

FaSMEd Project Developments ...

EMINENT 2015

After receiving the Scientix Resource Award for WP3 Deliverable: The Prototype Toolkit, Scientix invited two members of FaSMEd to represent the project at EMINENT 2015 – STEM IN EDUCATION AND LIFE. It is the Experts Meeting in Education Networking annual event by European Schoolnet that was held from 19-20 November 2015 in Barcelona and was organized in cooperation with Scientix and the Departement of Education of Catalonia. EMINENT 2015 brought together 280 participants from 37 countries including ministries representatives, researchers, STEM teachers and other stakeholders. Hana Ruchniewicz and Raphael Hoffmann of the German team took the opportunity to spread the idea of FaSMEd, hosting a stand throughout both days of the conference. Besides current news and information on the project, they brought examples of classroom materials for both Mathematics and Biology to Barcelona for stakeholders to try out tools for formative self-assessment. In addition to disseminating the idea of FaSMEd, the conference gave us great insight on current achievements and problems in STEM Education throughout Europe. Most of the key points that were discussed, are of importance for the FaSMEd project as well, for example the relevance of disseminating existing knowledge and research findings, high quality CPD and scaling up ideas, supporting the close cooperation of researchers, teachers and policy makers and including all students as well as raising interest and motivation. Finally, it was stressed that assessment methods should not

focus on the outcomes of student learning, but rather be included in the process of teaching and learning.



International Collaboration Through FaSMEd

The opportunities for international collaboration in the FaSMEd project are not just limited to the core project activity or restricted to activity by university staff. Supported by the Erasmus programme, Simona Linnenbrink, a student from the University of Turin, has recently been spending time at the University of Nottingham with the FaSMEd team. Simona first worked with the Italian FaSMEd team, observing and analyzing lessons in Italy and is now comparing approaches to using digital technology in formative assessment with those used in an English school. Whilst working with the Nottingham FaSMEd team, Simona has also been busy writing her Masters thesis and improving her English whilst in Nottingham. The combination of studies in Turin and Nottingham has provided opportunities for her to gain a wider understanding of the different education systems, cultural influences and research projects within the two countries, all of which may prove useful in her future career.

For further information please see: <http://research.ncl.ac.uk/fasmed>

Our Facebook page: <https://www.facebook.com/fasmedproject>

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FaSMEd NEWSLETTER

Issue 8

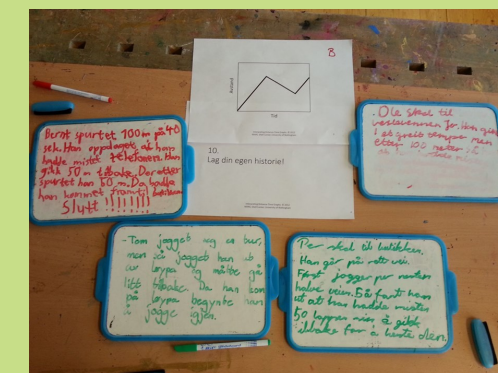
31st December 2015

Welcome to our eighth issue of the FaSMEd newsletter. This issue includes news and updates from across the project

FaSMEd partner news from Norway

Our Norwegian partner, HiST has just finished the case studies, observations in classrooms and, interviews with students and teachers at three different schools. At two sessions groups of around 12 year old students experimented with technology for visualization of time-distance graphs. Four groups, each with 2 or 3 students, participated in a two part lesson. One part of the lesson was spent on a task about connecting graphical representations and stories. The other part of the lesson, the students tried out how to make graphs by walking in front of an echosounder connected to a computer. The computer would give a live display of graph in a time – position coordinate system.

For the “walking a graph” activity, we used data logger technology, a motion sensor based on ultrasonic pulses connected to a laptop, and an app with pre-made tasks was presented to the students. The tasks were a mix of practical tasks: “Walk a graph”, and open-ended questions about interpretation of the graphs from the walks. All the results were saved and were used by the teacher for assessment and feedback to the students.



We observed enthusiasm as well as useful discussions and interpretations from both parts of the lesson. It seems that a combination of technology and paper tasks were extra valuable. Students having done the “walk a graph” activity, seemed to have a good understanding of the connection between a text describing a practical situation and how the corresponding graph would look.

Depending on age and ability, students may need close supervision when working with technological tools, in particular if these are not especially designed for school use. Obstacles we experienced included understanding the vocabulary and technical difficulties with the software. In our session we were able to overcome these problems by being a team of up to 6 researchers and teachers available for helping the students.

After the lessons, both the teacher Einar and the students expressed that they had really enjoyed this type of lesson, and that they had learned a lot from it.

From January 1st 2016 our college (HiST) will be part of the Norwegian University of Science and Technology – NTNU.

News from France

IFÉ (Institut Français de l'Éducation) is a national institute of research, of training and of knowledge mediation in the field of education; it is part of ENSL (École Normale Supérieure de Lyon), that is a recent institution which has inherited a long tradition of research and training. IFÉ's Research Department plans to set up a platform for research in education, useful for research teams of the ENS in Lyon that are interested in educational and training issues. This is for teams with contract-based links with our partner ENS in Lyon, and in a more general way for the advancement of research in education.

The French context

The research team involved in the FaSMEd project has been working for several years on the integration of technology in teaching and classroom practices. The FaSMEd project has been an occasion to combine the research about formative assessment with this focus on technology.

In particular, the team is responsible for the "Intervention Cases" work package (WP4); its focus is interventions with teachers and students to implement formative assessment lessons with technology.

Different schools at different levels are involved in the FaSMEd project: from grade 4 to grade 10. This wide range allows us to account for the particularity of the French educational system and the possibilities for pupils to make course choices late. More precisely, at the end of grade 9 they have to choose between professional and classical studies and at the end of grade 10 they have the choice between economics, literature, language and science. Furthermore, the majority of the French classrooms participating in the FaSMEd project are from primary and lower secondary schools, because difficulties in mathematics and in science may occur in the early years of education.

Clusters of teachers are working in Mathematics, in Science and in Mathematics and Science in the sense that some teachers are collaborating to create learning sequences around a common topic (i.e., magnitudes and measure) and, in some cases, they co-animate lessons sharing common language, notation and tools.



All teachers are using connected classroom technologies in their classrooms: they work either with tablets or with student response systems and in each case with an interactive whiteboard (IWB).



Case studies around the time-distance activity

Two of the different intervention cases in the schools have implemented the time-distance activity with different goals in Mathematics (grade 9) or in Mathematics and Science (grade 7). Teachers have implemented and adapted this activity following their own creativity and passion.

In the grade 9 classroom, the teacher has exploited all the possibilities of a network of tablets:

- to collect information about students' knowledge;
- to share students' productions using the interactive whiteboard;
- to feed the debate within the classroom and to provide feedback to students.

Students, working in groups, have benefited from different interactive environments, including their tablet and the interactive whiteboard:

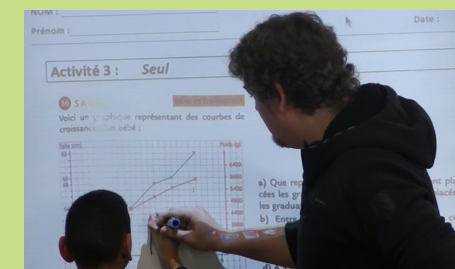
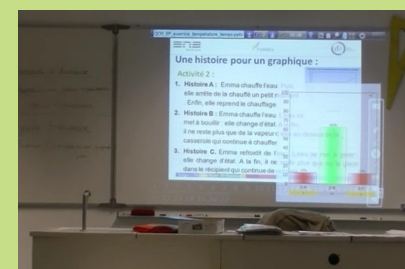
- to calculate and to solve tasks;
- to switch between different representations of mathematical objects;
- to share their work with their peers as well as with the teacher.



In the grade 7 classroom, the two teachers have adapted the time-distance activity in order to fit their objectives in mathematics and in physics. They have taken advantage of the graph as a boundary object to design and implement a learning sequence between mathematics and science. Starting from the physical experience of water solidification, they have profited from a student response system to take information of:

- students' understanding of the experience as well as the graphical representation of the temperature as a function of time;
- students' ability to switch to another context of graph interpretation in mathematics.

From this information, teachers have detected students' difficulties with the graph interpretation both in mathematics and in science to treat them together, providing feedback to each student.



As a conclusion, we give the floor to one of the involved teachers: "Before FaSMEd, for me formative assessment was just oral interrogations expecting to detect which students were lost. Now, formative assessment for me is an occasion to know where the students are, to give them feedback