Plans for the Py-equate Project

Dataset to consider:

* ACTmath: for random groups design
* KBneat: for NEAT design and IRT
* PISA: optional
* Math20SG: single group design
* Math20EG: random group design

Stage 1. Observed score equating – CTT framework

1. Random Groups Design
   1. Mean/Linear Equating
   2. Equipercentile Equating
   3. Smoothing Method
      1. Presmoothing: polynomial log-linear method; strong true score method
      2. Postsmoothing
      3. Kernel method: this is relatively complicated, and can hold off for now
2. Single Group Design – same as Random Groups Design, data format might look different
3. Common Item Nonequivalent Groups Design (CING)/Nonequivalent Groups with Anchor Test Design (NEAT)
   1. Linear Method
      1. Tucker
      2. Levine: Levine observed score method, Levine true score method
      3. Chained linear equating method
   2. Frequency Estimation Method
      1. Modified Frequency Estimation: we didn’t talk too much during class, this one can wait
      2. Chained Equipercentile Equating Method
   3. Braun-holland Method
4. Equating Error Estimation
   1. Analytical
   2. Bootstrapping

Stage 2: IRT Equating

* + - 1. Import packages to estimate IRT parameters
      2. Scale transformation for Rasch, 1PL, 2PL, 3PL

1. Mean/mean
2. Mean/sigma
3. Characteristic Curve
   1. Haebara approach
   2. Stocking and Lord Approach
      * 1. IRT equating
4. IRT true score equating
5. IRT observed score equating
   * + 1. Polytomous IRT equating
   1. Scale transformation
   2. IRT equating
6. Equating error computation

Stage 3: Other possible topics: requires reading more literature

1. Scale transformation
2. Vertical scaling
3. Linking
4. Parallel computing for bootstrapping
5. Incorporation of AI and/or NLP