

# MATHEMATICAL PROBLEMS IN SCHOOL CONTEXT RESEARCH - A TEACHER PERSPECTIVE

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*The purpose of this paper is to discuss the teachers' reflections when taking part in a research project. Research methods have included video- and audio recordings, stimulated recall with the teachers and interviews. One result was that the teachers found that all pupils could work with the problem and achieved better than expected. At the same time they displayed job satisfaction. Another result was that the teachers started to formulate their own research questions as a consequence of taking part in the research project. A third result is that even if the problems implied another way of teaching, the teachers intend to continue as usual.*

## **INTRODUCTION**

This study is a part of a larger project that is called RIMA (Rich Mathematical Problems), where 4 classes (pupils aged 13 – 16 years) and their teachers worked with 10 rich problems during their lessons in mathematics for three years. 'Rich problems' are defined as problems which are especially constructed for mathematics education in a school context. Seven specific criteria for 'rich problems' will also be formulated.

## **BACKGROUND**

In a research project, Cooney (1999) states that teachers are traditional in their instruction and have difficulties formulating more complex questions. Boaler (2003) describes the connection between theory and practice: "*What it means to have broad conception of knowing – for research and for mathematics*". She stresses the necessity to develop new knowledge about the practice of school. In an earlier study Boaler (1997) points out that pupils acquire poor conceptual understanding in traditional teacher directed instruction. Teachers have few possibilities to develop their practice into research. One reason for this might be that there is a great difference between teaching and research (Jaworski 2003).

## **AIM AND RESEARCH QUESTION**

*What influences the teachers when working with a RIMA problem?*

## RESULT

The teachers gained knowledge by taking part in the research project. One teacher said: “*Then it would be interesting, too, to compare with a common lesson ... and see on what occasion they learn best*”. He continued with the following thoughts, as his own instruction with the text book was compared with the RIMA problems: “*If this is not better our way [...] to have a great problem? Then it is better, anyhow, to do a little variation*”. One teacher said at the post interview: “*what activity, you know, it is quite incredible*”. The same teacher explained in the post interview: “*You know, I have, I follow my book pretty well and I'll continue to do that [...] and now I have some tasks that I know I can run*”.

## DISCUSSION

If we want teachers to do research, courses implying that the teachers do their own studies in their own practice, in the way Jaworski (2003) describes it, will be necessary. Several of the teachers thought that they worked in another way on the problem solving occasions. But these teachers, too, considered working with the textbook to be the way in which their pupils learn mathematics. The teachers formulated their own research questions as a consequence of taking part in this research project. Even if the RIMA problems implied another way of teaching, the teachers intend to continue as usual.

## References

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