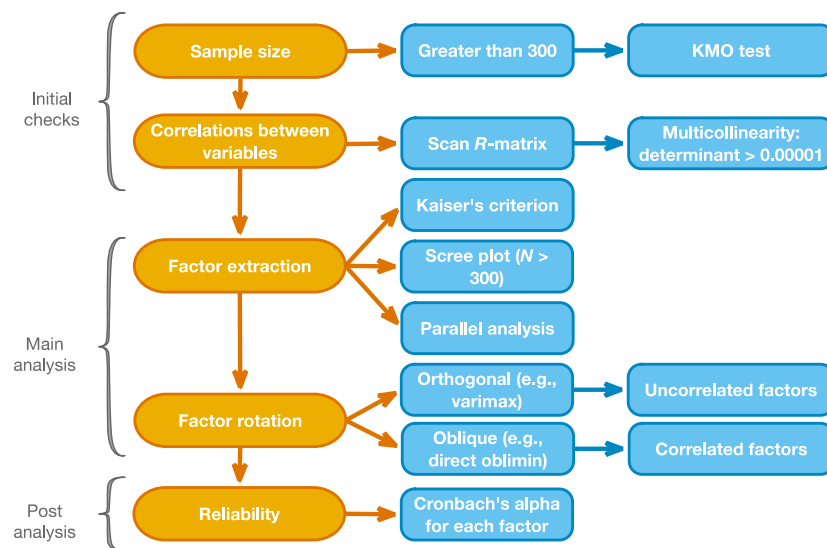


## Quantitative Research Methods – Assignment #4 (Exploratory Factor Analysis and Reliability Analysis)

From Andy Field, *Discovering Statistics using IBM SPSS Statistics*, 5<sup>th</sup> edition:

“Factor analysis is used frequently to develop questionnaires. I have noticed that a lot of students become very stressed about SPSS Statistics. Imagine that I wanted to design a questionnaire to measure a trait that I termed ‘SPSS Anxiety’. I devised a questionnaire to measure various aspects of students’ anxiety toward learning SPSS, the SAQ [SPSS Anxiety Questionnaire]. Each question was a statement followed by a five-point Likert scale: ‘strongly agree’, ‘disagree’, ‘neither agree nor disagree’, ‘agree’, and ‘strongly agree’. I wanted to know whether anxiety toward SPSS could be broken down into specific forms of anxiety. In other words, that latent variables contribute to anxiety about SPSS? With a little help from a few lecturer friends I collected 2571 completed questionnaires.”

In this assignment we are going to perform a few complete EFA analyses and then reliability analyses for each of the resulting scales, following the overall process below:



### Assignment

Note: for this assignment it may be easier to submit a single SPSS output file for each analysis plus a document with all the write-ups together, in order to avoid the large number of tables that would need to be copy-pasted.

There are two components to this assignment. First, you should submit a file including a replication of the analysis of the SPSS Anxiety Questionnaire (SAQ), as performed in the guide that accompanies this document (and discussed during class). Second, you should do a complete analysis for each of the following datasets noted below. For these, you should include a complete EFA analysis as well as a reliability analysis for the final scales. If you come across any cause for concern or any items of note while performing your analyses be sure to make note of them but otherwise complete all the steps in the process anyway.

The increasing popularity (and usefulness) of the Internet has led to the serious problem of Internet addiction. To research this construct, it is helpful to be able to measure it, so Laura Nichols and Richard Nicki (Nicols, L. and Nicki, R. 2004. “Development of a Psychometrically Sound Internet Addiction Scale: A Preliminary Step,” *Psychology of Addictive Behaviors*, 18:4, pp. 381-384) developed the Internet Addiction Scale (IAS). This 36-item questionnaire contains items such as “I have stayed on the Internet longer than I intended to” and “My grades/work have suffered because of my Internet use”, to which responses are made on a five-point scale (never, rarely, sometimes, frequently, always). Dataset: IAS.

The big five personality traits are the best accepted and most commonly used model of personality in academic psychology. The big five come from the statistical study of responses to personality items. Using the technique of factor analysis researchers can look at the responses of people to hundreds of personality items and ask the question "what is the best way to summarize an individual?". This has been done with many samples from all over the world and the general result is that, while there seem to be unlimited personality variables, five stand out from the pack in terms of explaining a lot of a persons' answers to questions about their personality: extraversion, neuroticism, agreeableness, conscientiousness and openness to experience. The big-five are not associated with any particular test; a variety of measures have been developed to measure them. This test uses the Big-Five Factor Markers from the International Personality Item Pool, developed by Goldberg (1992). The items were rated on a five-point scale where 1 = Disagree, 3 = Neutral, 5 = Agree. Dataset: Big5.