

Civilité

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Having worked with Luc Trouche and Ghislaine Gueudet over several years (e.g. editing of Springer book « From text to 'Lived Resources' »), we have developed a programme of research for the development of further research in mathematics education, more particularly into the investigation of how mathematics teachers work with curriculum materials (e.g. such as textbooks), individually and collectively.

In my own research, and over the past decade, I have worked with teachers in terms of professional development and with curriculum materials (such as textbooks). This included a funded 'textbook study' which compared mathematics textbooks and their use by teachers in England, France and Germany. This study was done exactly a decade ago and I would like to conduct a follow-up study with the team, to investigate mathematics curriculum materials (including textbooks) and their use at the present time. Linking to that, the research would include a study of teachers working 'as a collective', and with Sesa Math, one of the materials investigated by Luc Trouche and Ghislaine Gueudet.

In the above mentioned Springer book multiple research methodologies were used to explore teachers working with mathematics curriculum resources. I personally have used Cultural Historical Activity Theory (CHAT) to investigate phenomena related to this theme. Together with the team it would be appropriate to investigate some of the theories of CHAT in more depth and also in terms of its applicability with respect to the 'documentation process'.

Over the past three years I have researched processes of student transition from school to Higher Education mathematics, previously in the UK, and more recently in Norway. I know that the team has also done work in this field, and I would like to investigate this theme further with them.

In summary, I propose the following work over the course of the month of March (linking to the above themes):

1. Identification of the most commonly used (by teachers) curriculum materials, and their analysis with respect to a particular/agreed analytical frame, in addition to an exploration of their use by selected teachers (known to the team). This would include working with a selected/small team of French collège teachers.
2. In terms of methodology, I propose to investigate the links and interconnections of the 'documentation' process with respect to CHAT, in order to develop deeper insights in the processes involved and the methodologies that are likely to help such investigations. In terms of practical outcomes point 2. and 3. is expected lead to a co-authored paper.
3. Linking to the UK (Manchester) and Norway TransMaths project, I intend to investigate student 'transition' (into mathematically demanding programmes) at a known French university. Practically, this may mean to trial out the questionnaire (student questionnaire used in the UK and Norway) and/or to conduct interviews with students and lecturers in selected mathematics/mathematics related courses (e.g engineering).

In terms of concrete dates, the following is envisaged :

- Working with mathematics teachers and investigating their work with curriculum materials ;
- Attending the national conference on Mathematics Teaching at primary level (13th March);
- Attending and acting as discussant at the IFE's International seminar « Sciences de l'Apprendre » (28-29-30th March) ;
- (if possible) Bringing together mathematicians and mathematics educators on the theme of 'transition' : what does it mean for schools and universities?

In Norway I work as Professor of Mathematics Education at the Soer-Troendelag University College. This includes teaching on and leading our 2-year Master course in Mathematics Didactics, as well as supervising PhD students. In terms of research I have initiated and lead three (externally funded) research projects :

1. EU PRIMAS project : a project investigating the development and use of Inquiry-Based-Learning tasks (in mathematics and science) ; work with teachers to become 'instructional leaders' and in terms of professional development (also video-based professional development);
2. TransMaths project : following students (studying mathematically demanding courses in mathematics, science, engineering and teacher education) from upper secondary into university mathematics courses ; investigating student development of an identity as a learner of mathematics in those courses ;
3. Textbook project : as part of a scandinavian team of researchers, investigating mathematics textbook and teacher use of those materials.