

2. *Seven Basic Principles*

SUGGESTED COURSE EXTENSIONS

A. Reviewing

Find a journal article about an application of a multivariate analysis. Use it to answer the following questions.

1. Is the context (W's) of the study specified? If not, which W's are missing or poorly defined?
2. Evaluate the technical language.
 - a. Are definitions provided for all technical and statistical terms that might be unfamiliar to the audience?
 - b. Are all acronyms used in the paper spelled out and defined?
 - c. Are pertinent synonyms for methods or concepts familiar to the intended audience mentioned?
3. Circle all analogies or metaphors used in the paper. Are they likely to be familiar to the intended audience? If not, replace them with more suitable analogies or metaphors.
4. Identify the major tools (text, tables, charts) used to present numbers in the article.
 - a. For one example of each type of tool, identify its intended purpose or task in that context (e.g., presenting detailed numeric values; conveying a general pattern).
 - b. Use the criteria in chapter 2 of *Writing about Multivariate Analysis, 2nd Edition* to evaluate whether it is an appropriate choice for that task. If so, explain why. If not, suggest a more effective tool for that context.
5. Find a numeric fact or comparison in the introduction or conclusion to the article.
 - a. Is it clear what question that fact or comparison is intended to answer?

- b. Are the raw data for that fact or comparison presented in the text, a table, or chart?
 - c. Are the values interpreted in the text?
 - d. Revise the paragraph to address any shortcomings you identified in parts a through c.
6. Find a description of an association between two variables. Are the direction and magnitude of the association specified? If not, rewrite the description.
 7. Find a description of a pattern involving more than three values, subgroups, or results of models that are presented in a table or a chart.
 - a. Is the purpose of the chart or table explained?
 - b. Is the pattern generalized, or is it described piecemeal?
 - c. Are representative values reported to illustrate the pattern?
 - d. Are exceptions to the general pattern identified?
 - e. Rewrite the description of the table or chart using the “Generalization, example, exception” (GEE) approach on pp. 30–32 of *Writing about Multivariate Analysis, 2nd Edition* to address any shortcomings you identified in parts a through d.

B. Writing Papers

1. For a bivariate association among variables in your data,
 - a. Specify which tool you would use to present the findings in a paper for a scientific audience in your field.
 - b. Write one to two sentences to describe that association, including the W’s, units, direction, magnitude, and statistical significance.
 - c. Redo parts a and b to present the same association in a talk to a lay audience.
2. Begin with the introduction.
 - a. Write an introduction that integrates the concepts and methods used in your study.
 - b. Use the criteria in chapter 2 of *Writing about Multivariate Analysis, 2nd Edition* to assess use of technical language in your introduction.
 - c. Revise your introduction to address any shortcomings you identified in part b.
3. Graph the distribution of a continuous variable in your data set. Describe it using an analogy.
4. Design a chart to portray a three-way association among variables in your data set. Use the GEE approach to describe the pattern.

C. Revising Papers

1. Repeat questions A.1 through A.7 for a paper you have written previously about a multivariate analysis.
2. Have someone who is unfamiliar with your research question peer-edit your answers to question C.1, using the checklist from chapter 2 of *Writing about Multivariate Analysis, 2nd Edition*. “Editors” should suggest specific sentences, examples, or other changes (e.g., “replace a table with a chart”) to replace the material needing revision. Revise according to the feedback you receive.