Implications of Computer-based Testing

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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.
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.