

DG05: COMMUNICATION IN MATHEMATICS CLASSES – QUESTIONING AND LISTENING

Coordinators: **Lisser Rye Ejersbo, Learning Lab Denmark,**
Erkki Pehkonen, University of Turku

Using problem solving in mathematics class is quite normal, but its implementation ways vary much. For the quality of pupils' learning, the way it is implemented and the communication used are crucial. One of the main questions for the teacher is how to get his or her pupils involved and motivated in the problem solving process in the first place, and how to keep it going once it has started (cf. Mason 1982, 28). The kind of task or questions the teacher uses will have important implications for the progress of pupils' problem solving. In the discussion group, the following questions will be discussed:

What is a good task or question, i.e. a question which produces meaningful discussion, and why?

What skills are needed for the teacher to make the communication inspiring and effective, and why?

We will try together to develop a classification system for questions, i.e. to define levels of questions.

For the communication part we'd like to focus on the teacher's listening. According to constructivist understanding of learning, it is uttermost important for the teacher to understand his or her pupils' thinking and knowledge base, in order to help them learn meaningfully - the so-called interpretation model (Schoenfeld 1987, 29). Covey (1989, 236) lists five ways of listening: (1) Ignoring the other, (2) Pretending, but not listening, (3) Selective listening, (4) Attentive listening, (5) Empathic listening. According to Covey, a way to achieve pupils' understanding is to try to understand them, before trying to get them to understand you.

Can we use such a classification of listening in mathematics class? In the overall categorization we might distinguish different levels of communication, e.g. the sharing of questions and listening, the quality of questions and the level of pupils' understanding of the content in questions.

References:

- Covey, S.R. (1989): *The 7 Habits of Highly Effective People*. A Fireside Book. Simon & Schuster: New York.
- Mason, J. (with L. Burton and K. Stacey) 1982. *Thinking Mathematically*. Bristol: Addison-Wesley.
- Schoenfeld, A.H. 1987. *Cognitive Science and Mathematics Education: An Overview*. In: *Cognitive Science and Mathematics Education* (ed. A.H. Schoenfeld), 1-31. Hillsdale (NJ): Lawrence Erlbaum Associates.