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Using the DIG Method for Data Literacy

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Teaching Business Information Literacy

1. Chapter Title: Using the *DIG Method* for Data Literacy
2. Brief Author Bio: Dana Statton Thompson is a Research and Instruction Librarian at Murray State University in Murray, Kentucky where she also serves as a liaison to the College of Business. She holds a MLIS, MA in Art History, and MFA in Studio Art from Louisiana State University and a BA in Journalism from Washington and Lee University. Her research and teaching interests focus on the intersection of visual literacy and news literacy, the integration of visual literacy instruction into higher education, and the scholarship of teaching and learning.
3. Introduction: As a research and instruction librarian and a liaison to the College of Business, I often incorporate lessons on data literacy and visual literacy into my instruction sessions for business students. In these sessions, I focus on teaching students how to read the photographs, charts, graphs, and infographics they encounter in databases, such as IBISWorld and Statista, and news sources, such as The New York Times and The Wall Street Journal. While teaching Journalism students (who funnily enough fall under the College of Business at Murray State University), I developed a method for evaluating digital images called the *Digital Image Guide (DIG) Method*[1]. In this short chapter I will explain how you can use a modified version of the *DIG Method* for data literacy (the *DIG for Data Method)*, specifically with data visualizations and other images that rely on data such as charts, graphs, and infographics.
4. Planning:
    a. Number of participants: This lesson is ideal for 10 to 40 participants.
    b. Audience: Undergraduate students

[1] See Thompson (2019).

c. Preparation & Resources: Create a short presentation defining data literacy and visual literacy which includes “good” and “bad” examples of data visualizations, charts, graphs, or infographics. Print out copies of the *DIG for Data Method* for students. You will need computers with web access for students and a work station computer with a projector and screen for the librarian. You will also need to pre-select a data visualization to use for the activity.

5. Description of lesson/activity:
    a. Goals/Learning Outcomes: By the end of this lesson, students will be able to evaluate a data visualization, chart, graph, and/or infographic by using the *DIG for Data Method*.
    b. Time Required: 60 minutes, but can be modified if you have less or more time
    c. Teaching Outline:
        i. Prior to Instruction:
            1. Decide on what type of image you are going to use (data visualization, chart, graph, or infographic). If you decide to use something other than a data visualization, substitute that type of image for the term ‘data visualization’ in the directions below.
        ii. Introduction (5 minutes):
            1. Begin with a short introduction of the topic, the goals of the session, and briefly define visual literacy[2] and data literacy.[3]
        iii. Mini-lecture on using data in visual imagery (15 minutes):
            1. Explain different types of data visualizations that students will encounter on the internet (and especially social media); use

[2] See the *ACRL Visual Literacy Standards* 2011; Standard Three (the visually literate student interprets and analyzes the meanings of images and visual media) and Standard Four (the visually literate student evaluates images and their sources) are particularly relevant to this activity.
[3] See Prado and Marzal (2013) and Pothier and Condon (2019)

examples of “good” and “bad” data visualizations to make your point.

2. Ask the students to provide some examples. Search for one or two of these data visualizations on the computer while projecting them overhead for the students to examine.

iv. Using the DIG for Data Method (30 minutes):

1. Project the data visualization you have selected for the exercise.
2. Allow students to answer the questions included in the *DIG for Data Method*, checking in with each student to judge progress.
3. After they have worked independently, have the students confer with a partner for five minutes or so, discussing the similarities and differences in their answers.

v. Report Back and Closing Discussion (10 minutes):

1. Bring the group back together and ask a couple of pairs to share so the class can see other examples/applications. Allow time for discussion here, if possible.
2. Restate the learning outcomes and check for comprehension. Summarize the lesson and allow for some Q&A time, if possible.

d. Additional details: See Alberto Cairo’s *How Charts Lie* (2019), Nancy Duarte’s *DataStory: Explain Data and Inspire Action Through Story* (2019), and Carl T. Bergstrom and Jevin D. West’s *Calling Bullshit: The Art of Skepticism in a Data-Driven World* (2020) for other great sources on data literacy.

e. Images, Figures, etc.:

The DIG for Data Method
Analyzing:
• Review and describe the data visualization, chart, graph, or infographic. Who, what, when, and where do you see **represented** in the data visualization?
• Review the text. What **textual information** is provided (caption, date, and/or headline)?
• React to the data visualization. How does it make you **feel**?
Interpreting:
• Determine the **source** (creator, publisher and/or website) of the data visualization. Who created it? Who owns and/or published it?
• Determine the **message** of the data visualization. What is the message? Who is the intended audience?
• Search for other online sources that further **contextualize** the data visualization. How does context (social, cultural, historical, and/or political) inform the data?
Evaluating:
• Think back to your first reaction to the data visualization. How might your **reaction** impact how you view the it?
• Refer back to the other websites that have published the data visualization. Has the data been **misrepresented** or **manipulated**?
• Assess the **reliability** and **accuracy** of the image. Is the data reliable and accurate? Why or why not?
Comprehending:
• What **judgments** can you make about the data visualization based on your evaluations above and the available information?
• Do any of your **biases** or point of views impact how you view the data visualization? If so, how?
• What is the **purpose** of the data visualization (to inform, to instruct, to sell, to entertain, to enjoy, and/or to persuade)? Why do you think so?

6. Transferability:

    a. Substitute databases: Instead of having students come up with data visualization examples in Step 3 from the internet, have the students use databases, such as IBISWorld and Statista, or news sources, such as The New York Times and The Wall Street Journal, to find their examples prior to the class session.

    b. Ability to transfer to online: In order to teach this lesson in a synchronous, online instruction session via Zoom, Google Meet, etc., you could use the flipped classroom approach in which the students review the mini-lecture on using data in visual imagery prior to the class meeting. During the session, reiterate the goals of

the session and briefly define visual literacy and data literacy. Students can access an online handout of the *DIG for Data Method* as you introduce the data visualization you have selected for the lesson. After reviewing the components of the *DIG for Data Method*, students can work through answering their questions independently. For the ambitious, breakout rooms can be used to create small groups to discuss. For those without that capability, students can be asked to share their thoughts with the class. You can then restate the learning outcomes, check for comprehension, and summarize the lesson.

c. To different class sizes or audiences: Adjust the content to make it more discipline-specific if you are teaching higher-level courses. Adjust the content to make it broader and more general if you are teaching lower-level courses.

7. Notes, Citations, etc.:

ACRL. "ACRL Visual Literacy Competency Standards for Higher Education." 2011, http://www.ala.org/acrl/standards/visualliteracy

Pothier, Wendy G., and Patricia B. Condon. "Towards Data Literacy Competencies: Business Students, Workforce Needs, and the Role of the Librarian," *Journal of Business and Finance Librarianship* (2019). https://www.tandfonline.com/doi/full/10.1080/08963568.2019.1680189

Prado, Javier Calzada, and Miguel Angel Marzal. "Incorporating Data Literacy into Information Literacy Programs: Core Competencies and Contents." *Libri* 63, no. 2 (2013). https://doi.org/10.1515/libri-2013-0010

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