

Lab Exercise #8 (Nov. 1)

Tutorial Objectives

- 1) Apply statistical concepts to data entered by students in previous week's tutorial
- 2) Learn how to develop and test insightful research questions.

In last week's class, you developed a SPSS data file by entering data from the Geography survey. I merged the SPSS data files and created several new variables:

Download the SPSS file "geog2006v2" that contains the geography survey data.

cntrytot=total number of correctly identified countries (out of 17)

poptot=number of correct countries identified as having populations greater than 1 billion (China and India were correct responses)

2=both countries identified

1=one correct country

0=neither correct

nuketot=total number of countries identified as having officially acknowledged possessing nuclear weapons (correct responses were USA, Russia, China, Great Britain, France, India, and Pakistan)

4=four correctly identified countries

3=three correctly identified countries

2=two correctly identified countries

1=one correctly identified country

0=no correctly identified countries

Using the geography survey data, answer the following questions:

- 1) Does having a formal geography course (q22) enhance geography literacy? About 55% of U.S. students reported having a separate geography class in grades 7-12 in 2000. (Select only REC 4031 students)
 - a) How does this percentage compare with students in this REC 4031 class?
 - b) Test the hypothesis that there is a difference in one's ability to identify countries (variable=cntrytot) and whether one had a geography class in grades 8-12 (q22) and
 - c) test the hypothesis that there is a difference in total survey scores (variable=survtot) and whether one had a geography class. (Note: cntrytot and survtot are ratio level variables.)
- 2) Is there a difference in geography knowledge between males and females? In all countries except France, men tend to answer more questions correctly. (Select only 4031 students)
 - a) Test the hypothesis that men score better than women on country identification (variable=cntrytot)
 - b) test the hypothesis that men score better than women on all questions (variable=survtot).
- 3) Does one's self-assessment of geographic knowledge appear to be accurate? (Use all cases)
 - a) Test the hypothesis that those individuals who claim more geographic knowledge (q1_4) score better on the survey (variable=survtot) than those who claim to know less or those who claim to know the same. (Note: you have 3 group means to compare if you ignore the "don't know" category. This means ANOVA)
- 4) Young Americans (age 18 to 24) performed more poorly than did older counterparts. (Use only Australian students for this analysis)
 - a) Test the hypothesis that Australians aged 18-24 (variable=agegrp) scored better than older Australians aged 25+ on country identification (variable=cntrytot)
 - b) Test the hypothesis that Australians aged 18-24 (variable=agegrp) scored better than older Australians aged 25+ on all questions (variable=survtot)
- 5) (Using all cases) Test the hypothesis that students in the 2003 Applied Research class (class = 1) scored better than students in the 2004 Applied Research class (class=2) and the U.S. REC 4031 students (class=3) on total score (variable=survtot). Which class can claim top honors in Geography knowledge? Explain.
- 6) Develop 3 separate inferential research hypotheses using the geography data set and test them. State the hypotheses that were tested and the statistical results.