

# Implications of Computer-based Testing

Henry Braun

Lynch School of Education

Boston College

## ➤ ILSAs: Purpose

Inform education policy (sometimes providing impetus and direction) through:

- Descriptive statistics
- Within-country analyses
- **International comparisons**
- **International benchmarking**

# International Comparisons

- League tables
- Within strata (e.g. parental education)
- Equity (e.g. literacy gaps between SES levels)
- Patterns of relationships (e.g. cognitive outcomes and parental education, controlling for educational attainment)
- Benchmarking

NOTE: CBT does not change the context for the most important policy questions.

# ILSAs: Utility

- Relevance/Quality
  - Measurement
  - Administration
  - Processing
- Interpretability
  - Transparency
  - Link to policy questions (causal attributions)
- Fit
  - Alignment to policy and politics

# Measurement: Benefits

- Deeper: Better construct representation
- Broader: More constructs
- More accurate: Adaptive assessment
- Access to timing and process data

Note: Introduction of CBT into measurement has implications for administration and processing.

Note: Hoped-for benefits come with significant challenges – and not always appreciated trade-offs!

# Measurement: Challenges

- Time constraints limit the number of domains per respondent
- Missing-by-design
  - complicates analysis
  - requires greater reliance on the latent regression model
  - may preclude some secondary analyses
- Greater accuracy (adaptive designs) may be offset by introduction of construct-irrelevant variance (multiple devices, unfamiliarity, etc.)

# Administration

## ➤ Benefits

- New infrastructure with reusable platforms
- Simpler and less error-prone (?)
- Enhanced QA/QC (e.g. real-time monitoring)
- Dissemination of expertise

## ➤ Challenges

- Building and troubleshooting new infrastructure
- Training
- Transition involves maintaining dual systems

# Processing

- Data management
- Scoring (expert systems)
- Scaling
- Reporting
- Dissemination of expertise



# The Bottom Line

- In the present context, CBT is not likely to have a major impact on how ILSAs are employed in education policy or in secondary analysis
- Iceberg metaphor (not Titanic!) may be appropriate
- The widespread introduction of CBT does present an opportunity for some creative rethinking of ILSA designs, but requires a long horizon

# The Bottom Line (cont.)

- Consider adopting a “Policy-centered Design” approach – where both the cognitive assessment components and the background questionnaire components are constructed to maximize the evidence relevant to key policy issues
- At the same time, designs to strengthen desired causal inferences should be explored

**Can this be done while maintaining key trend lines?**

# The Bottom Line (end)

- We already have much experience with conducting pilot studies and focal area studies that can be used to explore innovative designs
- The introduction of CBT into ILSAs involves a very substantial investment and a prodigious amount of effort – Let's leverage that investment to markedly increase the utility of ILSAs for the improvement of education around the globe