from a variety of perspectives.

A flipped classroom/formative evaluation approach was taken with all of the exercises, in which students were asked to evaluate an article or set of articles using worksheets and guidelines aimed at a particular aspect of contextual evaluation, which they then brought to an in-class discussion. This approach was chosen because active discussion was deemed to be critical for success due to the nuances involved in source evaluation and the lack of definitively correct answers. Nicol and Macfarlane-Dick (2006) suggest that one way to improve the effect of formative assessment on performance is to ensure that students can apply what they learn from formative feedback at one stage of a project to the next stage or iteration of that project. For this reason, care was taken to provide articles that were clearly germane to the major project for the course. This entailed finding articles suited to the subject of each semester's project, as well as creating new research scenarios for our third exercise, described below, to ensure that the students could directly apply what they had learned from the sources, the exercises and the class discussions to their final project. There was hope that building this obvious utility into the process would increase motivation to participate, as suggested by Cole, Bergin and Whittaker (2008). This approach seemed to work, since a majority of the groups ended up incorporating at least one of the sources from the exercises into their final project.

**THE INTERVENTIONS**

The introduction to contextual evaluation was included as part of a larger discussion about source evaluation and was provided near the beginning of the semester. In this exercise, students were given four short articles and a CRAAP test worksheet and asked to evaluate each article in terms of currency, relevance, authority, accuracy and purpose. The R in CRAAP, relevance, does theoretically encompass contextual evaluation, just not explicitly so. The librarian leading the discussion took some extra time with the question of relevance for each of the resources, to explore what is meant by relevance and how the question of relevance is always a matter of context. This is the source of this article's title: To provide a humorous example of using information without considering the alignment of the source's context with your own, the librarian related a story in which two people were commiserating about the pests they had in their respective kitchens. The woman, who had fruit flies, explained she had great success catching them in dishes of vinegar to which a few drops of dish soap had been added. The man, who had mice, was very excited to hear there was a solution to the problem of unwanted wildlife in one's kitchen and rushed home to set out dishes of vinegar to end his mouse infestation. Where possible, the discussion was guided to the ways in which the students' understanding of various contexts (e.g., the context of the author, the context of the project assignment, the context of academic research) had tacitly informed their judgements of relevance, pointing out that the students already had an intuitive understanding that relevance is tied to context.

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To build on that intuitive understanding, the second exercise sought to make contextual evaluation an explicit process that students could reliably employ when evaluating information sources. We provided students with a single article and a list of four contextual factors that could affect the utility of the article: Concept, Company/Organization, Demographics, and Geography. Under each of these broad categories, a series of questions were provided to spark ideas and analysis (see Table 1). Working with a PDF of the article in Adobe Acrobat, each student was asked to identify and highlight one instance of each category in the article using the software's virtual highlighter, and to provide an annotation that addressed one or more of the evaluation questions for that instance of the category. Each of the four categories was assigned a specific highlight color to make reviewing the assignments easier, since each student could choose any number of different passages to discuss. These assignments were turned in ahead of class discussion so that they could be reviewed by the librarian in order to identify areas of confusion and also particularly insightful examples that could be highlighted and used to spark further discussion.

<table>
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<th>Category</th>
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| Concept                   | • How closely related are the central concepts in this article to my central concepts?  
• Does the author mean the same thing when using a given term as I do? As other sources do?  
• Is this author's definition narrower or broader than the one I am using?  
• Why is my chosen definition better than the one offered by this source?  
• How does the similarity or difference in concepts or definitions affect the applicability of the information? |
| Company/Organization      | • Is this same type of organization as the organization(s) I am researching or working with? (i.e. commercial enterprise, non-profit, governmental body, educational institution, etc.)  
• Similarly focused? (e.g. liberal arts college v. technical institute; department store chain v. ice cream parlor chain)  
• The same size? (e.g. similar number of employees, similar market penetration, similar geographic reach)  
• How do the differences affect the applicability of the information?  
• Is there enough similarity to draw a reasonable parallel or to use the organization in the article as evidence, an example or a case study? Why or why not? |
| Demographics              | • Is the article focused on the same group of people I am concerned with?  
• Same culture? (Keep in mind that culture does not follow country borders; the culture in Vermont is markedly different than the culture in Texas.)  
• Same language?  
• Same socio-economic standing?  
• Same age?  
• Same education?  
• Is the data or information in the article as likely to apply to my demographic of interest as the demographic discussed in this source? Why or why not? |
| Geography                 | • Is the article focused on the same or a similar geographic region? Factors that may (or may not) matter include: climate; physical geography like mountains or oceans; proximity to natural resources like oil or forests, etc.  
• Is the physical location of the company, organization or demographic group discussed in the source likely to affect the context, capabilities, operating conditions or behavior of that entity?  
• Is my company, organization or demographic group similarly situated? |

The final exercise prompt asked students to read an article in preparation for class discussion. In class, the students were presented with four hypothetical research scenarios in which they might encounter the article. For a semester focused on improving diversity in a small town, for example, an article on corporate diversity policies was provided, with scenarios like “In the wake of bad press, you have been hired to consult with a company on gender parity” and “You are writing a newspaper piece on public policy and ethnic minorities.” Each scenario was presented in turn and the students were asked to discuss within their project groups the ways and/or the extent to which the article would be useful in the scenario that had been presented. After 6 or 7 minutes of discussion within the groups, the librarian led a class-wide discussion in which the project groups shared their insights and classmates weighed in with other opinions and ideas. After this, the next scenario was presented and the process repeated. For each scenario, the moderating librarian urged the groups to identify whether there might be some parts of the article that were useful, even if other
parts were not. The librarian also asked groups to discuss whether the article or part of the article could be used with qualification (e.g., acknowledging contextual mismatches and the resultant limitations, while providing justification or logical argument for the appropriateness of the source despite the mismatch).

**WHAT WE LEARNED**

Overall, this project has been deemed a success. The faculty member has been pleased with the quality and appropriateness of the sources chosen by the students and remarked that there was a decided improvement over previous semesters. She also stated that students "overwhelmingly reported positive impact the workshops made in their overall strategies for information search, information evaluation, and application" (M. Kang, personal communication, May 21, 2018). In their feedback, students have reported feeling more confident about information seeking and evaluation. One student wrote:

> As a result of information literacy workshops from this class, I have changed the way I examine an article after I find one … I consider the authors credibility, the reliability and validity of the research and the way the results have been interpreted. I make sure to refine the keywords I am using and see the context of the research.

So far, this has been an exploratory attempt to address this problem and we haven't yet carried out extensive assessment. However, we have begun a rubric-based analysis of the final projects from the classes we worked with, comparing them to the final projects of previous classes, with which we did not work. Because each cited source has to be located, the relevant passage found, and the contextual fit between the source and the students' work assessed, this has turned out to be a time-consuming process. Initial results are encouraging, however, and students in the classes we worked with were less likely to use a source inappropriately due to overlooking contextual mismatches. Concepts proved easiest for students to successfully match up, but they were more likely to overlook mismatches within the other three categories (Organization, Demographics, and Geography). In the cases where there was a mismatch, no attempt was made by the authors to acknowledge or address it, which indicates room for improvement in our instruction. Our involvement in this class is ongoing and we intend to continue iterating this approach to improve student outcomes.

**REFERENCES**


