FaSMed in Italy: the use of Connected Classroom Technology to promote Formative Assessment in Mathematics

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THE ITALIAN CONTEXT
- Mixed ability classes
- Low achievers identified mainly through the teachers’ assessment
- Written national assessment tests (Ivwa) in grade 5, 6, 8, and 10

FASMED TEACHING EXPERIMENTS
The teaching experiments involved 25 classes (from grade 4 to grade 7) from three different clusters of schools located in the North-West of Italy:
- Istituto Compenasso di Sissone (Torino)
- Istituto Compenasso di Canale Savona
- Circolo Sagar (Torino)

CONNECTED CLASSROOM TECHNOLOGY
We chose it because it enables to:
- connect the students’ tablets with the teachers’ laptop
- distribute documents to students and collect documents from the students’ tablets
- create instant polls and immediately show their results to the whole class
- display the students’ written productions through the data projector or the interactive whiteboard.

Each school involved in the project has been provided with tablets for the students and computer for the teachers, linked to the conf or onto projector.

THE DIGITAL WORKSHEETS
- Activities adapted from the ArDi Project (Cusi, Malara and Necarco 2011) and the Mathematics Assessment Program (http://map.mathshell.org/materials/index.php)
- Our adaptation consisted in the creation of sets of digital worksheets, belonging to three main categories:

PROBLEM WORKSHEETS: worksheets introducing a problem and asking one or more questions

HELPING WORKSHEETS: aimed at supporting students who meet difficulties with the problem worksheets

POLLE WORKSHEETS: worksheets prompting a poll between proposed options

THE TYPICAL LESSON STRUCTURE

THE STUDENTS’ PERSPECTIVE
On the use of poll worksheets:
I liked being asked if I agreed with the teacher and I thought that was a really good idea.

On the role of helping worksheets:
The helping worksheets were very useful, they helped me understand the homework.

On displaying and collectively analysing students’ written answers to problem worksheets:
I think the teacher was very good, she managed to explain things very clearly.

CLASSROOM DISCUSSIONS:
THE CORE OF OUR METHODOLOGY

THEORETICAL TOOLS FOR TASK DESIGN AND ANALYSIS
The two main theoretical tools underlying our design, implementation and analysis are:
1. Formative Assessment strategies (Wilmore and Thompson, 2001)
2. Functionalities of Technology introduced within the FaSMed Project (see https://map.mathshell.org/materials/index.php?term=formative-assessment)

Specific theoretical and methodological assumptions of the Italian team concern the importance of:
- fostering students’ development of ongoing reflections on the teaching-learning process, so as to promote metacognition (Schonfeld, 1991)
- helping students to make their thinking visible (Collins, Brown and Newman, 1998), in particular by prompting argumentation processes on mathematical activities.

References: