

7

Choosing Effective Examples and Analogies

SUGGESTED COURSE EXTENSIONS

■ A. REVIEWING

1. In a journal article in your field,
 - a. Circle all analogies or metaphors used to illustrate quantitative patterns or relationships.
 - i. Does the author explicitly or implicitly convey the purpose of each analogy or metaphor, or is it left unclear?
 - ii. Is it easy to understand the analogy and the pattern or relationship it is intended to illustrate?
 - b. Choose one unclear analogy from the paper and revise it, using the principles in chapter 7 of *Writing about Multivariate Analysis*.
 - c. Are there other places in the article where an analogy or metaphor would be helpful? Identify the purpose of the analogy or metaphor for each such situation.
 - d. Design an analogy or metaphor to suit one instance where you have suggested adding one (from part c), using the principles in chapter 7.
 - e. Identify the intended audience for the article. Choose a different audience (e.g., more quantitatively sophisticated; younger) and rewrite one analogy to suit them.
2. In the same article, circle all numeric examples where a single number is reported (e.g., not a comparison of two or more numbers). For each, indicate whether the author conveys the purpose of the example (e.g., whether it is a typical or unusual value).
3. In the same article, circle all numeric contrasts.
 - a. Indicate whether in each instance the author provides enough information for you to assess whether it is a realistic difference or change for the research question and context.
 - b. Evaluate whether different or additional size contrasts would be useful for the intended audience, considering
 - i. plausibility;
 - ii. real-world application;
 - iii. measurement issues.
 - c. Identify an audience that would be interested in different applications than the audience for whom the article is currently written. Describe how you would select numeric contrasts to meet their interests.

■ B. APPLYING STATISTICS

1. Calculate and graph the frequency distribution of a continuous independent variable using the highest possible level of detail (e.g., the smallest units for that variable available in your data).
 - a. Name the shape of the distribution (e.g., normal, uniform, skewed).
 - b. Mark the cutpoints for the quartiles of that variable on the chart.
 - c. Mark ± 1 standard deviation (SD) and ± 2 SD on the chart.
 - d. Evaluate whether there is appreciable heaping in the reported values of that variable.
 - e. Explain the criteria you will use to select appropriate values to contrast within your data as you illustrate model findings in your results section. In other words, what are plausible changes or differences in your data, given its distribution? Refer to your answers to parts a through d of this question.
2. For a continuous dependent variable in your data set, review the literature in your field to determine whether standards or cutoffs are commonly used to classify that variable. If so, calculate and describe a contrast between your data and that standard or cutoff.
3. Graph the relationship between the dependent variable you used in question B.1 and a continuous independent variable.
 - a. If you wanted to use a categorical version of that independent variable in your model, what does the graph suggest might be empirically appropriate cutpoints between categories? Why?
 - b. Read the literature on the relationship between that independent variable and your dependent variable. Are there standard ways to classify the independent variable?
 - c. Are there policy criteria, program criteria, or other practical criteria related to your research question that suggest ways you might classify that variable? (Examples include multiples of the Federal Poverty Level related to social program eligibility, and clinically recommended ranges of blood pressure. Find criteria related to your topic.)
 - d. Do the empirical cutoffs you identified in part a match the cutoffs you found for parts b and c? If not, explain which of these criteria you will use to classify your data and why they suit your intended audience.
 - e. Design a table or chart to contrast results obtained using the approaches to classifying your independent variable in parts a through c.

■ C. WRITING AND REVISING

1. For each of the following audiences, devise an analogy to describe one of the main numeric patterns or relationships in the results section of your paper, using the criteria in chapter 7 of *Writing about Multivariate Analysis*.
 - a. Readers of a leading journal in your field
 - b. Undergraduate students in an intermediate-level substantive course in your field
 - c. Readers of the popular press, assuming an eighth-grade reading level

- d. Exchange your answers to parts a through c with someone studying writing about a different topic or data. Peer-edit the work.
2. Critique a paper you have written previously using the guidelines in questions A.1 through A.3.