DynaMAT Kick-off Meeting

Pisa, December 15. – 19, 2010

Wednesday, December 15, 2010

Arrival all teams.

Present: Andreas Ulovec (University of Vienna, taking the minutes), Soňa Čeretková, (University of Nitra), Oleg Mushkarov (Bulgarian Academy of Science, Sofia), Vladimir Georgiev (University of Pisa), John Andersen (VIA College, Arhus). Freyja Hreinsdóttir (University of Iceland)

Thursday, December 16, 2010, 10:30 – 12:00

Andreas: Welcome to everybody. Let's go through the work plan.

(Going through the workplan and through the timeline, using the application form)

Thursday, December 16, 2010, 14:10 – 15:20

Vladimir: Let's start. We shall have **brainstorming about ideas and materials** that your teams could do.

Andreas: **Fractals, DGS** (and there particularly non-standard applications), **Visualisation in Physics** (e.g. parabolic antenna, or optics in lenses)

Oleg: To what purpose would the Visualisation in Physics be?

Andreas: E.g. I would like to show difference between parabolic mirror and spheric mirror, which you can hardly see in equations.

Vladimir: The **Pisa team could** also **build models of these things**, e.g. using liquid colophonium and use rotating plate. This creates parabolic form. So also practical solutions are good. Or you can think of what is the movement of sand paper to create parabolic antenna. So you can model that. Also we can use future teachers working on projects on modelling. **Also we shall have some applications on Excel**.

John: One of the subjects I would like to do is the **GPS** thing, both **about positioning and logging your path**, and **connected with using Excel**. Another idea with it is **prepare a figure that you want to draw in the nature in very large scale, using Google Earth, and GPS**. Also we have some **software to analyse data logging**, e.g. from temperature etc., and the students are asked to interpret or reproduce the data. Also developing further the videos to transfer and analyse data. Also using interactive whiteboards could go with this. We also have a program DataMeter, which is used for **simulating statistical data**, probability distributions. One more, I would like to follow the polyhedron line, and **show the connection between algebra and geometry**.

Vladimir: An idea to collaborate, there is a problem from geometry finding barycentre of a country.

Sona: I am thinking about my colleagues and what they are doing. Jan Benacka develops some **material showing how to use Word draw for visualisation and geometric constructions** for school geometry. Also he developed **Excel tools for school mathematics** for almost all grades. Some of it is already published, but some **3d-geometry** and more is still not published, and we can use that. Second would be materials with Aplusix (an Algebra learning software). Also using GPS would be possible. In GeoGebra we would like to do some problems that are developed by a PhD student and having a seminar about it. We also have interactive screens, but it is almost not used. Jan Sunderlik will do some work with that.

Freyja: I try to **teach teachers to use GeoGebra**. This time I visited a highschool and my idea was that it can used in a real basic way. For students often do not see very elementary things in the calculations, that can be seen fairly easily in a graphic representation. I also have one student who works on worksheets, and she tries to **find out the best way of having interactive webpages**. Also there is some **materials on differentiation**. I hope this is acceptable, it is nothing fancy like Fractals.

Andreas: I think the **differences are important**, and **not** a **weak point**.

Sona: I also can sign on that. The **differences are very important, because they produce a variety of materials that can be used by a lot of people with different backgrounds**.

Oleg: I will tell you what I am intending to do, together with Nelly and Jenny. The main thing when we started our discussion about this project was, we use computers for a lot of things, but here I would like to **use ICT for deeper understanding of mathematics**. E.g. **using dynamic software to make some conjectures**, e.g. in geometry. And then going back and found some mathematical results. For instance some students used DGS and I saw in practice that how they **started with very simple things and very good and new conjectures and theorems came out of it**. So **the main idea is to show how ICT can help you to make conjectures**. Next thing is, during our summer school we give students topics to develop into **short term projects**. Also I expect that **Nelly will do something** that is **connected with Fractals or dynamic of iterations of functions**. Also for me it is interesting to show the opposing thing, you can also have **using the computer making you make the wrong conjectures**, so we have to **help students and teacher to be reflective**.

Thursday, December 16, 2010, 15:45 – 17:00

Vladimir: Another idea; in Italy there is proposal for new law for preparation for future teachers. It would be not bad to **share between us which are the main points of using ICT in future teacher preparation in partner countries**. For IT partner, I want to see the examples and activities from another point of view. “Dynamic” in our project title may also refer to **dynamic thinking**, and to **motivate studying of mathematics**. Another thing we may thing about is evaluation, in the sense of **students evaluating other students’ work**. The idea would be to combine group and individual evaluation, where we could use ICT to do that, which for future students is interesting.

Vladimir: We need to plan the **next meeting**, which will be in **Vienna** in April. Easter Sunday is April 24. May I suggest **April 27 – May 1**. Agreed.

Vladimir: How about the **Iceland meeting?**

Discussion about Iceland meeting.

Possible periods: **Either first 10 days of September**, or **first week of July**, or **August 24 to 28.** Andreas will check about September vacation, Oleg will check about summer school. **Decision should be made in February-March**. Freyja checks about how early the hotel needs reservation.

Vladimir: **How to collect materials?** I plan to contact teachers which whom we already have a net, about main ideas that we discussed earlier, and try to look if such materials exist. Also we have some examples from Math2Earth project; not of course the materials themselves, but ideas. Also we try to collect which are the main difficulties, so we can have materials that cover the gaps. Also I try to find "funny errors with ICT".

Sona: Certainly there will be written materials. The **target group of materials should be to use in the classroom**, there **should be some handouts or** some **methodical comments**, and maybe also methods of teaching. I will leave it on authors how to prepare materials, but will give some hints. My experience with teachers in practice is that they will use something that they can directly use.

Vladimir: One question – **would it be possible to use Word for everything, or pdf?**

Sona: Also it **would be possible to have PowerPoint presentation, or applets?**

Andreas: **Yes**, as **we have not printed book, but electronic materials**.

Freyja: Also maybe we can use openOffice, so that teachers can modify it.

Andreas: Should be possible, but some people have problems with it. But it should be possible to have conversion pretty easily.

Freyja: I need to talk to some people, particularly the students working on it. Also during my teaching in the spring term I will develop some.

John: I will continue doing my own experiments; also I will try out some things on my students in a more systematic way. Also I will interview some colleagues, and think about some ways on how to use ICT.

Oleg: Meeting with Nelly and Jenny, then come up with concrete plans. Particularly Jenny will have a lot of materials. Second, I am curious to see what exists in the Internet. Also the meeting in January of the HSSI I will talk to people involved in Computer Science, and afterwards we shall go to schools and see what they need. Another source is the collection of projects developed in the framework of the HSSI, and I may ask some High-School students to help me.

Andreas: Fractals will be done by Hannes Hohenwarter, DGS and Physics examples partially are developed already, but in a very basic way. These will be developed to teaching units. Also I **will contact teachers to see what they would need**.

Friday, December 17, 2010, 09:45 – 10:30

Andreas: As to the last project, we sent the final report of course in time, and have already received receipt. Now we have to wait for the evaluation and for rest of budget.

Andreas: As to the books, I think we only have very few books left, so I suggest to ask for a Comenius Accompanying Measure, which is one year action, with three activities: First, printing more books (both for MEETING and Math2Earth); second, each partner presenting the book at an event in their own country, with the help of another partner (i.e. one other partner travels to your country and present with you); three, each partner travels to one other EU/LLP country (which is not one of the partner countries) and presents the book there. Agreed.

Sona: Two things: The book has finally been accepted as a monography in Slovakia, and it has been getting an award at my Faculty.

John: A comment from me, on the homepage there seems to be some files missing.

Sona: I will check about it. I sent it to local people, but I will check again.

Vladimir: I look in the database of Brussels, EVE. But no links to homepage.

Andreas: I will add link to there.

Friday, December 17, 2010, 11:00 – 12:30

Vladimir: Now to the **budget**. I shall send you two files.

Going through the Excel files.

Freyja: About staff costs, what can we use it for.

Vladimir: This is part of your salary, or of overtime.

Oleg: So we **shall get next money only after progress report, and only after 70% of first 40% are used?**

Vladimir: So it is best to spend more than 70% by every partner. In theory we have to spend 70% on average over all partners, but it is best that everybody spends 70%.

Going through the "contract_2008", making amendments and corrections. Vladimir will draw up contract.

Andreas: **About reporting, how about the "report every three months" rule, shall we change that?**

Vladimir: **I will do database that reminds partners on reporting** in a regular interval, best would be homepage to upload copies of receipts etc.

Andreas: Vladimir, please write to EACEA that **I will replace you at the co-ordinators meeting**.

Vladimir: I will write immediately.

Friday, December 17, 2010, 14:00 – 15:05

Vladimir: I think we somehow did "going through the timeline". More ideas?

Andreas: If we collect materials, **should we send them before Vienna, or is it enough at the meeting in Vienna?**

Vladimir: If we should have them it would be good?

Freyja: Yes, but if it is in Icelandic, or in Bulgarian, what would it help?

Andreas: I would agree. We should **present them in Vienna**, so that everybody can see what they are.

Oleg: And what kind of mathematics shall we use? We have to think about that.

Sona: Our **target group are teachers**.

Freyja: Teachers of what? School, university?

Andreas: Comenius is dealing with **school teachers**.

Vladimir: But the preparation of maths teachers also includes higher mathematics.

Sona: Also for teachers it would be important to have one problem and develop several other problems out of it, or mathematical background etc. So that is one possibility for creativity. Or also I can take a problem and I can find several topics where this problem can be solved.

Oleg: What exactly means dynamic? Currently I have only example of Dynamic Geometry.

Andreas: We should **not necessarily reduce "dynamic" to visualisation**. Also moving one task to another level, mathematically or context-wise, is dynamic process?

Oleg: Yes, but how we use ICT?

Vladimir: In the proposal we put, dynamic and creative use of ICT, both in visualisation and in modelling.

Oleg: I forgot modelling.

Vladimir: So we should not **keep separate ICT and dynamic/creative**.

John: I think it is a good thing that we are prepared to explain what dynamic means, not now but until the end of the project.

Vladimir: So it is very good to pose the question, even if we cannot answer it right now.

Freyja: In the application, we wrote **visualisation and ICT. Are we restricted to that?**

Andreas: This was just in the abstract, i.e. short version, later in the application we explain some more, and it is **not restricted to visualisation**.

Freyja: And we **also have dynamical thinking**.

Friday, December 17, 2010, 15:30 – 16:05

Vladimir: One point that we did not yet discuss. We practically **start January with collection, and should have essential results in March, so the time is not very long**. These three months should be used very effectively.

Andreas: I think we have **Workpackage 3 that allows us to develop the materials, i.e. we do not have to have it finished by the end of March**. Still it would be nice to take Sonas suggestion to have one of the materials at least almost ready for the Vienna meeting.

Oleg: **What is e-book? Where does it exist?**

Andreas: **Mainly on the homepage**, but we can also think of producing CD?

Vladimir: How about ISBN?

Sona: We have possibility to produce CD's and also have ISBN for it. Minimum number is 50 CD's. Also we can design cover.

Vladimir: **If we have mainly pdf, how do we include links to Flash or Applets. It can be done in pdf, and of course this is only available in a non-print version.**

Sona: We would also **need two reviewers**, but this should be no problem.

Vladimir: The **main advantage is here that we can modify the e-book**, as opposed to the printed book.

Sona: Would we also like to have in the book some information about the project.

Freyja: Is it possible that we say how much the magnitude is?

Vladimir: This is more relative in this case, usually we have non-printed book and limit is not page-number.

Andreas: OK, we said text is about 700 pages. So we have 100 pages each.

Sona: No, because we will have national language version.

Andreas: Oh yes, I was wrong. The materials of each partner will be there in both the partners national language, and in English. I.e. if we write 50 pages in our national language, it makes another 50 pages in English, i.e. 100 pages. Meaning we only **have to produce 50 pages per partner**.

Vladimir: I really want to use Excel, but need some kind of course for commands with good examples. Also it would be useful for students. Maybe not discuss now, but get me some links.

Andreas: I can also send final report Excel form from Math2Earth, it has reference with external table and some commands.

Saturday, December 18, 2010, 09:30 – 11:00

Vladimir: I **sent model of bilateral contract**.

Going through the bilateral contract (now called **supplementary agreement**) model.

Vladimir: So please read it and send proposals for modification to me, in red letters. Then I will put it all together into final form, I shall send final version to you for your responsible person to sign it. Then send signed version to me in two copies, also scan it and email it. **Money can only be sent if the signed contract has arrived. Transfer will in any case not before January 10**.

Oleg: A financial question: **How much would translation per page cost?**

Vladimir: You have **total budget of 2.400 Euro**, so **per page is not so important**.

John: I shall mostly write it in English, can we use this budget to translate in Danish?

Andreas: I think in the budget we said that it is mainly for this purpose (i.e. English to national language), but you can use for any translation work.

Freyja: For **what grades would the e-learning materials be?**

Andreas: **School teachers for every grade, i.e. primary and secondary.**

Freyja: So we should make sure that there are materials for all of them.

Vladimir: This I think is also something new, that we have e-learning course, which is not only for local participants. So we may have to make a reasonable division into sections of level of teacher (i.e. primary, lower and upper secondary).

Oleg: How long do you think the e-learning course shall take? And in what language?

Sona: For teachers it may not make much sense to have it in English, as they teach in Slovak.

Oleg: But if we want other universities to participate, it may be needed in English.

Freyja: And in any case it would be good to have the materials.

Vladimir: And also we need tutor during sessions.

Sona: Also if we do it with another university, we need recognition on both institutions. It is similar as for students going abroad.

Freyja: It would be nice to discuss this with someone who has already done this.

Vladimir: Our department recently had essential problem to present lecture in 70 km distance. So we tried to find a way to make a lecture at distance. Important was that we have regular (even if electronic) appointments. But this maybe technical difficulty.

Andreas: I think we do not have the technical possibility of doing things like video conferencing.

John: Maybe until the next time we shall find out what are the local possibilities. We for instance have a course where a part is e-learning and found out while we did it how it works.

Freyja: We have e-learning in every course, but students complain a lot because they miss the interactivity.

Oleg: Are you thinking about e-learning course to be for students?

Andreas: It is for teachers and students who want to become teachers.

Andreas: Also it may be difficult to have chat using mathematical symbols. Also **in the application we said that our main work is to develop the course and try it out**, **not** so much to **execute it on a large scale**, or to see about recognition.

Freyja: But this would be a good motivation.

Vladimir: Agreed. But we can always do more than we promised, but should keep in mind the minimum.

Oleg: We shall better have one common course, not so very different ones.

John: We come with different problems, and converge them into common materials and ideas. Then we can eventually spread them out again.

John: The e-learning we are doing is usually combined with a course where we meet.

Vladimir: I think only e-learning is not very effective, as experience of partners show.

Saturday, December 18, 2010, 11:20 – 12:00

Vladimir: Now to the **homepage**. Sona, **how you think we shall organise it?**

Sona: First to administrative part of it. I have two colleagues; one will be involved in project content-wise, the other technical administration. We shall get a good domain-name (maybe www.dynamat.eu).

Vladimir: In our contract there is a link where you can download LLP logos, and we have to put this on the homepage.

Sona: And also we should have some animation or moving things. We shall make some suggestions, also for project logo.

Vladimir: Another thing we could do at the end of the project, we can give people who created the homepage some recognition of this work.

Sona: I can organise that at the final conference. Another thing, **is the database going to be in Pisa?**

Vladimir: **Yes**, but we shall have link.

Vladimir: We can also have possibility of other people to evaluate the e-learning course, i.e. open part.

Sona: Shall we put picture of book in the homepage of Math2Earth?

Oleg: That would be a good idea.

Vladimir: Where shall we put the e-learning course link?

Andreas: Maybe we can put it on the upper line among main links, so that people can find it easily.

Sona: We will also put link to conference homepage with proceedings, also link to pictures from conference.

Vladimir: I also have **translation of introduction** etc.

Vladimir: Also the **e-book should be on main links**?

Andreas: We shall see whether it would not be too much?

Vladimir: We can also put the names of the people whom constructed the homepage on it.

Sona: That would be also good recognition.

Vladimir: Should we **unify the aims and the timeline section**, because they are very short.

Andreas: We may just have one point "project description", where we put the aims, workpackages, timeline etc.

Vladimir: Then we can also put e-book without overloading the page.

Sona: I will **prepare draft of homepage until the Vienna meeting**.

Sunday, December 19, 2010

Departure all teams.

Summary of decisions:

- **Target groups is teachers and ultimately school students**
- **Materials not to be restricted to visualisation and/or geometry, "dynamic" will be taken in a general meaning**
- **E-Learning course may be not large scale, but locally tested out**
- **E-book will be mainly existing on homepage**
- **SK team: prepare draft of homepage until Vienna meeting**
- **IT team: create database to upload financial and other reports**
- **Next meeting in Vienna, Austria, April 27 – May 1**
- **Meeting after that in Reykjavik, Iceland, dates to be decided until Feb-Mar**
- **Materials to be prepared in raw format until Vienna meeting, then presentation of it by each team at Vienna meeting**