

News Items

FaSMEd represented at PROCONET

FaSMEd was represented at the PROCONET meeting by Jill Clark (Newcastle) in Brussels on May 16th. The Proconet network aims to bring together European Projects in the Science Education field, to exchange useful ideas and foster collaboration supporting the various dissemination and exploitation activities of the projects involved. Representatives from 6 different projects took part: ASSIST-me, Sis-Catalyst, INSTEM, S-TEAM, FaSMEd and SAILS. Also attending the meeting was Brent Mittelstadt from the SATORI project (which aims to develop a common European framework for ethical assessment of research and innovation); this gave the group an interesting opportunity to discuss project evaluation and ethics.

Development of the FaSMEd Toolkit

Hana Ruchniewicz (Germany) went to meet with Peter Boon and Marja van den Heuvel-Panhuizen at the Freudenthal Institute in Utrecht on Friday, 13th of June. We spoke about the Digital Maths Environment (DME) that Peter Boon developed and how it can be used to create items for the FaSMEd Toolkit. Marja discussed first ideas for the Toolkit items that the Utrecht team have worked on. We hope to be able to use the same digital environment for some of the German items of the Toolkit (as there is already an English version and they are working on a German version of DME).

Developments in Utrecht

Just before the summer vacation, one group of 18 students and their teacher at a primary school 't Slingertouw (<http://www.basisschoolslingertouw.nl/joomla/index.php>) will trial ideas for the FaSMEd Toolkit. All teachers have taken part in a professional development session that took place in their school. Our pilot is designed to investigate how in-

formative our computer-based formative assessment toolkit is for teachers. Our first design is a set of two tests, A and B, on the topic of percentages. The two tests have similar problems; however, the numbers that are chosen for test B make the problems a little more difficult. Teachers can use this set in case the students can solve all problems in test A. For each problem the students can apply their own way to solve it. When they cannot solve the problem mentally, they can choose from one of the tools that are built in the test: The first tool is Scrap Paper, the second tool is a Ratio Table, and the third one is an interactive Percentage Bar.

During the workshop organized at the school, the teachers logged in as a student to get familiar with the digital environment. They worked on the problems that were designed for the students to experience how the tools work. Their results were used to show how a teacher can use the tool to see how the students solved the problems and what tools they used.

Upcoming events in South Africa

AIMSSEC, in conjunction with the Western Cape South Metro area, is planning two seminars for teachers of mathematics; the first will take place in July and the second in August. The intention is to raise awareness of the potential of the effective use of formative assessment in the mathematics classroom. We will explain what we are doing in FaSMEd and outline a) what taking part in the project would mean and b) how participation in the project would benefit the teachers and their schools.

The Director of Metro South Education District, Glen van Harte, is confident that teachers will want to be part of the research.

A third seminar, also to take place in July, is planned with teachers who have attended courses run by AIMSSEC and other NGOs in South Africa.

For further information please see:

<http://research.ncl.ac.uk/fasmed>

The project FaSMEd has received funding from the European Union Seventh Framework Pro-



FaSMEd NEWSLETTER

Issue 2

30th June 2014

Welcome to our second issue of the FaSMEd newsletter. This issue reports on recent developments and news, and in particular features a selection of the schools that will be engaged in the FaSMEd project from across the partner countries.

This issue was produced by the Newcastle University, UK.

Welcome to FaSMEd! Over the past few months the FaSMEd team has been growing with a number of new appointments across the partner countries. We would like to warmly welcome everyone and provide some short introductions from our most recent colleagues (for full partner information please see <https://research.ncl.ac.uk/fasmed/meettheteam/>).

Hana Ruchniewicz, Germany

PHD student and scientific research staff at the University of Duisburg-Essen. Research interests include: formative assessment in mathematical and scientific education; use of digital media and technology in mathematical and scientific education; support of low achieving students; learning from mistakes and analysis of typical student mistakes, especially in the themes of functional and proportional thinking.

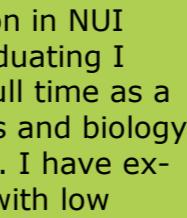


Niamh Burke, Ireland

BSc Science Education in NUI Maynooth. Since graduating I have been working full time as a science, mathematics and biology post primary teacher. I have experience in working with low achieving students in the science and mathematics classroom. As a student in NUI Maynooth I took part in SPUR (Summer Programme for Undergraduate Research) working on research into attitudes toward inclusive education among a cohort of Irish pre-service teachers. I am interested in the areas of formative assessment, inclusion and special education needs.

Dr. Annalisa Cusi, Italy

Since 2001, I've been teaching Mathematics and Physics in upper secondary school in Reggio Emilia. After my degree in Mathematics and a post-degree diploma at the Specialization School for secondary school teaching, I obtained a PhD



in Mathematics in 2009. My main research interests are: innovation in the didactic of algebra; the analysis of teaching/learning processes, with a focus on the role played by the teacher; methods to promote early algebraic thinking in young students; and teacher professional development.

Ingrid Mostert, South Africa

completed a B.Sc. (Hons) in Mathematics at Stellenbosch University in South Africa before teaching mathematics and science for a year. She then taught mathematics on a bridging programme (aimed at helping learners gain access into university) for 3 years while completing her Masters in Education. 4 years coordinating an in-service teacher education programme explored ways in which technology can be used to support teaching - both in the classroom and for in-service teacher education offered to teachers in remote locations.

Ilona Friso-van den Bos, the Netherlands

obtained her MSc degree in Development and Socialisation in Childhood and Adolescence in 2009, and has almost finished her PhD in Educational and Learning Sciences. Her PhD project was part of an Interlinked Research Project in which several Dutch universities collaborated, and focused on the interrelations between number sense, mathematics achievement, and working memory in kindergartners and children in the first two years of primary school.



The project FaSMEd has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 612337

FaSMed partner schools

We are very pleased that there has been a great deal of interest from schools across the partner countries wanting to become involved in the research process that will take place between teachers, students and academic partners. Below we introduce a selection of the schools that will be working with us.



Gesamtschule Bockmühle (comprehensive school Bockmuehle) in Germany has about 1500 students and 150 teachers, social workers and integrative workers. The school day begins at 8am and ends at 4pm, with lessons organized in 60 minutes units. The school follows a new pedagogical concept since 2006: teachers of one class work together in teams that are lead by the two class teachers. A focus of all programs that are being used for the individual support of students is autonomous learning, with emphasis on cooperative, integrative, productive and creative learning. From grade 5 onwards, the school is using computer based assessments for reading and spelling (The German language is a big problem for many of the school's students – they also have two support groups for students just starting to learn the language and insert many

programs to assess the use of the German language). It is an integrative school with heterogeneous classes, including students with additional needs. In grades 5 and 6 science is taught as a combined subject (not as single subjects chemistry, biology and physics, which is more common in Germany). Students are able to achieve a general school certificate after grade 9 or 10, a medium school leaving certificate (Mittlere Reife) after grade 12 which enables them to visit the gymnasium's upper secondary level and get the Abitur (gymnasium graduation certificate and necessity to visit a university in Germany). The school finds it important to support their students in choosing a profession and creating a future for themselves. Since not all students will achieve the Abitur, there are many possibilities for students to build their professional interests, especially in grade 9 and 10. The school supports students in finding internships, offers job counselling and participation in the four student firms.

The Istituto Comprensivo of Carcare, Italy is located in the town of Carcare, located about 50 kilometres west of Genoa. It is an Istituto Comprensivo, this means that it is organized in different school levels, from kindergarten to primary school (grade 1-5) to lower secondary school (grades 6-8), all under the same school head. Due to the nature of the municipality, which is located in small mountains, the Institute is organized in 12 schools, located also in the nearby (municipalities of Altare, Cosseria, Mallare, Pallare, Bormida, Plodio). The Institute has a long tradition of collaboration with the Ministry of Instruction, University and Research: it was one of the centers for teacher professional development (projects [M@t.abel](#) and project ISS for mathematics and science), it hosted the main project on the use of interactive whiteboard in Italian schools (project CI@ssi 2.0). Moreover, the Institute is currently collaborating with the Universities of Genoa and Turin on a long term project on argumentation and mathematical proof. Teachers working in the Institute also acted as teacher educators into those projects, as well as teacher-researchers in their classes.



In Newcastle upon Tyne, UK, we will be working with three comprehensive schools with students aged 11-18 years. **St Thomas More RC Academy** (vle.stmacademy.org.uk) in North Shields has about 1700 students. It has Specialist School Status in Mathematics and Computing and the mathematics department has been a research partner for many years with Newcastle University using TI hand held and networking technology.

Park View School (www.parkviewonline.org.uk) has approximately 1400 students in Chester le Street, County Durham. The school was designated by the government as a Language College in 1997. The school is a holder of the full International Schools Award with curriculum links to schools in France, Germany, the Netherlands, Bangladesh and China.

George Stephenson High School (www.gshs.org.uk) in Killingworth has about 950 students. It is named after 'the father of the railways', George Stephenson, who came from the area and was an engineer who designed and built the first passenger steam locomotive and the first railway in Britain (and the world). The school is one of the first in Britain to house the 'school in the cloud' developed by Professor Sugata Mitra at Newcastle University.



In Lyon, France there will be a cluster of schools of different levels: primary schools with grade 4 and 5 students, low secondary schools with grade 6 and grade 9 and high school with grade 10 students.



Primary schools with approximatively 350 pupils each located in Saint-Fons in the south east of Lyon. **Ecole Parmentier, Saint-Fons**, grade 4, 5 and **Ecole Simone de Beauvoir, Saint-Fons**, grade 5. Three classes will be involved in the project, mostly on maths education. The project is an opportunity to share with other schools reflexions about low attainers and formative assessment that were already held in the schools.

The "Collège Henri Barbusse", Vaulx en Velin, grade 6 and grade 9, is considered a medium-sized school (500 students), located in the suburbs of Lyon in a sensitive area. In this school, teachers of science, physics and mathematics will work together on formative assessment. "Building student autonomy in learning" and "developing self-esteem, curiosity, critical thinking" are the main aims of the school project that is largely consistent with the research project and the development of formative assessment in classrooms.



Lycée Parc Chabrières, Oullins, grade 10. The Parc Chabrières high school is particularly involved in the use of ICT and, since 2006, it has been a partner in the French evaluation of the handheld technology in collaboration with the Institut Français de l'éducation. It was also a partner of the EdUmatic project. It is an experimental school in the local education authority for the implementation of a pedagogical network. Teachers of maths, science and physics are involved in FaSMed.

The **Trinity Catholic School, in Nottingham, UK** is a mixed (both male and female) secondary school with 1060 students aged 11-18years. The school has a high 'staying on' rate and most students go from the Sixth Form to Universities and Colleges of Higher Education. Results are excellent and every year many pupils achieve 8, 9 and 10 subjects at higher grades in GCSE. Pupils are encouraged to achieve the best they are capable of and are taught by teachers keen for their success right from the start. The school has a long tradition of using technology for teaching and learning across the school. All teachers and pupils have access to the school learning platform and this is used extensively to support studies at school and at home. The Maths and Science teams use technology regularly in lessons from interactive whiteboards through to banks of iPads which can be booked out by staff when required. There is particular interest in using problem solving techniques wherever possible. The school has undertaken trials in providing access to iPads on a one to one basis. This included 46 year 7 (age 11-12 years) pupils in 2013 and 75 year 8 (age 12-13 years) pupils in 2014. These trials have had some significant successes and they have highlighted areas for the school to work on before progressing further. The Maths department has a strong connection with Nottingham University and has contributed to a number of research projects with the Centre for Research in Maths Education. Members of the Maths department have developed interactive online resources using tools such as Desmos and Nearpod, Math-space etc. They are currently researching into the potential for these resources to improve formative assessment.

In **South Africa** relationships have become established with **The Centre of Science and Technology (COSAT)** the flagship school based in the Khayelitsha township area. The school states that it was established "in response to the shortage of quality Maths and Science matriculants from township schools in the Western Cape." The Western Cape Education Department [WCED] has given it the status of a STEM school [Science, Technology, Engineering and Maths Focus School], one of four in the province, and provided new buildings.

Please see <http://www.cosat.co.za/> for more information.

