Coaching and Engaging.
Developing Teaching with CAS in High School

The extensive use of CAS at upper secondary school in Denmark provides a laboratory for research on the development of Math standards in teaching with CAS. Teachers take action in projects, developing lessons and student activities through an ongoing collaboration between university and high schools on use of CAS. Coaches mediate design processes, reflection and documentation and enable sharing. We discuss coaching as a valuable part of action research and how to draw findings from the collaboration.

Theoretical Framework
CMU draws upon teachers experience in the use of CAS as an instrument for learning, inspired by models for action research (Asiala et al., 1996, Borba & Skovsmose, 2004), but also by the notion of teachers’ professionalization (Dale, 2003). This bottom up approach is motivated by the fact that teachers in Denmark have wide latitude to organize their own teaching.

References

Preliminary results – questions for further research.

Many of the projects and seminars show that it is essential to develop understanding and common language about how mathematical content and student activity change in a CAS environment. There are no final or global answers – the potential of CAS increases rapidly and the scope is wide when it comes to classrooms, CAS platforms and teachers preferences. However, common and important questions arise for teachers in the process of designing lessons, making on-spot decisions in the classroom and when evaluating student work:

- Many finding point to the importance of combining non-CAS and CAS activities.
- It is possible with CAS to make genuine investigations. In the specific CAS situation depending on the platform and the topic e.g. regression, advanced graphing how do we work – or refrain from working – with the mathematics needed to understand the way CAS actually works.
- It is widely acknowledged that teacher performance is essential in students learning. This is also true for CAS-based education. Which teacher competences – CAS-specific, didactical and mathematical should coaching promote?

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