

Using Statistics to Define the Problem : Data and Service Learning

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Abstract:

According to the National Youth Leadership Council, “Service-learning is an approach to teaching and learning in which students use academic and civic knowledge and skills to address genuine community needs.”¹ Service learning is considered a high-impact educational practice.

Keywords: statistics | service learning | data

Article:

*****Note: Full text of article below**

Using Statistics to Define the Problem

Data and Service Learning

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NUTRITION INFORMATION

According to the National Youth Leadership Council, “Service-learning is an approach to teaching and learning in which students use academic and civic knowledge and skills to address genuine community needs.”¹ Service learning is considered a high-impact educational practice.

Communication and Community is an undergraduate service-learning course in which students are required to complete a field placement at a nonprofit organization in the community. These placements have included an equine therapy program, an after-school tutoring program for children who live near the university, a food bank, and the YMCA. The main assignments for this class are reports and speeches related to these sites and the communities they serve. Librarians became involved in this class when instructors reached out for assistance with helping students find credible, relevant statistics for their reports. Some students had difficulties finding statistics beyond those on their organization’s website and often struggled to figure out how to frame their organization’s mission in terms of larger societal issues. By working with a librarian, students can find statistics that

show why their organization is needed and how it can impact the community. In turn, this shows students how volunteering can be beneficial not only to the student but also to society as a whole.

TARGET AUDIENCE AND NUMBER SERVED

- This recipe is best served to undergraduate students.
- It can be scaled up or down as needed, but the original recipe is 20 to 30 servings.

LEARNING OUTCOMES

Students will

- identify a credible statistic for their assignment using an accepted evaluation framework
- select relevant statistics that explain community needs

COOKING TIME

- 1–2 hours of preparation before the first session, plus
- 50–75 minutes for the class

DIETARY GUIDELINES

Like most course-integrated library instruction, this recipe serves the larger purpose of

helping students develop data literacy skills as well as broader information literacy skills.

This recipe connects to ACRL’s *Framework for Information Literacy for Higher Education* in the frame Authority Is Constructed and Contextual. It emphasizes knowledge practices such as “use research tools and indicators of authority to determine the credibility of sources, understanding the elements that might temper this credibility” and “recognize that authoritative content may be packaged formally or informally and may include sources of all media types.” The recipe ends with a searching discussion and activity, which reflects Searching as Strategic Exploration, with a particular focus on knowledge practices such as “determine the initial scope of the task required to meet their information needs,” “identify interested parties, such as scholars, organizations, governments, and industries, who might produce information about a topic and then determine how to access that information,” and “utilize divergent (e.g., brainstorming) and convergent (e.g., selecting the best source) thinking when searching.” Students are also encouraged to develop the disposition to “seek guidance from experts, such as librarians, researchers, and professionals.”²

INGREDIENTS

- 1 computer for each student (They can either use a lab computer or bring their own.)
- Internet access
- 1 instructor station with projector and screen
- Printed copies of the worksheet if students are not completing it electronically

PREPARATION

- Request access to the course in learning management system (LMS) if possible. This allows the librarian to have access to all relevant course materials and to see assignments in the larger context of the course. If this access is not possible, seeing the full syllabus for the course is a helpful alternative.
- Communicate with the course instructor early to confirm where students are completing their service-learning field placements.
- Update course activities to include appropriate examples for field placements.

INSTRUCTIONS**Introduction (5 minutes)**

1. Welcome the students to class and ask a few of them to share the name of their field placement and briefly what the organization does.
2. Ask students to take a moment to think about why their organization is important and what need in the community the organization is trying to meet. Ask a few students to share their answers. For

example, a few students each semester do their placement at a local food bank. They will likely answer that their organization is trying to solve hunger in the community.

3. With the help of the instructor, talk through the assignment and why students need to find statistics to be able to talk about their organization. Differentiate between data (individual pieces of information) and statistics (which represent observations based on data analysis).

The CRAAP Test, Part 1: Discussion (5–7 minutes)

1. Introduce the CRAAP test (see Additional Resources) to the class by explaining what each letter stands for and leading a discussion about each of the criteria (suggested questions for each criterion are below).
 - a. *Currency*: Data are collected and statistics are created at various intervals of time; for example, US Census data are collected every ten years, meaning that our usual rules of thumb for currency of information may not apply to statistical information based on data. What do you think currency means? How current do you think would be current enough to be useful when trying to establish the need for your organization in the community?
 - b. *Relevance*: Statistics are readily available about almost any topic imaginable. In this context, determining relevance requires an understanding of the work of your organization and the ability to

connect statistics you find to that work. What kind of information would be relevant to your organization? What is the scope of the statistics that would be helpful (local, state, national)?

- c. *Authority*: Understanding authority requires you to research the person, people, or organization behind the data. You should look for information about who collected the data and who analyzed them. Who collected the data on which the statistics are based? Are they experts on the topic?
 - d. *Accuracy*: Ideally, you can find statistics based on data collected in an ethical and transparent way. Look for information about what methods were used to collect and analyze the data. Where is the information from? Would you consider the source to be unbiased? Are there other sources that can back it up?
 - e. *Purpose*: Data are collected and statistics are reported for many reasons. Understanding the purpose behind the data collection and how the data were analyzed can help you answer questions about the motivation for collecting and sharing this information. Why were these statistics presented? Is the purpose to inform or persuade?
2. After this discussion, the librarian should emphasize that the CRAAP test is not a checklist but a way of gathering information in order to make an informed decision about whether or not a source should be used.

The CRAAP Test, Part 2: Activity (20 minutes)

1. The librarian shares the two activities discussed below. Students work in small groups to complete Activity 1 by answering the questions for each of the sources. After most groups have completed the chart for Activity 1 (appendix), the librarian should briefly talk the groups through the questions and ask which statistic would be the better source for their project.
2. Students then look at the chart provided for Activity 2 (figure 1). They take two minutes to brainstorm what story this chart might tell and how they could turn it into a statistic they could use in their paper. For example, students may point out that there were more Hispanic students in schools in 2017 than in 2000, which may mean that different community supports are needed.

Searching (15 minutes)

1. Using one of the issues students discussed at the beginning of the session when they considered what issue their nonprofit was trying to solve, the librarian and class brainstorm some ideas for keywords that could be used to find statistics to help situate the field placement in the community. For the food bank example, possible keywords could include *hunger*, *food insecurity*, *food bank*, *food pantry*, or *poverty*. They should also discuss geography, namely how adding the name of the city, county, or state may help to return locally relevant statistics. The librarian demonstrates a brief Google search and talks through some of the results using the elements of the

- CRAAP test, such as the website <https://map.feedingamerica.org/>, which would prove useful for the food bank topic.
2. The students search individually to find two relevant statistics for their own service-learning site while the librarian circulates to help as needed.

there are any final questions.

2. The librarian briefly shows the students citation resources such as the APA Style Guide’s “Webpage on a Website References” (<https://apastyle.apa.org/style-grammar-guidelines/references/examples/webpage-website-references>) and reminds them that their statistics must be cited in their service learning report.
3. The librarian asks each student to e-mail them the two statistical sources from the searching activity, the name of the sites,

Closing (3–5 minutes)

1. The librarian brings the class back together and asks students if they were successful in finding the statistics they need and if

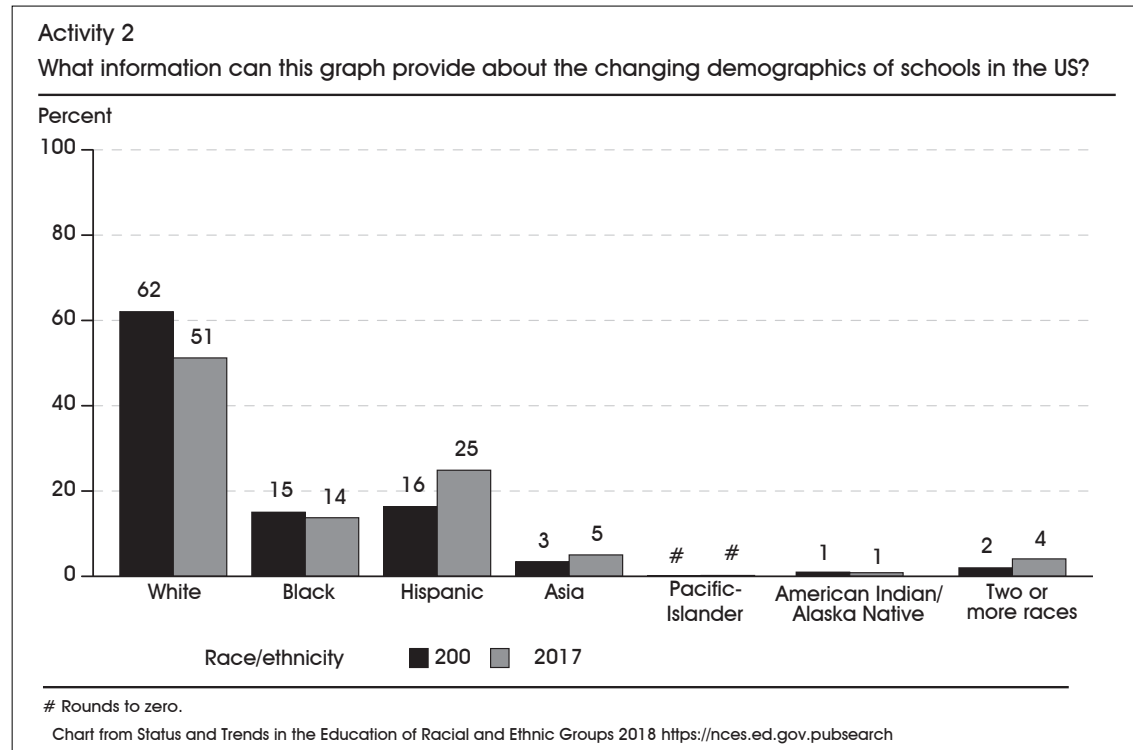


FIGURE 1
Chart for Activity 2: Percentage distribution of the US resident population 5 to 17 years old by race/ethnicity: 2000 and 2017

and the links. Students can also send their citations to the librarian for feedback if they choose.

REVIEW/ASSESSMENT STRATEGY

The librarian assesses the students’ ability to find statistics that are relevant to their service-learning site and provides individual feedback to each student. If this assessment counts as an assignment or a participation grade, students are more likely to participate.

ADAPTING THE RECIPE FOR ONLINE COURSES

The original recipe was adapted for asynchronous online formats as multiple sections of the course moved online during the COVID-19 pandemic. Librarians created video content and short online assignments that allowed students to see demonstrations of skills, concepts, and tools and then to practice on their own. Students watched an instructional video and then e-mailed a relevant statistic and a brief evaluation of that statistic to the course librarian.

ADDITIONAL RESOURCES

California State University, Chico. “Evaluating Information—Applying the CRAAP Test.” September 17, 2010. <https://library.csuchico.edu/sites/default/files/craap-test.pdf>.

Kuh, George. *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington, DC: Association of American Colleges and Universities, 2008. <https://www.aacu.org/node/4084>.

NOTES

1. National Youth Leadership Council, “Service-Learning,” accessed March 3, 2021, <https://www.nylc.org/page/WhatisService-Learning>.
2. Association of College and Research Libraries, *Framework for Information Literacy for Higher Education* (Chicago: Association of College and Research Libraries 2016), <https://www.ala.org/acrl/standards/ilframework>.

APPENDIX: WORKSHEET

Evaluating Statistics Using CRAAP

ACTIVITY 1

Imagine your placement is an after school tutoring center, where you are tutoring students in math.

	Currency	Relevance	Authority	Accuracy	Purpose
Questions to ask yourself.	Are the data I have the most recent data available? Are they recent enough?	Are they relevant to the topic I’m researching?	What group or organization collected the data? Do you consider it to be authoritative?	Do these data seem to be accurate? Can you tell how they were collected?	Why were these data collected?
Texas Dropout Rates—2000 All Students: 7.2% African American: 9.9% Latina/o: 11.2 % White: 4% http://go.uncg.edu/cst200data1					
2018–2019 Fifth Grade Math Proficiency: Peak Elementary: 27.3% Guilford County: 55.2% http://go.uncg.edu/cst200data2 (select Peck Elementary)					