EPSY 905: Homework #2, Exploratory Factor Analysis (EFA)
Due: Wednesday, April 24 @ 4 PM

This Homework assignment (#2) addresses planning, conducting, making the many assorted and needed empirical and professional decisions and judgments, and then interpreting and discussing findings from an exploratory factor analysis (EFA broadly defined to include PCA and FA/PAF, etc.). Here is the project, the situation, and its context.

A 23-item survey questionnaire (a copy follows) was prepared by the statistics instructors from many institutions to evaluate university student attitudes and dispositions toward learning statistics. The students were completing their first formal course in statistics. Many students were surveyed regarding their one semester Intro to Statistics course. The survey questions were prepared without specific adherence to any existing tools or to psychological or empirical models or theories – just survey questions the instructors' thought about, came up with, crafted, drafted, and thought informative, revealing, and typical representing sentiments they hear or are told by students in their introductory statistics classes. Now, with their data in hand, the instructors are asking for your assistance… Does their collection of data from their 23-question attitudinal survey lead to understanding general latent constructs that help them to understand student statistics course sentiments, e.g., anxiety, instructor support, worth, fear, confidence, interpretation, use, etc.? In short, what latent constructs are their questions measuring relating to student sentiments, attitudes, beliefs, perceptions, dispositions, etc.?

Your task: carry out exploratory factor analyses and prepare a report describing your thinking, methods, processes, choices, procedures, judgments, and results that describe and detail your assorted decisions leading to your findings, interpretations, and conclusions. Here are the rules you are to follow:

1. It is strongly recommended and advised that you choose one current 905 class member to work on this homework assignment together. Your team is to turn in one (1) HW#2 EFA paper. Please identify the partnership. If you choose to work alone, that is OK, but not the preference of the instructor. The grade the paper receives is the grade each member will receive.
2. When you determine your partner for HW#2 or that you will have no partner, ASAP notify Dr. Poggio, and then he will transmit to you (and your partner) the data. Different sampled data sets will be in use, so: (1) make sure of your partner choice, or decide not to have a partner, **not later than Wednesday, April 17 at 4 PM**; (2) notify Professor Poggio of your decision; and then (3) you will receive your data for the HW#2 EFA assignment soon after you notify Dr. Poggio.
3. Your paper, software output, etc., **is DUE and must** be sent electronically as email attachments (MS Office documents, please) to Dr. Poggio **by Wednesday, April 24, not later than 4 PM.**
4. If you wish to have the initial data in a format other than SPSS, let Dr. Poggio know, and he will transmit the data to you in that format (e.g., Excel, STATA, etc.).
5. And, you are to work alone (and with your HW#2 partner, of course) without any kind of outside assistance: none, nothing, nada… no exceptions… period. This is to be your (and if you choose a partner) work alone. If there is doubt, ask Dr. Poggio.
6. If you have questions, please contact Dr. Poggio at your convenience.

The 23-survey item Statistics Attitude Questionnaire (SAQ) follows. Enjoy, and Good Fortune!!!

Statistics Attitude Questionnaire (SAQ)
(comprised of 23 attitude question statements that follow)

Q1.   Statistics makes me cry.

Q2.   My friends think I am stupid for not being able to cope with statistics software.

Q3.   Standard deviations excite me.

Q4.   I dream that Pearson is attacking me with correlation coefficients.

Q5.   I do <u>not</u> understand statistics.

Q6.   I have little experience with computers.

Q7.   Computers hate me.

Q8.   I have never been good at mathematics.

Q9.   My friends are better at statistics than me.

Q10. Computers are useful only for playing video games.

Q11. I did badly at mathematics at school.

Q12. People tell you that computer software makes statistics easier to understand, but it does not.

Q13. I worry that I will cause irreparable damage because of my frequent errors on computers.

Q14. Computers have minds of their own and deliberately go wrong whenever I use them.

Q15. Computers are out to get me.

Q16. I weep openly at the mention of central tendency.

Q17. I slip into a coma whenever I see an equation.

Q18. Statistics software crashes when I try to use it.

Q19. Everybody looks at me when I use statistics software.

Q20. I cannot sleep for thoughts of Type 1 errors.

Q21. I wake up under my blanket thinking that I am trapped under a normal distribution.

Q22. My friends are better with statistics software than I am.

Q23. If I am good at statistics my friends will think I am a nerd.