IEA INTERNATIONAL RESEARCH CONFERENCE
PRE-CONFERENCE WORKSHOPS

University of Gothenburg
Gothenburg, Sweden

June 29 – 30, 2010

Pre-Conference Workshops

The IEA Data Processing and Research Center (IEA DPC) will be conducting a series of pre-IRC workshops. These workshops will be given in parallel on 29-30 June 2010, as part of the pre-conference activities.

Workshop #1
Introduction to IEA Databases and IDB Analyzer

Presenters: Plamen Mirazchiyski & Oliver Neuschmidt

This workshop will provide an overview of the IEA databases currently available, with particular emphasis on the most recently released databases (TIMSS 2007, PIRLS 2006, and SITES 2006). As part of the workshop, participants will also be instructed on how to use the IDB analyzer. The IDB Analyzer is an application developed by IEA DPC to facilitate access to and analysis of the large-scale assessment databases available from IEA. The IDB Analyzer creates SPSS code that can be used with SPSS to conduct statistical analyses, taking into account the complex sample structure of the databases.

The following topics will be covered during the workshop:

- Overview of IEA databases
- Structure of the databases
- Accessing the data
- Reviewing the documentation
- Sampling and test design: Implication for analysis
- General sample and test design
- Computing sampling and measurement variance
- Estimating statistical significance of results
- Using the IDB Analyzer to combine datasets
- Merging data from students, schools, teachers, and parents
- Combining data from different countries
- Modifying and recoding data for analysis
- Using the IDB Analyzer to conduct analysis
- Calculating means, standard deviations, and percentages
- Calculating correlations and regression coefficients
- Calculating percentages of students meeting achievement benchmarks
- Calculating differences between groups

This workshop is aimed at individuals who have only limited or superficial familiarity with IEA databases and analysis procedures, and who want to become familiar with them. Participants are expected to bring their own laptops with SPSS installed (SPSS is required to use the IDB Analyzer). Free copies of the IDB Analyzer will be distributed at the workshop.

Workshop #2
Using HLM with Large-Scale Assessment Data

Presenters: Daniel Caro & Leslie Rutkowski

The workshop will train participants on how to use the HLM software through analysis of socioeconomic gradients in PIRLS 2006. First, the rationale for HLM analysis will be introduced and participants will learn how to prepare datasets and import them to HLM. Second, relevant hypotheses for policy research regarding socioeconomic gradients will be evaluated, stressing theory, model specification, and interpretation of results.

An example of the type of analysis that will be presented is testing for the presence of a socioeconomic gradient. This hypothesis test evaluates whether there is a significant relationship between family socioeconomic status (SES) and academic performance within a two-level model (students in schools in a specific country). The theoretical background will be presented, various model specifications will be considered (linear and curvilinear effects), key statistics will be interpreted (i.e., slope, R-squared, curvilinear SES term), and the policy implications of each hypothesis test and resultant statistics will be discussed.

Next, increasingly complex hypotheses will be evaluated. For example, participants will test whether socioeconomic gradients vary between schools, whether the school SES has an effect above and beyond the family SES effect, whether specific

variables mediate and/or moderate family SES effects and, finally, within a three-level model framework, whether socioeconomic gradients vary between countries, and if so, how.

The following topics will be covered:

- Theoretical background of multilevel models
- Data preparation and importing data to HLM
- The socioeconomic gradients framework: Theory and hypotheses set out
- Hypothesis testing: Model specification and interpretation of results
- Two- and three-level HLM analysis

Participants will learn to specify, estimate, and interpret results of two- and three-level models within the HLM software environment, as well as to formulate and test hypotheses with implications for research and policy. This workshop is aimed at individuals with a working knowledge of IEA databases and a solid knowledge of intermediate statistics. Participants will be required to bring their own laptops with SPSS installed. The HLM student version and PIRLS 2006 data will be made available and used during the workshop. The workshop will comprise lectures mixed with hands-on training.

Workshop #3
Assessment Designs, Item Response Theory, and Proficiency Estimates

Presenter: Eugenio Gonzalez

This workshop will provide an overview of the principles surrounding the design of large-scale assessments, the item response theory models used to calibrate items, and the methodology used to assign proficiency estimates, also known as plausible values. Presentations will be mostly theoretical, with ample time given for discussion.

The following topics will be covered during the workshop:

- Overview of assessment design principles
- Advantages and disadvantages of current designs of large-scale assessments
- Consequences for analysis
- Overview of principles of item response theory
- Advantages and disadvantages of different models
- Limitations of IRT models
- Overview of principles of population modeling and proficiency estimation
- Review of procedures and techniques for carrying out conditioning
- Multiple imputations in large-scale assessments
- Plausible values and why they are useful

The general daily schedule will consist of presentations and limited hands-on practical assignments. Participants are expected to bring their own laptop PC with statistical software installed.

About the IRC

The International Association for the Evaluation of Educational Achievement (IEA), the University of Gothenburg, and the University of Oslo are hosting 4th IEA International Research Conference (IRC-2010). The conference will be held at the Department of Education, University of Gothenburg, from 1 July to 3 July 2010. It will be preceded training workshop on secondary data analysis using IEA data. The IRC-2010 invites the presentation and discussion of research studies that use IEA's data. The IRC-2010 is intended to provide an international forum where scholars and researchers can exchange ideas and information on critical educational issues.

The conference language will be English.

Cost

Cost is 100 Euros per workshop participant. Cost includes all training materials and coffee breaks during the workshop.

Contact Information

For information on these workshops, of the IRC-2010, please visit http://www.iea-irc.org, or send an email to RandA@iea-dpc.de.