BUSI 720

Quantitative Research Methods

Discussion Forum Instructions

Liberty University

School of Business

12 June 2018

Table of Contents

General Instructions

For each Discussion Forum Main Thread:

1. Include a title block with your name, class title, date, and the discussion forum number.
2. Write the question number and the question title as a level one heading (Example - D1.1 Variables.) and then provide your response.
3. Use Level Two headings for multi part questions (D1.1 & D1.1.a, D1.1.b, etc.)
4. Be sure to properly cite any factual assertions.
5. Include a reference section.
6. Carefully review your discussion forum prior to submission for formatting, flow, and readability.

Discussion Forum 1 - Main Thread

Respond to the following short answer questions:

D1.1 Variables. What kind of independent variable (active or attribute) is necessary to infer cause? Can one always infer cause from this type of independent variable? If so, why? If not, when can one infer cause and when might causal inferences be more questionable?

D1.2 Research Questions I. Compare and contrast associational, difference, and descriptive types of research questions.

D1.3 Research Questions II. Using one or more of the following HSB variables; religion, mosaic pattern test, or visualization score:

a. Write an association question
b. Write a difference question
c. Write a descriptive question

D1.4 Data Coding I. Are there any other rules about data coding of questionnaires that you think should be added to what you have studied? Are there any rules that you think should be modified? If so, which ones, how should they be modified, and why?

D1.5 Data Coding II. If you identified other problems with the completed questionnaires in Chapter 2 problem 2.1, what were they? How did you decide to handle the problems and why?

D1.6 Data Coding III. Why is it important to check your raw (questionnaire) data before and after entering them into the data editor? What are ways to check the data before entering them? What are ways to check the data after entering them?

Discussion Forum 1 - Reply

Review one student's response to D1.2 and D1.3. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 2 - Main Thread

Respond to the following short answer questions:

D2.1 Working with Variables. a)Compare and contrast nominal, dichotomous, ordinal, and normal variables. B) In social science research, why isn't it important to distinguish between interval and ratio data?

D2.2 z scores and the population. a) How do z scores relate to the normal curve? b) How would you interpret a z score of -3.0? c) What percentage of scores is between a z of -2 and a z of +2? Why is this important?

D2.3 Interpreting Output 4.1b. a) For which variables identified as scale is the skewness statistic more than 1.00 or less than -1.00? b) Why is this answer important? C) Does this agree with the boxplot in Output 4.2? Explain your answer.

D2.4 Interpreting Output 4.4. a) Can you interpret the means? Explain your answer. b) How many participants are there all together? c) How many have complete data (nothing missing)? d) What percentage are male? e) What percentage took algebra?

Discussion Forum 2 - Reply

Review one student's response to D2.1 and D2.2. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 3 - Main Thread

Respond to the following short answer questions:

D3.1 Recoding Variables. Why did you recode 'father's education' and 'mother's education'? When would you not want to recode normal/scale level variables into two or three categories?

D3.2 Computing Variables. Why did you compute parent's education?

D3.3 Evaluating Data. In Output 5.5, do the 'pleasure scale' scores differ markedly from the normal distribution? How do you know? Is 'math courses taken' normally distributed?

D3.4 Interpreting Statistics. When $p < 0.05$ what does this signify?

D3.5 Choosing Statistics I. What information about variables, levels, and design should you keep in mind in order to choose an appropriate statistic?

D3.6 Choosing Statistics II. What statistic would you use if you wanted to see if there was a difference between three ethnic groups on math achievement? Explain why.

D3.7 Choosing Statistics III. What statistic would you use if you had one independent variable 'geographic location' (North, South, East, West), and one dependent variable 'satisfaction with living environment' (Yes, No)? Explain why.

Discussion Forum 3 - Reply

Review one student's response to D3.4, D3.5, and D3.6. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 4 - Main Thread

Respond to the following short answer questions:

D4.1 Interpreting Reliability. Interpret the interrater reliability and paired t test results for the 'visualization test' and visualization' scores using Output 7.2. What might be another reason for the pattern of findings obtained besides those already discussed in Chapter 7?

D4.2 Interpreting Validity. If one were to delete one of the 14 items in Output 7.3 based on factor analysis which one would it be? Explain your answer.

D4.3 Interpreting Internal Consistency. Interpret the Chronbach alphas in Output 7.4 a, b, and c. What is the internal consistency reliability? Explain your answer.

Discussion Forum 4 - Reply

Review one student's response to D4.1, D4.2, and D4.3. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 5 - Main Thread

Respond to the following short answer questions:

D5.1 Interpreting Chi-Square. In Output 8.1 is the (Pearson) chi-square statistically significant? Explain your answer and what it means. Are the expected values in at least 80% of the cells greater than or equal to 5? Explain how you know and why it is important.

D5.2 Measure Strength of the Relationship. Because 'father's education revised' and 'mother's education revised' are at least ordinal data, which of the statistics used in Problem 8.3 is the most appropriate to measure the strength of the relationship; phi, Cramer's V, or Kendall's tau-b? Explain your choice. Why are the Kendall's tau-b and Cramer's V different?

Discussion Forum 5 - Reply

Review one student's response to D5.1 and D5.2. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 6 - Main Thread

Respond to the following short answer questions:

D5.1 Interpreting Correlations. In Output 9.2, what do the correlation coefficients tell us? What is the r^2 for the Pearson correlation and what does it mean? Compare the Pearson and Spearman correlations on both correlation size and significance level and explain your comparison. Explain when you should use which type of correlation in this case.

D5.2 Interpreting Regressions. Using Output 9.4, find the regression coefficient (weight) and the standardized regression (Beta) coefficient. How do these compare to the correlation between the same variables in Output 9.3? What does the regression coefficient (weight) tell you? Using the variables in Problem 9.4, develop a research question in which the Pearson correlation would be more appropriate than the bivariate regression. Using the variables in Problem 9.4, develop a research question in which the bivariate regression would be more appropriate than the Pearson correlation.

Discussion Forum 6 - Reply

Review one student's response to D6.1 and D6.2. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 7 - Main Thread

Respond to the following short answer questions:

D7.1 Interpreting Independent Samples t Test. In Output 10.2, are the variances equal or significantly different for the three dependent variables? Explain your answer. Write the appropriate t, df, and p (significance level) for each t test as you would in a dissertation. Which t tests are statistically significant? Explain your answer. Write sentences interpreting the gender difference between the means of 'grades in high school' and 'visualization'. Interpret the 95% confidence interval for these two variables. Discuss the effect sizes as you would in a dissertation.

D7.2 Interpreting Paired Samples t Test. In Output 10.4, what does the paired samples correlation for 'mother's education' and 'father's education' mean? Interpret and explain the results of the t test. Explain how the correlation and the t test differ in what information they provide. Describe the results if the r was 0.90 and the t was 0.00. Describe the results if the r was 0.00 and the t test was 5.0.

Discussion Forum 7 - Reply

Review one student's response to D7.1 and D7.2. Summarize their findings and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.

Discussion Forum 8 - Main Thread

Respond to the following short answer questions:

D8.1 Interpreting One-Way ANOVA. For Output 11.1, write the F, df, and p values for each dependent variable as you would in a dissertation. In Outputs 11.2a and 11.2b, what pairs of means were significantly different. Explain your answer.

D8.1 Interpreting One-Way ANOVA with Post Hoc test. Compare Outputs 11.1 and 11.3 with regard to 'math achievement'. What are the most important differences and similarities? Explain your answer.

Integrating Faith and Learning - Main Thread

Integrating Faith and Learning. Reflect on the entire course content and think about the level of knowledge and skill required to effectively conduct meaningful and accurate quantitative analysis. Reflect on the Keller book "Every Good Endeavor" and think about God's plan for how we should handle challenging work, the problems we can face at work, and better ways to honor God with our work.

Develop and post a 600 word discussion:

- Introduction

- Discuss the work required to conduct meaningful and accurate quantitative analysis in a dissertation.
- Discuss God's perspective on that work to include how we should manage it and potential problems we might face.
- Discusses better ways to honor God as we accomplish this work.
- Conclusion

Integrating Faith and Learning - Reply

Review one student's Integrating Faith and Learning Main Thread. In no less than 250 words, summarize their most interesting points and indicate areas of agreement, disagreement, and improvement. Support your views with citations and include a reference section. Provide a title block that includes who you are reviewing.