

### Psych Testing: Homework #3

#### Reliability

The Math Anxiety Rating Scale (MARS) contains a subscale of 8 items that measures evaluation anxiety (e.g. quizzes, test taking, homework, etc.). The items are:

1. *Taking an examination (quiz) in a math class.*
2. *Getting ready to study for a math test.*
3. *Waiting to get a math test returned in which you expected to do well.*
4. *Thinking about an upcoming math test one day before.*
5. *Solving a square root problem.*
6. *Taking an examination (final) in a math course.*
7. *Being given a homework assignment of many difficult problems which is due the next class meeting.*
8. *Being given a "pop" quiz in a math class.*

Using the MARS variance/covariance matrix posted on moodle (it will be posted once everyone takes the MARS) that is based on the responses from students in our class. Answer the questions below based on the matrix either by hand (calculator) or using excel.

1. If we wanted to make a composite (add all the questions together) of these 8 items what would the variance of the composite be using the matrix above. Explain how you got your answer.
2. What is the coefficient  $\alpha$  for the 8 items? Is this an acceptable level of reliability? Explain.

Download the CES-D pre-post data set from the class website and answer the following question.

3. What is the test-retest reliability for the CES-D?

#### Validity

4. Why might it be good to have a scale that has low face validity?
5. How might you test the above scale (math evaluation anxiety) for both criterion and construct related validity?
6. Can a test that has poor reliability be valid? Explain your answer.