

Notes from UiA meeting to consider MatRIC's action plan for phase 2. Tuesday 15 August, 2017.

Present:

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Vision

For mathematics in higher education in Norway – a global reputation for high quality teaching, outstanding performance and competence of students, leading in scientific, technological, economic and political-social development and innovation.

... For what MatRIC will be/become

There is a national role for MatRIC and many ways MatRIC should be visible.

At the forefront in developing, researching and spreading effective ways of teaching mathematics in higher education in Norway. Obtain the best mathematics education for all higher education in Norway.

A competence hub/resource centre for mathematics education at all levels. A source of research evidence in mathematics education in Norway.

A national 'mark' for high quality and best practice in mathematics teaching and learning in Norway. A 'heavy voice' for quality in higher education in Norway.

A positive, guiding, leading, influence on the learning of mathematics in higher education and teacher education.

An inspirational resource for higher education teachers who want to improve/develop their teaching.

A powerhouse for development

... For what MatRIC will do:

[Mogens – How do we tell that something is excellent? Identify excellent outcomes of teaching]

Take the lead as a national centre to [stimulate and contribute to] [innovation and research] in [teaching and learning] mathematics in higher education. Inspire teachers.

Connect people interested in mathematics education facilitating professional growth by offering appropriate support, training and resources.

Focus on user groups and programmes, focus on all mathematics teaching in bachelor and first years of 5 year master programmes.

Contribute to national 'meritocracy' of higher education teachers.

Create (researching), share (dissemination and connecting) and transfer knowledge about what works when it comes to learning mathematics. Nationally and locally.

... For what MatRIC will achieve:

Make a difference in teaching development of mathematics in Norway.

Networks supporting higher education mathematics teachers across Norway.

Improve teaching and learning mathematics at higher education in Norway

Increased motivation of teachers

More active learning for students

Goals

[comments SG– there is no point in having a goal if there is not an accompanying strategy that makes the goal realistic and achievable. There is no point in a goal that does not relate to the vision. The vision should provide the glue that ensures the coherence of the goals. BJ – How does the value in all that we do contribute to an overall aim. Mogens– What do we want to do? What are the problems? What does it mean to be good enough? Frode – easier to start with the needs, MatRIC does not have ‘power’ (authority) to ‘do’ things]

Dissemination (SMART) number of scientific articles, number of public media articles. Number of ambassador visits. How to reach every higher education mathematics teacher in Norway. Get help from professional journalists. Newspapers are a place for debate, MatRIC should have an opinion.

Engagement (SMART) % of institutions in some kind of MatRIC project, a representative in every higher education institution. 100% of higher education mathematics teachers aware of MatRIC.

Focus: (SMART) number of elements active in the programme/innovation matrix

Users: (SMART) visits to Drop-in, hits on MatRIC TV

Counteract and possibly remedy the most important problems in teaching mathematics (in Norway)

Improve the quality of teaching and learning mathematics (at university level).

Establish MatRIC as “expert” on mathematics education within the media.

Establish a discourse on challenges faced by mathematics education in higher education (in Norway)

A community of higher education mathematics educators, discussion panel – ways to post quality ideas.

Improve PR and marketing of MatRIC and MatRIC’s actions/resources (drop-in, TV)

Students (at UiA) to share MatRIC’s vision

Better ownership of MatRIC within UiA

Functions

MatRIC should cause people to think.

MatRIC should inspire teachers to reflect on their teaching practice and research their own practice.

MatRIC should be a change agent that leads to best practice in teaching and learning mathematics in Norwegian higher education.

Enhancing the quality of mathematics education

Providing direction for the future of mathematics.

To ‘make’ excellent mathematics teachers in higher education

Dissemination and sharing of best practice between institutions. Provide a platform

Developing a high level of expertise and research in mathematics education

Bringing international frontiers to the national agenda.

Bringing new ideas on the role of mathematics in society as a whole.

Contributing to research based excellence in teaching and learning mathematics and its applications

Stimulating creativity, understanding and depth in mathematics learning.

Devising/developing approaches to assessing competence.

Developing teaching and learning in teacher education

Connecting mathematics education with private economy.

Tasks

[Mogens – Survey and chart, must know more about the problems. Identify approaches (existence proofs). Adequate forms of assessment. Barbara – Worth looking across the country to expose where MatRIC is not having an influence. Why not? What does it take to influence them? Research underpins knowledge: 1. Collect, organize quantitative data on HE mathematics, propose questions, appropriate analysis. 2. Set up inquiry groups in teaching a range of areas of practice. 3. Communicate analysis of outcomes. Create a ‘Task Force’, involving partner institutions who really want to understand.]

Survey the scene. Problems and challenges.

Survey UiA mathematics teachers about MatRIC’s influence on their practice

Identify and create effective teaching and learning

Work with practitioners to develop and share good practice

Research, collect/organise/analyse quantitative data

Research MatRIC TV, how it is used, how it can be improved

Research MatRIC’s impact

Research impact of drop-in support: making a difference, impact on performance – needed to support development across Norway

Communicate research findings

Conduct research in teaching and learning mathematics. Find out what is ‘best practice’

Produce information or courses on how to research one’s own practice. How to develop a ‘community of practice’ at institutions.

Share with the international community

Communicate practice advocated in ‘national frameworks’, e.g. varied teaching – use of: computational mathematics, video and ‘flipped classroom’ approaches, computer aided assessment, projects.

Develop resources – for stimulating inquiry based teaching (that show how things could be done)

Collect teaching tools and ideas for mathematics learning

Develop MatRIC TV. Include videos about the use of mathematics, and videos of best practice.

Create a resource bank for teaching (tools for teaching) and learning.

Collect and disseminate examples of research based teaching and learning initiatives that in some sense can be considered successful.

Develop ‘good’ ways of using technology

Produce ‘how to’ guides for effective and efficient ... engage students, active thinking, present mathematics, use technology, assess mathematics etc.

Develop networks

Coordinate/arrange meetings, conferences, workshops, etc. Set up “inquiry groups” into a range of areas of practice.

Establish drop-in support at other institutions

Produce ‘white papers’ on major trends – assessment, modelling, active learning -best practice in HE.

Market MatRIC in Norway

Write articles for the media, connect with media people

Seek additional research funding

Strategy

Involve mathematics teachers from all higher education institutions in MatRIC networks

Make the web pages more structured and informative include research and development reports, stories from the classroom, examples and overview of good practice, make other activities more visible.

Outcomes/results

Better use of resources

Courses better designed

Better communication and networking

Better teacher education

Resolution of the crisis of mathematics in higher education.

Leadership

[Mogens – Need a clearer vision of what a different view of leadership would be doing? What is it about? Need an assistant or deputy leader? What is the nature of the problem? It needs further analysis. Analyse different components – issues – potential, actual, felt then zoom in on the real problems. Conduct a ‘conceptual analysis, then go into the solution by involving others. Important not to have too many chiefs.]

What are the human resources available?

What is the nature of the problem? What is the problem that needs to be solved? Is there a problem? Or is it created by the evaluation panel? Create a relational diagram – roles, autonomy, decisions.

Coordinators meetings (these have fallen by the wayside this year).

Leadership should relate to fulfilling the strategy. What should the task at the top be? What is the best way of organizing a leadership model?

Best use of competencies. Is there a need for more administrative support.

What are the burdens that could be taken?

What is to happen in the next five years? What kind of people in what kind of positions.

Need a spokesperson with Norwegian as first language and culture to engage with the media.

A deputy leader should have specific roles.

Prepare someone to take over.

Some reflections

Focus on structures could be realistic. Smaller classes are related to higher quality and if pass rates improve there will be an economic bonus. If there is evidence it should be shared. Need to interact with the disciplines that use mathematics. There is an issue about who teaches mathematics.

At the moment, MatRIC is presented through the networks, these are presented as the 'pillars', then all the other things. How do they fit? There is a need for a rephrasing-redesigning of the pillars.

Failed to grow the Norwegian networks. Events have not excited the community. Being new is neither necessary nor sufficient for excellence. Need to get in contact with people who are (trying out new ideas) striving for better practice. Many new things are not successful. MatRIC should be an arena in which to develop towards excellence.

Excellence is not the right word, rather we should use 'best practice'.

Need to define excellence and operationalize it. Excellence as a process.

Excellence in mathematics teaching is teaching in such a manner that increases students' mathematical competence. There is no 'royal road'. MatRIC should provide 'existence proofs' rather than expert panels. How to come up with 'existence proofs'?

How to ... motivate, work hard, have fun, succeed. Show the relevance to the the discipline and for the discipline – "fit for purpose".

Norway is facing challenges in mathematics education, MatRIC should address these challenges.