

USE OF EDUCATIONAL LARGE-SCALE ASSESSMENT DATA FOR RESEARCH ON MATHEMATICS DIDACTICS

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Short description of the workshop: aims and underlying ideas

As a leading entity in the field of education for nearly 60 years, IEA promotes capacity building and knowledge sharing to facilitate innovation and foster quality in education. All data arising from IEA studies provide a tremendously valuable and rich source for secondary analysis in many fields of educational research, including the didactics of mathematics. The primary objective of this workshop is to show that and how IEA study data can be used for the purpose of improving teaching mathematics. We will (i) introduce the structure of IEA data, (ii) show access paths to data sources, technical documentation, analysis guides and software tools, and (iii) explain the possible uses of data for researchers who focus on the didactic of mathematics. All this will be done at the hand of the two studies TIMSS and TEDS-M including practical examples.

The following key questions will be discussed during the workshop:

- 1. What are the methodological challenges of ILSA data and how can they be addressed for data analysis and interpretation of the results? What are the limitations?*
- 2. Where can the data, documentation, analysis guides and software tools be accessed? Which kind of support is available for researchers working with the data?*
- 3. What kind of research questions can be answered with data from TIMSS and TEDS-M? Which statistical analysis methods are appropriate?*

Planned structure:

Planned timeline	Topic	Material / Working format / presenter
<i>Introductory session – 10 min</i>	<ul style="list-style-type: none">• IEA – mission, studies, topics, audiences• Introduction of participants and their research interests via a structured query• ILSA – study designs, technical standards, methodological challenges and solutions	Presentation/ Sabine Meinck
<i>TIMSS and TEDS-M (research focus, Instruments, outcome variables and scales) – 15 min</i>	<ul style="list-style-type: none">• Main research focus• Target populations• Instruments, outcome variables and scales	Presentation/ Oliver Neuschmidt

<i>Public-use database: structure and access – 10 min</i>	<ul style="list-style-type: none"> • Access and availability of data files, technical documentation, analysis guides and software tools • Data structure (data files, codebooks, etc.) 	Presentation/ Milena Taneva
<i>Possible uses for audience (bridging ILSA to mathematics didactic research) – 20 min</i>	<ul style="list-style-type: none"> • At the hand of practical exercises it will be shown how research questions relevant to the audience can be answered using IEA data 	Presentation/ Sabine Meinck
<i>Group work – 30 min</i>	<ul style="list-style-type: none"> • Participants will form up to four working groups. • Each group will receive hand-outs of selected questionnaire material and information on available derived variables (e.g., achievement, attitude and background scales) of one particular study (TIMSS grade 4; TIMSS grade 8; TEDS-M primary; TEDS-M lower secondary). • Participants will develop their own research questions that could be answered given the information collected in the study. • Each group presents one or two research questions and gets feedback from the instructors and the audience. 	Group work with hand-outs/ Short presentations by participants/ Guidance by all instructors
<i>Summary & closing – 5 min</i>	<ul style="list-style-type: none"> • Remaining questions will be answered • Summary and conclusions • Invitation to advanced data analysis seminars and initiation of collaborative work 	Question-and-answer session (all instructors), completion of evaluation sheets