

## **March 2015**

### **Leader Report to Management Board meeting 13 March 2015**

In the three months since the last Management Board activity within MatRIC has focused on reflecting and learning from experiences throughout 2014, and planning the programme of MatRIC events for 2015. A variety of meetings and presentations (listed at the end of this report) are evidence that MatRIC is being recognised nationally and internationally; and accepted as a significant contributor to mathematics teaching in higher education in Norway.

### **Annual Conference 2014**

Response to the evaluation survey sent out after the conference was satisfactory, about 60%. This represented a greater proportion of the target audience as many of the non-respondents were representatives from NOKUT, NSMO and UiA. It is reasonable to believe the feedback is representative. Generally participants rated the conference as good or very good. There were a small number of critical comments from which we can learn. One source of criticism was that there were too many concurrent parallel sessions, we agree with this. A few participants left the workshops disappointed; this is a cause for concern and probably means – the information sent in advance raised false expectations, the intentions for the workshops overwhelmed the technical facilities of the hotel, the content was not well-matched to the participants. There was also a remark about the fact that we had several highly regarded international scholars (our International Advisory Board) and it would have been appreciated if these could have had an opportunity to speak. As we have already started planning the 2015 annual conference we will take these and other comments into account. Some detail about plans for 2015 are included below.

### **Planned events for 2015**

The following events are being planned.

- Two day seminar/colloquium on visualization and simulation (26-27 May) and a two day seminar/colloquium on mathematical modelling (28-29 May), these will take place in Kristiansand and Grimstad.
- Two day seminar on computer aided assessment (1-2 June); we hope to locate this event in another Norwegian city.
- Tony Croft will visit Agder 17-18 August to talk about mathematics support.
- There will be a MatRIC Centre visit to Loughborough 16-18 September, this will focus on mathematics support, evaluation of centre 'impact', and joint writing for a special issue of the Nordic mathematics education journal NOMAD (if the editorial board accept our proposal).
- A colloquium presenting the videos produced through the UHR/MatRIC collaboration (see below) is planned for October, this is likely to be held in Tromsø.
- *Annual conference*: The following has been agreed - the MatRIC conference will be held in Trondheim to follow on directly from the NSMO conference. In 2015 we plan to hold the conference over two days (25-27 November) so there will be fewer sessions running alongside each other. We have asked members of the advisory board if they will be prepared to give a plenary presentation – all have agreed to do this.
- We are in conversation with Håvard Tjora to hold a student motivational event (such as when Jo Røislien came to Grimstad last August); this will take place in Kristiansand, probably on a day in September.
- We are also in discussion with Njål Foldnes (BI, Stavanger) to arrange a MatRIC-mathematics and statistics seminar at BI Learninglab in Oslo.

## **News from the MatRIC Working Groups:**

*Visualisation & simulation:* Per Henrik Hogstad (coordinator) continues to develop simulations and visualisations. Recently he has put in a lot of effort to get a selection ready for inclusion in the MatRIC web site, [matric.no](http://matric.no). Per Henrik is corresponding with other (programmers) at NTNU, UiO, UiT and HiGj. And this core group will form the focal point of the seminar/colloquium on visualization and simulation noted above. We have also chosen to focus on Per Henrik's work in the next NOKUT SFU magazine.

*Modelling:* Yuriy Rogovchenko (coordinator) is maintaining contact with bioCEED at UiB and we hope to develop this further with a combined group of mathematicians, biologists and mathematics education researchers. Olov Viirman (MatRIC Post Doc. Researcher) has undertaken a literature review to support this work. Yuriy is hoping to develop the modelling working group through the seminar/colloquium that he is organising to take place at the end of May (see above).

*Video teaching/tutorial:* The main focus of this activity is the collaboration with UHR, which has set out to produce digital (video based) resources to support the mathematics education of students beginning mathematics, science and engineering courses. MatRIC (in consultation with Frode Rønning and Arvid Siqveland) proposed Tom Lindstrøm to lead the editorial group and since the beginning of 2015 there have been three meetings in Oslo. Morten Brekke (MatRIC working group coordinator) is part of the editorial group, Line Eielsen Malde serves as group secretary/administrator (ensures things get done!), Frode Rønning and Arvid Siqveland are also part of the group. We have also been in contact with Tony Croft and Janette Matthews at Loughborough University (Simon visited 13 February) to explore the possibilities of translating some of their material into Norwegian. The plan is to present the first products from this group at a national (MatRIC sponsored) event in Tromsø in October. It has been decided that UiA will be responsible for the technical part of production, and we hope we will receive a quotation from the web developers that will mean the resource is hosted at [matric.no](http://matric.no).

*Digital/computer aided assessment:* In February we had a demonstration of computer aided assessment software developed by a company from The Netherlands, SOWISO. A seminar/colloquium is planned for 1-2 June; we have two international guests lined up for this – Chris Sangwin (a leading figure in the field in Europe) and André Heck from University of Amsterdam. We also hope to have contributions from other Norwegian universities in addition to Morten Brekke who coordinates this work.

*Teacher education:* Because of illness little has happened in this group. One mathematics education (teacher education) masters student (Harald Hoven Gautestad) is doing his masters dissertation work focusing on engineering students' use of SimReal+, the software developed by Per Henrik Hogstad. Also the first report from a MatRIC research grant focuses on the use of SimReal+ with teacher education students. The report of this inquiry is now available on the MatRIC web pages ([www.matric.no/articles/26](http://www.matric.no/articles/26)). We are also exploring ways in which we might involve teacher education students directly as a student based working group within MatRIC.

## **Other MatRIC activities**

*MatRIC Research Grants* have been announced on MatRIC web pages (<http://www.matric.no/articles/25>)

*Mathematics teaching seminars:* One has been held; 4 February when Marc Habbema (SOWISO) presented his company's computer aided assessment software. A further seminar is planned for 19 October when Professor Carl Winsløw from Copenhagen University will visit. Further seminars will be planned.

*Mathematics teachers' lunches:* These are new. The idea is to stimulate a dialogue about teaching amongst those who are teaching mathematics. MatRIC sponsors the lunches with the condition that some time, at least ten minutes, the conversation focuses on issues of teaching and learning mathematics. At the moment it has also been a condition that only those teaching mathematics are invited. So far two lunches have been held at Kristiansand and one in Grimstad. These events seem to be well received, it is reported that they do stimulate the type of discussion that is wanted, and the mathematics teachers want them to continue.

*Multi-media students - competition:* The aim is to stimulate the production of very high quality imaginative videos about mathematics. In collaboration with the teacher of the Multimedia masters students at

Grimstad (Tore Helleland Næss) MatRIC is sponsoring one of the compulsory assignments, which has been framed on a theme defined by MatRIC. The video produced has the goal to motivate upper secondary school pupils to study mathematics at university. This will be a group activity. After the assignment has been evaluated for the course the videos will be entered into a MatRIC competition. Members of the winning group will each receive a gift voucher (worth 500NOK), in addition if the best three videos are considered good enough for publication on the MatRIC web-site they will be purchased from the groups (3000NOK for the best, 2000NOK for the second and 1000NOK for the third).

*Mathematics Support Centre:* The position of support centre project developer was announced within the Faculty. This was intended as a 0,4 temporary position to run February – July. There were three applicants who were interviewed at the end of January; two candidates had ideal but complementary background and experience for the task. It was decided by the interview panel, and agreed in retrospect by the Dean to split the 0,4 into two 0,2 positions, one with responsibility in Kristiansand, the other in Grimstad. Further, the period was changed to 1 March – 31 December, meaning the appointed people will plan, implement and oversee the centres for their first semester of operation. The intention is to advertise a single permanent position to commence 1 January 2016.

*University mathematics teaching course for recently appointed lecturers:* A leader for this course has been appointed on a 0,1 temporary position to run 1 April 2015 – 31 March 2016. I have asked Frode Rønning to consult his colleagues to see whether the course could be hosted by NTNU in Trondheim. The course would be presented as a MatRIC – UiA/NTNU collaboration.

*Web development:* matric.no. The company who designed the first phase of matric.no are producing a specification for phase 2 development. We have had several meetings with the company to discuss this. As soon as this is finished and it has passed the hurdles within UiA (purchasing, IT, etc.) it will go out for tender. Phase 2 will open up the possibility to include more products from the working groups. We also hope to include the resource being developed through the UHR/MatRIC collaboration (see above).

*Revised budget:* As expected MatRIC's budget was underspent for 2014, the reasons for underspend have been set out in previous meetings. The amount carried forward from 2014 was not quite as much as anticipated and setting up the support centres will be more expensive than expected. A revised budget for 2015 will be presented in this meeting.

*First annual report to NOKUT:* This report was circulated to members of the Board, also the response from NOKUT.

#### **Presenting MatRIC:**

- Oberwolfach 8-13 December "*Mathematics in Undergraduate Study Programs: Challenges for Research and for the Dialogue between Mathematics and Didactics of Mathematics*" at Mathematisches Forschungsinstitut Oberwolfach, Germany. This was a meeting of 50 international leaders in the field of undergraduate mathematics education.
- Høgskolen i Østfold, Faculty of Engineering seminar 22 January held in Strømstad, Sweden.
- Professor Dionissios T. Hristopoulos, Technical University of Crete, School of Mineral Resources Engineering 17 February.
- Paderborn 2-4 March (Frode Rønning and Simon Goodchild will be presenting MatRIC – and other things and having discussions with Rolf Biehler's group).
- Forum for lærerutdanning (UiA) 5 March. (MatRIC will be presented as part of the Department of Mathematical Sciences).
- Kunnskapsdepartementet - Universitets- og høyskoleavdelingens internmøte 10 March (Line Eielsen Malde and Simon Goodchild have been invited to talk about MatRIC within the context of a discussion on excellence in university teaching).
- MNT Conference, Bergen 18-19 March (Morten Brekke will be presenting a research report)
- IMA Mathematical Education for Engineers Conference in Loughborough 20 April (Research reports will be presented by Olov Viirman; Morten Brekke; Simon Goodchild & Frode Rønning, the latter pair will also present MatRIC as a poster).

- NOKUT conference on higher education 19-20 May (<http://www.nokut.no/NOKUT-konferansen-2015/hu#.VOx2OoZIBAQ>) This will have a special focus on SFUs and the 4 SFUs have been asked to contribute.

### **Advisory Board meetings**

There has been some correspondence with members of the Advisory Board. Duncan Lawson, in particular, has been very helpful in sending material to help us with setting up the support centres and the teaching course. Three, possibly four members of the advisory board will attend the seminars/colloquia at the end of May. We will take the opportunity for convening a meeting (29 May) between the IAB members present and MatRIC working group coordinators and others taking a leading role in MatRIC activities. A meeting with all members of the advisory board and management board will take place in Trondheim after the close of the annual conference (27 November).

### **MatRIC research agenda – PhD fellowships.**

The discussion about MatRIC's research agenda that took place at the joint management board/advisory board meeting in November has been the cause of on-going reflection. We considered creating a 'research coordinator' position within MatRIC. In the end it was decided that it would be better to strengthen the administration side, this would allow Line to take some work from Simon, who might then be able to focus on research. It is hoped to have a MatRIC PhD fellow researching within each of the MatRIC working groups. One is in place now (Ninni Marie Hogstad in the visualisation/simulation working group). We hope two more, who will begin their fellowships in August will be placed within the modelling and video teaching working groups. MatRIC has recently been allocated one further PhD stipend and it is intended to locate this research in the teacher education working group.

24.02.2015

## Calendar 2015

| <b>January</b>  |   |
|-----------------|---|
| 6               | MatRIC Coordinator meeting. Plans for 2015  |
| 8               | Pre meeting with Tom Lindstrøm and UHR regarding putting together an editorial group with Tom Lindstrøm as a leader to make a national digital resource.                |
| 13              | MatRIC Coordinator meeting. Plans for 2015. Discussing Modelling and simulation workshop  |
| 16              | MB og LM meeting with Nora Clarke regarding joint event within digital assessment with Norgesuniversitetet and Uninett  |
| 16              | SG meeting within the KD Realfag committee.   |
| 19              | MB meeting with Tore Næss, teacher for the multimedia students. They will produce mathematical videos to inspire future students.                                       |
| 19-20           | SG Essen Seminar  |
| 22              | SG presentation at Høgskolen i Østfold, Faculty of Engineering seminar, in Strømstad  |
|                 | Meetings and activities to find coordinators for Mathematics Support Centre, graduate School and course for newly employed teachers at university level Mathematics     |
| 23              | First meeting with the UHR/MatRIC editorial group in the project "digital resource"   |
| 27              | MatRIC Mathematics teachers lunch at campus Kristiansand: "How do you teach mathematics".   |
| 28              | First meeting with the web developers regarding the pre project for phase two of matric.no  |
| 29              | Interviews for the positions as project developers for the mathematics support centres at campus Grimstad and Campus Kristiansand.                                      |
| <b>February</b> |   |
| 1               | Annual report to NOKUT, sent  |
| 4               | MatRIC seminar at campus Kristiansand: Presentation of the e-learning platform for teaching Pre-Calculus, Calculus, Linear Algebra and Statistics (Marc Habbema/SOWISO) |
| 6               | MatRIC coordinators meeting: planning of the modelling and simulation workshop.   |
| 17              | MatRIC presentation for a Crete delegation  |
| 17              | MatRIC Mathematics teachers lunch at campus Kristiansand: "How do you teach mathematics".   |
| 18              | MatRIC Mathematics teachers lunch at campus Grimstad "How do you teach mathematics".  |
| 23              | Second meeting within the UHR/MatRIC editorial group "digital resource"   |
| 24              | Meeting between UHR – Mette Mo Jacobsen, NOKUT and Lem regarding "studiebarometeret og matematikkundersøkelsen". Can these be coordinated.                              |
| <b>March</b>    |   |
| 3               | Mathematics teachers lunch nr 2 in Grimstad   |
| 1-4             | SG and Frode Rønning study trip to Paderborn, Germany to meet Rolf Biehler 's group   |
| 5               | SG and LEM meet and introduce MatRIC to Forum for Lærerutdanning  |
| ?               | Announce research grants  |
| 10              | SG and LEM to the Ministry of Education and research to tell about MatRIC.  |
| 11              | Open Day at UiA. Inspire future students. PHH and LEM give a presentation to possible future students.  |
| 13              | MatRIC Board meeting Kristiansand   |
| 18-19           | MNT conference in Bergen. MB runs a workshop. MatRIC is present.  |
| 20              | Meeting at the Ministry regarding "Realfagssatsingen."  |
| 24              | Third meeting within the UHR/MatRIC editorial group "digital resource"  |

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| <b>April</b>     |   |
| ?                | SFU magazine nr 1 2015 published  |
| ?                | First gathering: 'graduate school' for PhD fellows, their supervisors and post-doctoral researchers             |
| 18-22            | IMA-MEE conference Loughborough. MB, OV, FR and SG make contributions.  |
| <b>May</b>       |   |
| 19-20            | NOKUT conference Bergen. SG gives a presentation.   |
| 26-29            | Modeling and simulation workshop in Grimstad and Kristiansand   |
| 29               | IAB meets with MatRIC coordinators and project developers.  |
| <b>June</b>      |   |
|                  |   |
| 1-3              | Digital assessment colloquium with Chris Sangwin. In Bergen?  |
| 8                | MatRIC Board meeting Kristiansand   |
| <b>July</b>      |   |
| <b>August</b>    |   |
| 10               | Mathematics support Centres open in Kristiansand and Grimstad (or September?)                                   |
| 17-18            | Mathematical Support Centre. Seminar with Tony Croft. Invitation to go out nationally?                          |
| ?                | Second: gathering: 'graduate school' for PhD fellows, their supervisors and post-doctoral researchers           |
| ?                | A course for new university level mathematics teachers and teaching assistants. Invitation to go out nationally |
| <b>September</b> |   |
| ?                | Inspirational speech for students, pupils and teachers (Jmf Jo Røislien), possibly Håvard Tjora.                |
| 15-18            | The Centre visit with MEC, Loughborough colleagues is planned   |
| <b>October</b>   |   |
| ?                | Video/digital assessment workshop. In Tromsø?   |
| <b>November</b>  |   |
| 16-17            | NOKUT visits MatRIC.  |
| 25-27            | The Annual conference. In Trondheim and in collaboration with NSMO.   |
| 27               | Joint meeting MatRIC Management Board & International Advisory Board in Trondheim.                              |
| <b>December</b>  |   |
| ?                | Conference Hannover   |