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Working group 2:
Ways of Dealing with Cultural Differences

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Several lines of research in mathematics education have been carried out over the past years in the field of ways of dealing with cultural differences such as

- Research of ethnomathematics
- Social and history context research
- Mathematics-for-All-movement
- Research on gender
- Mathematics teaching in multi-cultural classes

From the most recent topics, let us remember CLIL (Content and Language Integrated Learning) or the items connected with the globalisation of the world.

In the teaching and learning processes of mathematics classroom, an interaction develops among three components: children, teacher and mathematics. When we consider children's activity as an action in their own environment, we have to consider not only mathematics itself but also children's own culture. Even abstract mathematical concepts have been developed through ages by abstracting the objects found in the environment.

Several cross-cultural studies focus on exploration and comparison of teachers' and students' mathematics images in different countries. Overall studies indicate cultural differences in mathematics achievement as well as in attitudes towards mathematics. The review of literature indicates that there is a lack of consensus on the definition of "image of mathematics". What we can conclude from literature is that it originates from past experience as well as associated beliefs, attitudes and concepts and is constructed as a result of social experiences, mediated through school, parents, peers or mass media.

The literature contains sporadic hints about the relationship between mathematical understanding and the acquisition of language. L.S. Vygotsky regarded thought and language as being a "reciprocal relationship of development". In (Vygotsky: Thought and Language, The MIT Press Cambridge, Massachussets, 1986) we can read: "Communication presupposes generalization …, and generalization … becomes possible in the course of communication."

The contributions to the WG2 presented an international perspective of the following four aspects of dealing with cultural differences:

- teaching of non-linguistic subjects (e.g. mathematics) through an additional language (different from a student's mother tongue) (J. Novotná & M. Hofmannová)
- the language of mathematics as the influencing factor in understanding mathematics (F. Spagnolo)
- analysis of textbooks in various countries in order to diagnose similarities and differences in presenting school mathematics topics (T. Harries & R. Sutherland)
- application of world-wide educational movement in specific social and economical environments (N. A. A. Zanzali, H. B. Banai)

The discussions in the WG were enriched by the diversity of perspectives and approaches represented.