# Exploratory Factor Analysis

In this experiment, many participants were given the Seeking of Neotic Goals (SONG) scale. This scale measures how participants are searching for a meaning in life or trying to explain the things they do in life. We want to know if the questions have some underlying factors, and what those factors might mean.

**Data Screening:**

* Missing data: do you have any?
* Outliers:
  + Mahalanobis cut off:
  + Number of outliers:
  + Delete any multivariate outliers.
* Multicollinearity – insert box showing that the IVs are not too highly correlated.
* Normality – insert box showing IVs are normally distributed.
* Linearity – insert box showing that IVs are linearly related.
* Homogeneity/Homoscedasticity – insert box showing that these two assumptions have been met – talk about each one (i.e. say if they are good or bad).

**EFA:**

1. Math:
2. Rotation:
3. How many factors did you choose?
   1. Include a parallel analysis:
   2. Scree plots (big drops in Eigenvalues) indicate:
4. What questions load where?
   1. Include a table of the fit indices for each round.
   2. List which questions you eliminated in each round and why.
5. What do those factors mean?
   1. Look at the loadings – given the way that the questions loaded – label each factor as what you think the questions are measuring (you will make this up, just make up something that is explainable to you and will make sense to us).
6. What is the fit of your scale? Is it good?
   1. RMSEA:
   2. SRMR:
   3. NNFI:
   4. CFI:

**IN A SEPARATE WORD DOCUMENT:**

Write up a results style section for this experiment

You should include the following in your write up:

* Data screening
* Type analysis – rotation, extraction, EFA, program
* Number of factors suggested you choose and why (scree, eigenvalues, parallel analysis)
* Why your model was best – use indices of fit (chi-square, RMSEA, GFI, NFI, etc).
* What questions you eliminated – why did you eliminate them?
* A basic interpretation of your loadings (include the table of the last round).

You will have several rounds of analysis – talk about each step. I used this many factors because XYZ, eliminated these questions XYZ. Then I did this many factors PQR, the loadings suggest these factors because…see the guide for how to write the analysis up.