

TSG Agenda

TSG 43: Research and development in testing (national and international) in mathematics education

Class: A

**Please prioritize the sessions in “core-time” (from 19:30-23:00, Beijing time, i.e. Session 2, 3 for Class A and session 1, 2 for Class B) as they are friendly to most of the time zones in the world.

Session 1

Session 2

1. Time: 19:30—19:50

Title of the Paper:

On the eighth grade mathematics achievement and its effect factors----based on seven areas study

Author(s):

Qi Chunxia, Wang Ruilin, Huang Qi, **Fu Yu**

Institution(s) (to school/department/research center) and Country/Region:

Faculty of Education of Beijing Normal University (China), Capital Normal University (China), University of Wisconsin-Madison (USA), Faculty of Education of Beijing Normal University (China)

Short abstract of the paper:

Based on the compulsory education mathematics curriculum standard (2011 Edition), this study tries to design math test and questionnaire for 170748 eighth grade students from seven areas in mainland, China. The results are: 1) eight grade students achieve the high score, and their pass rate is 92.4%, but their level of application is lower than the level of knowing, understanding, and grasping; 2) there are different achievements among seven regions but the difference only exists in the top level students; 3) teaching method,

teaching representation, mathematics representation, and thinking tendency have impacts on the student's academic performance, the teaching representation is the greatest.

2. Time: 20:00—20:20

Title of the Paper:

International comparisons of teacher knowledge: The Case of the LMT measures

Author(s):

Tibor Marcinek, Arne Jakobsen, Edita Partová

Institution(s) (to school/department/research center) and Country/Region:

Central Michigan University (USA), University of Stavanger (Norway). Comenius University (Slovakia)

Short abstract of the paper:

The paper draws on the body of international research conducted in relation to the measures of the mathematical knowledge for teaching developed as part of the Learning Mathematics for Teaching project at the University of Michigan (the LMT measures). It adds to the discussions of the feasibility of using such measures for cross-national comparisons of teacher mathematical knowledge by describing a case of Norway and Slovakia, where the researchers translated and adapted the same calibrated set of LMT measures.

3. Time: 20:30—20:50

Title of the Paper:

PISA assessment of brazilian students' mathematical literacy

Author(s):

Maria Isabel Ramalho Ortigão

Institution(s) (to school/department/research center) and Country/Region:

Rio de Janeiro State University

Short abstract of the paper:

The aims of the current study are to present the results of an investigation focused on analyzing PISA Mathematics items based on Differential Item Functioning (DIF) analysis, as well as to compare results between Brazil and Portugal. Based on descriptive analysis applied to characteristics of mathematical items that presented differential functioning, there were differences in cognitive skills between the assessed groups. However, typical characteristics of each country can influence the organization of their educational system, the way curricula are organized, and the emphasis given to certain contents in the classroom. In addition, school performance is known to be influenced by students' way of thinking, by their cultural and social values, and by the economic status of their families. Knowing these features based on items that favor certain groups, in addition to perceiving the incidence of patterns, is undoubtedly the great contribution from DIF analysis to educational assessment.

Session 3

1. Time: 21:30—21:40

Title of the Paper:

On composing distractors for multiple choice problems

Author(s):

Kuksa Ekaterina

Institution(s) (to school/department/research center) and Country/Region

Moscow Center for Continuous Mathematical Education (Russia)

Short abstract of the paper:

In the modern world, with its inevitably increasing volume of information, the testing becomes more and more suitable mean for monitoring a current and final success of a student. The tests which verification is carried out automatically with excluded human factor are especially relevant for this purpose. A study was organized on the generation of distractors by educators and methodologists. They were offered tasks with a short answer on the topic "Equations" from the USE open bank. For that tasks the educators were asked to assume what incorrect answers the students gave, and then to write out the first 3 most popular incorrect answers with estimated percentages of appearance. The work analyses the statistical outcome of the experiment in order to compare it with the statistical results of using similar tasks in mass tests.

2. Time: 21:50—22:00

Title of the Paper:

How Chinese design mathematics test

Author(s):

Jiangong Dong

Institution(s) (to school/department/research center) and Country/Region:

Wuhu Institute of Educational Science, Wuhu City, Anhui Province, China

Short abstract of the paper:

The test is an important aspect of evaluation, and also an important link in the reform of the mathematics curriculum in middle school. Renewal of evaluation concept and reform of evaluation method are key factors that restrict the reform and development of the mathematics curriculum, which have an obvious influence on the test. Mathematics education evaluation and development of question setting under the background of the new curriculum is inseparable from China's basic national conditions, must also be based on deep understanding of the basic connotation of mathematics education evaluation.

3. Time: 22:10—22:20

Title of the Paper:

Reflections on large-scale assessment and the formatting power of mathematics

Author(s):

Bruno Damien da Costa Paes Jürgensen, Mara Regina Lemes De Sordi

Institution(s) (to school/department/research center) and Country/Region:

State University of Campinas (UNICAMP), Brazil

Short abstract of the paper:

The main goal of this paper is to explore and reflect upon the issues concerning large-scale assessments in São Paulo, Brazil, and the market-oriented policies underlying them. We proceed to discuss these issues in light of the formatting power of mathematics and inscription devices, since such assessments are used to compose indexes that intend to measure the quality of the education offered by the state and pay bonuses to teachers, and oversimplify the complexity of the educational process. This way, we intend to set in motion a debate around the role of mathematics in educational policies, since they have a great impact on teachers, their everyday life in schools and, consequently, on society as a whole and the formation of our students.

Note:

Class A:

- Session 1: 14:30-16:30 Beijing time, July 13th
- Session 2: 19:30-21:00 Beijing time, July 14th
- Session 3: 21:30-23:00 Beijing time, July 17th

Class B:

- Session 1: 19:30-21:00 Beijing time, July 13th
- Session 2: 21:30-23:00 Beijing time, July 16th
- Session 3: 14:30-16:30 Beijing time, July 17th