Considerations in the Adaptation of Instruments: Examples from Colombia, Peru and India

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When Choosing a Test…

1. Purpose of the assessment:
   - Intervention evaluation/design, population diagnosis, screen

2. Ability to measure domain of interest – concurrent validity
   - What is the domain of interest?

3. Ability to predict future development (or other outcomes of interest) – predictive validity

4. Age of the child (baseline, follow up, cross-section)

5. Context appropriate (language/materials/etc.) + easiness to adapt

6. Administration costs: purchase test and licenses, training times, testing times, skills of personnel
Type and level of adaptations needed?

- Adaptation of specific words/items not common in the culture?
  - Use of local words (tortilla in Mexico, arepa in Colombia)
  - Translation of technical words?
  - Abstract concepts – “is your child a happy child?”
  - Suitability of items from a cultural perspective? “self-help”-type items

- Translation (language of assessment, of training)

- Manipulatives
  - Level of familiarity/exposure of child with toys and other

- Pictures/images
  - Suitability/familiarity
Careful!

• How can we ensure we...

  1. … do not distort meaning?
     - Translation and back-translation
     - Pilot translation and adaptations
     - Computation of reliabilities: test-retest, internal consistency

  2. … do not modify level of difficulty of item/task in/for the culture?
     - fork vs. spoon
Adapting the Bayley-III

- **India** (in progress --- follow-up)
  - work with psychologist in Tamil Nadu, follow Jena’s adaptations (+ Pakistan) ---- develop South Asia version
  - heavy translation requirements of both instructions (for mother & child) and manual (for testers)
  - personnel with adequate combination of skills: technical, language and knowledge of culture (reality)

- **Colombia** (completed --- baseline, follow-up, gold std)
  - full translation of manual and report forms
  - more similar culture → minimal modifications, mostly in wording, particularly in socio-emotional scale

- **Peru** (yet to start --- follow-up)
  - adapt/translate to Spanish, not to indigenous languages
Adapting the ASQ-3

- **India** (completed --- baseline – 10-20 mths)
  - follow Jena’s adaptations: replace pictures, replace items/words (Cheerio → puffed rice, peanuts, peas, etc. fork → spoon) ---- difficulty? Item ordering?
  - add 3 questions at the bottom- and top-end of test
  - increase number of items by administration
  - full translation of report forms (~ instructions)
  - personnel with adequate combination of skills
  - consider **ASQ:I** for next baseline
Adapting the ASQ-3 --- cont.

- **Colombia** (completed – shorter test)
  - Id as above, but only add 3 questions at top-end (research q.)
  - ASQ-3 is available in Spanish:
    - Colombianise/Peruvinise words + simplify grammar
    - Suitability of some items
      - Maternal report vs. administration vs. observation
      - Maternal administration vs. tester administration

- **Peru** (completed/in progress --- baseline/follow-up)
  - In addition to above, adapt/translate to Spanish *and* indigenous languages (3 quechuas + aymara)
Adapting Other Tests – Bogota Study

• (ASQ-3), Denver-II, Battelle (BDI-2) Screener
  – Available in Spanish
  – But not all instructions or manipulatives are translated (Battelle, text in picture books in English!)
  – Adapt modify images
    • replace train with bus; polar bear in zoo images
    – Modify some words and sentence construction

• MacArthur-Bates Communicative Dev Inventories
  – Use Mexican version – still need to Colombianise words
  – Only available (and normed!) in English and Spanish so far

• Socio-emotional and Personal-social Scales
  – Maternal reports → translate items; difficult concepts
Cost Considerations

- Purchase of Materials
- Administration requirements
  - space, materials required (not all come with test)
  - How to ensure difficulty level is maintained?
- Translation and adaptation licenses
- Training time (user friendly, complexity of items, reliability)
- Administration time
- Personnel skill/background requirements for administration
Other Considerations

• Mother/child enjoyment? (how intimidating/demanding is it?)

• Selecting subscales vs. administering the entire scale?
  – Is it allowed by publisher?
  – More generally, are modifications allowed by publisher?

• Use of norms ....
Composite Scores Bayley-III, Bogota Sample

Cognition

Language

Motor

Socio-emotional

Score

Score

90 94 98 102 106

90 94 98 102 106

90 94 98 102 106

90 94 98 102 106

6 12 18 24 30 36 42

6 12 18 24 30 36 42

6 12 18 24 30 36 42

6 12 18 24 30 36 42

Age (months)

Age (months)

Age (months)

Age (months)

Composite Score

95 percent CI
## Composite Scores Bayley-III, Bogota Sample

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Use of Norms

- Are norms valid after modifications have been introduced?
- Are norms valid for culture more generally?
- Use raw scores adjusting for age, standardise?
- Is it allowed by publisher?
- Temptation (and pressure) to “categorise”/”classify” children – are we over simplifying or making misleading statements?
Standarisation of Scores $Z = (Y - m)/SD$

- Residuals of the regression of the scores on age
  - does not account for changes in variance with age

- Standardise within age group: months-of-age specific mean, SD
  - Smallest interval possible but enough observations?

- Compute age conditional mean and SD parametrically using polynomials
  - trial and error, generates negative variances, outlier $Z$ scores

- Compute age conditional mean and SD non parametrically
  ✓ Fully flexible, data driven, independent of sample size

- Factor Analyse Items
Thank you!