





Multiculturalism, Migration, Mathematics Education and Language

M³EaL Project International Workshop

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Texbooks analysis (trial)

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Teaching unit from Norway

- Focus on activities
 - Inquire
 - Ask questions
 - Make conjectures
 - Discuss and Explain
 - Proof

- Related to a problem solving approach

Mathematics textbooks in Norway

- Study on six textbook units (Kongelf, 2011)
- Grade 9th (14-15)
- Look for problem solving approaches
- The choice of textbooks often determines what teachers will teach, how they will teach it and how their students will learn.
- Pupils to a great extent work alone with problems in the textbook

Heuristic approches

- 1. Look for a pattern
- 2. Make a systemic table
- 3. Make a visualisation
- 4. Guess and check
- 5. Solve part of the problem
- 6. Change your point of view

Findings in Norwegian textbooks

- Heuristic approaches are not explicitly addressed
- Most exemplified approaches:
 - 1. Solve part of the problem
 - 2. Make a visualisation
 - 3. Change your point of view

Art - skill

- Reducing problem solving as an art to problem solving as a skill
- In order to value a problem solving approach:
 - Role played by the teachers important
 - Consequences for teacher education, curriculum developers, authors of textbooks
- The heuristic approach seems to be rather incidentally – textbooks do not present any guidance og how and when to use this approach

Å løse en ulikhet

Når vi skal løse en ulikhet, betyr det at vi skal finne ut hvilke verdier x kan ha for at ulikheten skal være sann.

EKSEMPEL





Looking forward

- Need to change from from silent work as an activity in school to new learning opportunities where pupils engage in discussion, argumentation and get the possibility to explore the nine heuristics approaches: look for a pattern; make a systemic table; make a visualisation; guess and check; solve part of the problem; change your point of view.
- The teaching unit from Norway opens for such activities.