Research activity

Olov Viirman
Post-doc, MatRIC
MatRIC-bioCEED collaboration
(Yuriy Rogovchenko, Simon Goodchild, Olov Viirman, Yannis Liakos)

- Mathematics for biology students using mathematical modelling
- Aimed at increasing biology students’
  - motivation for
  - interest in
  - perceived relevance of
  studying mathematics, through the use of mathematical modelling
A developmental research project

– Phase 1 (pilot)
  • 10 students (first and second year biology students)
  • 1 meeting (April 2015)

– Phase 2
  • 12 students (first semester biology students)
  • 4 meetings (Sept-Nov 2015) + follow-up meeting (April 2016)

– Phase 3
  • About 20 students (first semester biology students)
  • 9 meetings (Sept-Nov 2016)
Phase two
Example task

- Using data on roadkill to estimate the density of a rabbit population
My research part

• The development of the mathematical discourse of the students throughout the course of activities
  – CERME10 paper in collaboration with Elena Nardi, UEA, UK
    • The character of the tasks influences the way students engage with them – more scaffolded tasks connected with ritualized routine use
  – Planned journal paper to be written in the spring

• A “communities of practice” perspective
  – Collaboration between mathematicians and mathematics educators
  – Biology students negotiation of their place within different communities (biology, mathematics)
  – Papers to be written
MatRIC-MEC collaboration
(Olov Viirman, Yuriy Rogovchenko, Paul Hernandez-Martinez, Stephanie Thomas)

• Investigating the use (or non-use) of mathematical modelling in university mathematicians’ teaching and research practices
  – Funded by MatRIC small research grant
  – First stage: survey of Norwegian and English mathematicians (spring 2016)
  – Journal paper – Norwegian data only (accepted with minor revisions for MatRIC special issue of NOMAD)
    • Norwegian mathematicians have mainly realist views of MM
    • Obstacles to implementing MM in teaching include mathematical and institutional factors
  – Planned paper for major international journal
MatRIC-MEC collaboration (cont’d)

• Second stage: interviews with selected respondents
  – We have applied for a second MatRIC small research grant for this

• Plans for writing an application for external funding for a larger follow-up project
Systematic research review

- The use of video in university mathematics teaching
  - Research focuses mainly on questions of form, less on content and ways of use
  - In the last two years, a greater focus on didactical issues (mainly in a Flipped Classroom setting)
  - Paper submitted to International Journal of Undergraduate Mathematics Education
  - Rejected, but in a promising way 😊
  - A substantially revised version will be resubmitted (agreed upon by the editor)