Title : **Schemes of Children's Learning in Additive and Multiplicative Structures**

Presenter : Dr. Parmjit Singh, MARA University of Technology, Malaysia

Date & Time : 12 August 2003, 2.00 p.m. – 3.00 p.m.

1. **Content of the Paper**

1.1 Purpose of research is to inform practice, construct a theory, and utilize research findings to teach mathematics more effectively. The paper is part of his research using clinical interviews with children.

1.2 The presenter emphasized the need to hear the child's voice. Children's expression are an indication of their ways of thinking, doing and describing things. Classroom teachers are the persons who see changes in child.

1.3 Learning with understanding must cover aspects of additive reasoning, algebraic reasoning, multiplicative reasoning, and proportional reasoning.

1.4 Problems presented must include different forms such as :
- Change from : missing end
- Comparison : difference unknown
- Equalize: difference unknown.

1.5 Excerpts of interview with students from the study ranging from kindergarten to grade six were discussed.

1.6 Different ways or schemes of solving a particular problem demonstrated by different children were presented and analysed. The presenter also discussed difficulties commonly encountered by students and the constructs necessary for multiplicative thinking.

2. **Discussion**

2.1 *Mdm Lim from Kuantan, Malaysia.* Asked the presenter's opinion on how to teach children the relation between 15 & 18.

Answer
Bring down the number to the lowest ratio unit, i.e. 15/18 --> 5/6.

2.2 *(Name not available)* commented that referring to the slide presentation, using names could be problematic to children because they do not normally relate letters with numbers.

Answer
The use of names is just to make the problems more acceptable to children. We do not intend to use names to teach algebra.