DynaMAT E-Book editing meeting

Sofia, December 7 – December 11, 2011

Wednesday, December 7, 2011

Arrival all teams.

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

Thursday, December 8, 2011, 09:30 – 10:35

Oleg: Welcome to everybody.

Vladimir: I think we shall concentrate on the changes in our presentation, not do completely new presentation of everything, since we did that already in Iceland.

Presentation of DK team:
[**Statistics materials (simulating dice, flipping coin, chi-square) and geometric materials**]

Jenny: Why did you choose 4 digits of precision?

John: So you can see the differences well, but not having too high a precision for it to become impractical.

Jenny: Very fascinating topic that has been neglected for some years. And with this you can approach it at much earlier age. Very nice was the dice representation of the histogram. Some **cosmetic changes**: First, **dices should not be used, but dice**. Second, we might want to **write the greek letter χ instead of fully written chi**. Also, the grid on the first axis does not have to be quite as detailed.

Jarmila: I think this is personal taste, sometimes you would like to have more details.

Petar: I like how you **introduce small pieces of programming**, so you start that sort of thinking in the students.

Oleg: My feeling is that with this three articles **you are illustrating well-known phenomena**. **Can we use these dynamic things** to have some challenges for the students, to see some new things, so that they can see what happens.

Petar: Yes, you can e.g. take a dice that is biased.

Jenny: Or everyone could make a prediction, and you can check with Excel.

Jarmila: I would like to add one thing, while I like very much the materials. However, **my students are taught in a very formal way**, so **with these materials, they can use it to see**

the practical way, and it would be very helpful to understand what's behind the formal things. I agree it would be helpful to add some challenges and questions.

Jarmila: About the GPS units, John is **using the software that is suitable for the purposes**. Because it is very important that you use suitable software, not just any software.

Jenny: One remark about the other units, I would like to see the independence of the shape of the coordinates.

Petar: Is there any reason for not using %, but pct.?

John: I did not realize, of course **it should use the %**.

Thursday, December 8, 2011, 11:00 – 13:05

Presentation of BG team:
[**Paper about fractals**]
Neli: What **we changed** was **mainly the structure of the paper**, the introduction, where we explain the fractals as the result of a dynamic process. We go from easy predator-prey model through quadratic and cubic general maps, then move to non-polynomial maps. Also at the end there is new chapter where we talk about different kinds of dimensions and also show possibility of how to program and compute it.

Jenny: Maybe in connection with Olegs question, why this is King's dream. A month ago I was talking about mathematics and arts, and as part of the students' project we showed these pictures, i.e. making the kids aware of the beauty behind mathematics.

Vladimir: One technical question. Since I am interested in showing these materials to our students and going further with them developing similar things. **Can we modify the parameters in this?**

Neli: They are **coefficients** that **can be modified** and varied.

Jarmila: I have an idea. For some time I was mathematician for a group of physicists, and I faced problems about stability of models. This would be a possibility to **mention the importance of stability**, and show what happens if it is not stable.

Neli: This is **already mentioned** in the paper, but it would be better to mention it for students not so much acquainted to it.

Petar: I think also for school children it's possible and make them invent some new arbitrary equation then check what comes out of it. Also maybe we can mention the asymptotic behaviour, it is similar like in the DK materials where you approach something, like the mean value in DK material, only a bit more complicated.

Jarmila: It would be very nice to **have a map or a scheme, where the things are linked together**, that shows what is linked to what, **what mathematical level is needed**, and also **what software is used**.

[Paper about geometric patterns as a game of dynamic explorations]
Petar: In the first kind of problems it would make sense to ask for the maximum area, this can be done easily in GeoGebra.

Toni: Yes, that can easily be done.

Vladimir: You fixed the triangle to be equilateral triangle, can you change to others? That would be another possibility of exploration.

Sona: We are talking about mathematics investigation, where problem starts easy enough, then go to more and more deep questions. Also we can add this to PRIMAS project about inquiry based learning.

[**Paper about art**]
Jenny: We **added some new paintings** and I wanted you all to add ideas for your national artists' work to it.

Petar: It **would be good to have a collection of pictures from different countries**. Also it would be good to show that there are pictures that do not obey these rules and still look beautiful, because they follow some other rules that we have not discovered yet.

Sona: I could introduce this article to my brother who is an artist and discuss this with him.

Andreas: That would be interesting, to compare with contemporary artist.

Vladimir: There is some possibility in Pisa also, where we are connected with Academy of Arts, and check what rules are there that they introduce to their students.

Freyja: Is this rabatment tool on the web?

Jenny: We can send it to you via email. Also it is linked in the pdf.

Jarmila: One technical question. There are **some of the materials that explain step-by-step, others you have the part of the program in**. My question would be whether it would be **better to have a general introduction** of how to prepare an applet or so instead of having step-by-step, because it can be disturbing.

Jenny: It **depends, this is for different audiences**. Some need the step-by-step, others want to hear about the general method.

Jarmila: Some teachers would like to have it, others not. How about we put it in appendix?

Oleg: This is a general question – shall we put the step-by-step things into appendix? So we can have it always in the appendix, or we shall have it just mentioned, or we have it part-and-part? But I think this is general discussion that we shall postpone until the end.

Oleg: **How about publishing rights?**

Andreas: We have **creative commons license "attribution share alike"**, meaning it can be published and copied by anyone free of charge, provided it mentions the author and the project number.

Freyja: How about if we want to publish in journal, and they sell it? Is this allowed?

Andreas: I really do not know this, it will be a question for a lawyer.

Jarmila: We spoke with Freyja about printing a book. There is publishing house that prints it for free then sell it via Amazon. Can we do that here?

Andreas: Another question for the lawyer, or more like, it would be good to ask the EACEA about it before we decide.

Thursday, December 8, 2011, 14:00 – 15:05

Sona: Just to mention that our **project won the deans' price of my faculty this year**.

Presentation of SK team:

[**Mortgage paper**]
Jenny: The mortgage paper could go with a book of E. Neuwirth (Modelling with Excel).

[**Percentage paper**]
Jenny: What is the **role of the students** here?

Sona: **Reading and interpreting the graph, modelling the tasks**.

[**Didactic games paper**]
Sona: There is **no dynamical software in this, but dynamic situation**.

Sona: Our **units are not so long or rich, but they are immediately useable in classrooms** or in one or two lessons, you do not need a whole week-long course.

Jarmila: Could you show us the percentage materials? There it says part/base=%/100. This is **not a formally correct language**, more of slang. That **should be corrected**.

Petar: Could we put a question mark in front of the %, would that help?

Jarmila: There is also another occurrence at the formulas after Fig. 1, where it says percent/100%=part/base. So that might be changed to "x" or "percentage".

Freyja: Shall we then have the symbol % at 100%?

Petar: What Oleg said was, do you first know what percentage is, or do you first know about percentage? By means of this you might be able to connect to triangles, similarity etc., but not as an introduction to percentage.

John: I see it as a way of a standard visualisation of percentage. A similar way as introducing, or rather re-introducing, the trigonometric functions on the unit-circle. Maybe that can be stressed in the article, i.e. change it to that account.

Jarmila: Maybe it could be seen as the geometrical representation of the rule of three.

Andreas: So it should be **put at the beginning that this is a possible representation of percentage** (when they already know percentage), and **not an introduction to percentage**.

Vladimir: Do you have enough time to correct it, or let it correct it?

Sona: I shall discuss it with the authors.

Jarmila: In Nr. 9 (chemical equations), what program is it? And it looks like a very formal process of putting numbers in a program without much understanding of the mathematical background.

Jenny: What is the mathematical progress in this?

Sona: It is a motivation that you can use mathematics.

Jenny: How do you implement this in the math lesson?

Sona: In chemistry, it is showing application of matrix.

Petar: But it does not check whether this reaction is possible.

Jarmila: And generally I have **issues with the last three materials, they do not quite seem to fit into the DynaMAT materials**.

Vladimir: We **shall be careful is trying a method that might be different for others**; I think it is work that is important from their PhD students, we cannot expect it to be error-free. There is room for improvement.

Jarmila: These **materials look like not be in the spirit of the project, so I am not sure improving in that way might be possible**. So this presents more of a tool that you can use without understanding, which is not good.

Sona: I **had the same feeling about it, so now I have "official" confirmation**.

Petar: Yet still it is important to convey to the students that they did very good work, making new things; it might just not fit into our project here, but that does not make it bad.

Sona: I **will discuss it with them**, and we shall see whether they can revise them in time.

Jarmila: In any case t**hese materials have to be reviewed and evaluated again after the revision**.

Thursday, December 8, 2011, 15:35 – 16:55

Presentation of IS team:
[**Euclidean Eggs**]
Freyja: I **included more tasks** after the last meeting. I tried to use a mix of technical instructions for the program, but only if I thought this might be necessary.

Jenny: Or you can just tell them to open the construction protocol. Maybe we can reformulate the last sentence.

[**Functions sliders**]
Jenny: **Is it necessary to have the very detailed steps**, e.g. change the colours of the graph?

Vladimir: I think it is the **experience of Freyja as to her country that might be necessary**.

Freyja: I **tested it with students**.

Jarmila: I like the problem that you are posing, and I think that GeoGebra is a good program to do it, but I would **start with playing with the graph**, **then following with your explanation and the details** and the description. So start with the experimenting, then go to the explanation.

Oleg: Can you find a solution with this method?

Freyja: No, and I think that is another learning effect.

Jarmila: Just a formal question, are there units in the pollution task?

Freyja: Yes, there should be the unit "gallons per hour", I will change that.

Vladimir: Concerning the pollution again, more units are missing and have to be put in.

Neli: Should a negative integral be possible here, or shall we have limits for parameters.

Oleg: Or we can have a comment that the graph formally allows negative integral, but modelled situation would be different.

Freyja: I will **remove the sentence "Pollution in the lake at …" from the picture**, and **move it below**, to make clear that the integral is about the whole function, but the actual answer is taking into account the boundaries.

[**Investigating 2 by 2 matrices**]
Freyja: This **uses the possibility of GeoGebra 4 to have two graphics windows**, which e.g. you can use to show mapping with the help of a matrix.

Oleg: You consider transformations in the plane. What is the purpose for the students here? Or what is the motive for students?

Freyja: It is mostly about studying the properties of transformations by seeing the graphic representation of them.

Oleg: But maybe we can mention the deeper mathematics within.

Freyja: I also have examples that do this, i.e. where you write the matrix as a composition.

Jenny: **What are the students expected to do? What is their work?**

Freyja: **There are several exercises** of the same kind.

Jarmila: I think it is **mostly about making sense of the matrices**, or of determinants, or mapping etc. I also used it for my students.

Andreas: **What age of students** should be able to do that?

Jarmila: I think it is for the **teacher students**, in some countries it is school curriculum, in others not.

Andreas: I was just afraid of putting too much in, it is already fairly hard to follow for students.

Jarmila: I would agree, also eventually replace some of the more complicated things.

John: I can imagine this to be developed for further linear algebra things. Not in this unit of course, but in general.

Vladimir: Is the Eigenvector thing in the same unit? Do you think it is possible to put in two units, as it is very important, but a lot to digest in one piece? Also it would be good for translation.

[**Piecewise defined functions**]
Vladimir: A carpenter would do something like this.

Oleg: Again, do you **have some questions for the students?**

Freyja: **Yes, there are several of them**, also "make your own example". But I can make more tasks.

Oleg: I think some **more tasks would be good**, so that you do not show them everything, but let them explore things themselves.

Vladimir: One small thing about question of tasks. I like very much the possibility of two screens, at my university we could try to find in these two screens two figures composed by the same number of rectangular triangles that have the same area and same circumference, yet are not identical.

Friday, December 9, 2011, 09:30 – 11:45

Presentation of AT team:
[This part of the minutes taken by Vladimir]

Andreas is presenting the **extreme value problem unit**. Main part is devote to modifications. Comparison with standard approach to extremise functions and geometric approache connected with Geogebra application is given. **Changes: some other cases of isosceles triangles and other examples are given**.

John: **Cube should be modified in one example cuboid** (quadratic prisma).

Oleg: **Why only right triangles** in the first example

Andreas: **No particular reason, if it is right one may expect square as answer**

Jenny: Was it important THAT the triangle is right?

Oleg: **start with right and then switch to non-right triangles**. The answer depends on the configuration and some cases shall be considered More general problem: triangle and

inscribed rettangles. Solution depends on some additional argument that it is possible to discuss

Jarmila: I **like your approach to use dynamic software**. You can involve students not deeply motivated in Mathematics.

Jenny: I was fascinated. **Cosmetic remarks: remarks in brackets**

Jarmila: We use special cases. Somewhere this is not possible to use cases. But Andreas is using in a smart manner this tool. I was impressed the approach helps the student to understand.

Oleg: The case of right triangles changes the situation when we change the base of the triangle

Next presentation: **Optical lenses**.

Oleg: How you define the convexity?

Andreas: It has physical meaning. **Changement: one ray is moving and the curvature of the lense changes**.

John: It was interesting; some examples from GeoGebra are helpful

Jenny: What is accent?

Andreas: To construct as lab.

Jarmila: **Interdisciplinary topic**. Thinking about teachers asking about correct answers, how to use the unit. **Biology example in my country shows it is needed**.

Jenny: To encourage the teachers is our task

Jarmila: Some **practical hints are needed**.

Andreas: **Not in the material**. Yes this is something that shall be useful. **Some links**.

Vladimir: Is there a critical curvature for difference between spherical and hyperbolic lenses?

Andreas: The answers are not easy

Jenny: Some physical experiments have been constructed, ray to pass a hole, proposition to prepare kind of games. Kids like this approach.

Andreas: That’s a good point.

Andreas presents **unit on fractals**:

Jenny: **iterative formula is not very clear**. **Limit shall be applied**.

Andreas is refereeing to the formula before and explains the notation.

Jenny: **cases when Java is not good**, to be included as a question [explains how to use logo for fractals, include the choice of the area associated with Koch curve; proposes reference to P. Boichev results]. To have uniform reference and quoting the authors.

Jenny: I learned about fractal since 84. Approach enables to introduce functions not in usual way.

Jarmila: Fractals are used in arts, I saw some applications to design solutions. Some connections and links.

Vladimir: the **fractional dimension shall be used carefully**

Andreas: **some link to Neli unit shall be done**

Andreas presented **topic on GPS**:

Jarmila: **Games can be used in a positive way** by kids.

Freyja: **Children have GPS?**

Jarmila: **yes, many of them**

Jenny: we had a real situation when GPS helped.

Jarmila: Is it possible to **pose questions?** To have problem posing part?

Andreas: Very good

Jenny: add what you can add?

Andreas: this is really useful

Oleg: You are using **GPS, why?**

Andreas: It is **natural in airplanes to use GPS**, secondly **many students have GPS**. My purpose to show that we have lot of data, saying nothing, and we can show something meaningful

Oleg: If the distance is given as a straight-line. To ask questions that can be answered, real distance of a plain is different.

Petar: How to use in plain when it is forbidden? Example of a lake, amount of water, how to evaluate it? Deepness is necessary.

Jarmila: Similar problem, laser are used, some models are interesting.

Oleg: we have some devices but we have to select the data.

Jarmila: Another approach to have data and then to expect some new tools.

Petar: If students ask: how are these devices are called?

John: Use the technology, integrating with googleearth and take advantage of all opportunities

Freyja: When I present the material, some question have been posed. People a little bit afraid of this type of approach.

John: smartphone should be used

Andreas: **Geocaching presentation**

Jenny: The **title: something should be replaced by ….** Links are given?

Andreas: Some **links**, but something **shall be added**

Petar: You use map. How they are produced without GPS. Difficulty to find the distance to Greenwich. Proposal for some historical remarks. Trigonometry have been introduced.

Andreas: A good point

John: How to collect data, it was explain in the project MATHtoEarth (how to do without GPS).

Oleg question: What is minimal number of satellites to cover the earth?

Andreas: 24 is ok, but can be added.

Vladimir: the system of radars.

Jarmila: the map is needed, to prepare carefully E learning course, to use kind guide

Friday, December 9, 2011, 12:00 – 13:15

Minutes continued by Andreas.
Presentation of IT team:
[**Napoleon problem**]

Jenny: **Why do you use complex numbers?**

Vladimir: **We shall explain** that.

Oleg: You can make the proofs and criteria easier for certain problems, like here.

Oleg: I think that this is a very **nice starting point for exploring** some very interesting things based on GeoGebra. Here are a lot of problems where the answers are not known, e.g. what happens if you take n-gons, or m-,n-,k-gons on different sides? I think in this case **GeoGebra is very good for making conjectures**.

Petar: You can also make iterations and see what happens.

Jenny: **Why are the drawings in GeoGebra so low-quality?**

Vladimir: **Maybe because I used print-screen?**

Jenny: Also the **English needs editing**. But otherwise very exciting document. Also it shows that even with dynamical software we should not give up the classical way.

Jarmila: This is another type of materials as we have seen before. This is f**or gifted students, not necessarily understandable for average students**. It is **written for mathematicians**.

Petar: Gifted students at some people has a negative connotation. So maybe we can have other term.

Jarmila: Yes, but **Vladimir is working with mathematical clubs, i.e. usually students that are already interested and/or talented**.

Vladimir: It was **intended to be for another level of students**. I know sometimes it risky to have materials for the people on the upper border.

Jarmila: Maybe you can **add something that also weaker students can do**, e.g. some of the simulation, even without the proofs.

[**Math problems of samurai period**]
Freyja: The **Flash game, how can I find it?**

Vladimir: It **will be linked with the pdf**, then you just click it.

Freyja: This does only give one solution, or all of them?

Vladimir: This is game explained in the other material.

[**From static to dynamic**]
Vladimir: The **door problem does not quite fit with the other problems**.

Jenny: How you avoid negative numbers? On the other hand that might lead to other questions.

Andreas: That is **not a very realistic problem**, as I think cranes and turtles look different. Also the **links have to be completed**. About the **door problem**, it **does not quite fit** with the others, **on the other hand side it is the most realistic of the problems**.

Jenny: **What is the dynamic part of it?**

Vladimir: You have **snapshot of static problems** from Japan, then **move from them to dynamic problem with the flash game**.

Jenny: What I would like to see is not the temple, but something mathematical.

Vladimir: Because this is the place where mathematics in Japan has been created.

Oleg: We have some reorganization to do, as we have a meeting of council at 2 pm.

Friday, December 9, 2011, 14:15 – 15:00

Vladimir: Turning to the **intermediate report**. Report **to be filed until April 30, 2012**.

Vladimir: As for **travel costs, we need e-ticket and boarding pass for air transport, tickets for bus/train**.

Nelly: Is it a **problem if I travel from Frankfurt instead of Sofia?**

Andreas: **No problem**.

Vladimir: The process will be to **scan the document and upload it on our internal webpage**. So we will use this instead of filling the paper annex of our contract.
[Demonstrates the function of the internal webpage]
http://cesaro.dm.unipi.it/achievo_news/index.php (for the moment!)

Vladimir: Another thing: **Jarmila as evaluator will come to this meeting**, **to the meeting in Pisa next year, and to the final meeting in Nitra in 2013**.

Vladimir: Keep in mind that we **need to spend 70% of the first instalment** (which was 40% of the total) **before we can ask for the next instalment**. Maybe you can buy the ticket for Arhus until the first report.

John: For "lunch", do I put in all the local costs?

Andreas: Yes, everything but hotel.

Andreas: Can we **add the column for sum of travel, as well as how much money we have received, to have an easy overview**.

Nelli: That would be good.

Vladimir: **We shall add this**.

Friday, December 9, 2011, 15:15 – 17:35

Vladimir: Turning to **staff costs, each of the participants needs to have time sheets filled out**, **explaining the activities and the amount of days spent at this activity**. Approximately 80 days should be used up until now.
[Continuing with the demonstration of internal webpage]

Oleg: What will be **deadline for timesheets?**

Vladimir: The **system will work until January, so mid-February** I want **everything uploaded**.

Vladimir: Continuing with the E-book. We have no sharp separation date in the application between the translations and the courses. But first question: **How much time shall we put into the final correction of the e-book content?**

Andreas: Just reading the application, we **promised that we would first have the courses** (translating what is necessary into the local language), **then use the feedback to improve the English version, then to formal translation**.

Jarmila: Yes, but that is a **lot of work for some partners with lot of materials**.

Andreas: It has **not to be done only by the contact person**, but they can use more of their people, or teachers, or colleagues for testing the materials.

Oleg: Let's come back to the **e-book editing**.

Jarmila: Yes, but **final version only needs to be done at the Pisa meeting**.

Oleg: OK, what is de**adline for improving according to the remarks that we have received here?**

Toni: The **main thing is not the translation but the dynamic files**. So this should be done first, then we can improve etc. the static part.

Sona: So **first versions should be there fairly quickly**. We also should put announcement that this is not final versions, it is currently piloted.

Vladimir: What is the **term for corrections** now? Since Freyja is starting very soon, we should have the first version very soon.

John: Another thing: We shall h**ave name, affiliation, and project reference on each piece of material**.

Vladimir: Can we **put all the materials onto the central homepage in SK?**

Sona: **Certainly we can put it there**.

Andreas: **Until when shall we send the files to Sona?**

Vladimir: How much time does Sona's team need?

Vladimir: **Send everything (or most everything) until January 15**.

Jenny: I would suggest to currently **sort it according to countries**.

Andreas: Agreed, but I would suggest to not do it that way at the final version.

Freyja: We can have **several categories**.

Oleg: It **might be not easy to categorize**.

Vladimir: That is probably something that we can **discuss in Arhus meeting**.

Freyja: As to **translations, when shall this be done?**

Andreas: In the application, we wrote **deadline end of February for the "first final" translations. But only translate what you need for the courses**.

Oleg: Turning to the **courses**, could everybody **report what they want to do in the courses**?

Freyja: I am organising a course now, **each participant (teachers and student teachers) of the course is going to read one of the materials, then some of them will do evaluations**.

Vladimir: The content of the course depends on the choice of the participants?

Freyja: The course relies on GeoGebra, plus they have to use other stuff as well. But most of the materials here use GeoGebra anyway.

Vladimir: Is this **one-time, or more often?**

Freyja: I **try to make it permanently**, and I want it to make a course that look at more kinds of software.

Vladimir: I plan to do a similar thing. My **course starts second part of February**, thanks to Franco, I have **access to both a didactics course and a club**, and we shall pr**opose materials there** and allow them to choose some materials there, the "exam" will be a project with the materials.

Jenny: We might **use a lot of training sessions for teachers**, along with other materials.

Jenny: **First possibility will be National Seminar for Inquiry Based Learning** next week. Also **Toni will teach course at Plovdiv University**. Then we will do W**orkshop with teachers in mathematics, IT and art**s. Also, a**t Sofia University there will be in-service-teacher training for teachers in IT and mathematics**. We can also have **experiments in two schools in specialised mathematics, and four schools specialised in fine arts**, design, and photography. **At the HSSI level we have a lecture there**. Now I hand over to Petar for more about links to Fibonacci and PRIMAS project.

[Petar explaining about the Fibonacci project, which is a 7th framework project]
Petar: One typical difficulty is that we speak about this, but nobody listens … Kids train about Word and PowerPoint, but do not hear about GeoGebra or similar. But try to do this, and you will meet a lot of resistance.

Vladimir: Initially you proposed some organisation for the course. You presented some mixture of course and dissemination activities. How you plan to choose the materials?

Petar: We choose some fitting example to allow the kids to experiment. We offer the teachers plenty of materials, and they choose.

Sona: There was I big conference in Brussels named Scientix, they presented several 7th framework projects with maths and science, and Fibonacci was also presented there. There is the idea of Prof. Katja Maaß to prepare a common platform, a network, which allows for widespread dissemination.

Petar: So it would be good to have links to several projects on the homepage.

Sona: Now **about the courses in SK**. Here it is in tabular form:

target group	**who**	**when**	**what**
teachers students of mathematics	authors	during regular courses in spring	choice of materials

20		semester: February – May 2012	
teachers students in computer science 20	Jan Benacka	during regular courses in spring semester: February – May 2012	geogebra materials
students in environmentalistics 40	Imrich Jakab	during regular courses in spring semester: February – May 2012	GPS materials
PhD students in theory of maths education 15	authors, translators	in spring semester: February – May 2012	special regular DynaMAT seminar focused to translation and piloting materials
practicing teachers in mathematics 15	authors	DynaMAT workshop February – July 2012	Excel, Geogebra materials
practicing teachers in mathematics	Jan Sunderlik	regular PD course January – June 2012	choice of materials
practicing teachers in chemistry	Sona Fandlyova	regular PD course January – June 2012	chemistry
pupils from secondary schools and their maths teachers 22 + 4	Sona Ceretkova	one day workshop February 2012	choice of materials
project PRIMAS	Sona Ceretkova	consortium meeting in Budapest, January 2012; case study of Slovakia presentation	DynaMAT introduction and probable including to PRIMAS materials discussion

John: There are **five activities planned**: 1) Di**stributing my articles to my colleagues at the teacher education in Aarhus**. One of them has already used article on simulating stochastic phenomena in connection with a course for in service teachers. 2) **Use it** (eventually in a suitably adjusted form) **as material for the teacher education**. We are working on integrating gps-use in connection with analytical geometry. 3) **Present the project** and what it will produce **on a course for high school teachers in March**. 4) **Send material** on c2-simulation **to teacher at engineering school** as inspiration for teaching the subject. 5) Maybe **use part of the gps-material in connection with a project using geocaching for telling the story of district heating in the Aarhus area**.

Andreas: We shall have **three activities: One with two teachers who will pilot in their classrooms (one geometry, one geography)**, **one whole semester course with 30 pre-service teachers, and one with in-service teachers from teacher training day**, between 30 and 50 teachers.

Saturday, December 10, 2011, 09:30 – 10:40

Vladimir: The first point of the day will be our **homepage**. Sona, how is it organised?

Sona: We shall **define the content for Aims, Partners, Outcomes, Timetable, Dissemination**.

Vladimir: I **prepared partner information, aims, timetable (work plan). Into the outcomes part we shall put the materials**.

[Presentation of Aims, Partners, Timetable]
Vladimir: This Partner info is from the application. Shall we skip something?

Andreas: I think we shall s**kip the "management" part, i.e. who is responsible for which workpackage etc.**

Vladimir: What is **missing in the partner information is currently the list of participants for each partner**. So please look into Math2Earth homepage (http://www.math2earth.org), I will send file with application information, then send it to Sona. Please **send this until Christmas**.

Vladimir: The **summary is taken from application**, then the **aims are already on the homepage**, i.e. on the first page of it.

Andreas: I think the **summary should go into the first page**, because people want to know what we are doing first, and then why.

Vladimir: Maybe we can make section "Why", i.e. Motivation, where we can put this.

Sona: It is **good text for someone who wants to write a EU project**, but h**as to be changed for the "normal user"**. Maybe we should have similar as in Compass project, **only very short few sentences as to what we do and why we do it**.

Vladimir: Can we have a **small group on motivation and summary** of what we do, similar to the Compass project, like two or three partners, to come up with a proposal.

Andreas: **Sona and I volunteer to do this. We will do it until end of February.**

Sona: Jan Sunderlik will be in Vienna, 22. – 24. February.

Jenny: I **shall proofread**.

Vladimir: The Aims part is from the application.

Sona: We shall check for language and structure, but content shall be the same.

Vladimir: Next point is the **work plan**, we have table from the application.

Jenny: What means data?

Sona: That means topics in this case.

Oleg: We shall **not put the whole table there** because it might be too detailed.

Andreas: We might **summarise some tables**, say “development”, “piloting”, “translation” etc.

Vladimir: **Jenny and I shall do that, then send a proposal to everybody**. **Shall we put the meetings in?**

Andreas: I think we **should put the meetings in, only short table**.

Vladimir: It is in WP 14, we shall edit and then put on the meetings. I shall send the work packages as single pdf files.

Andreas: And **materials shall go in Outcomes?**

Vladimir: Yes, but shall they be protected?

Jarmila: I think yes, because they are not in a final form.

Vladimir: Sona, is this possible?

Sona: No problem.

Saturday, December 10, 2011, 11:00 – 12:10

Vladimir: There has been offered a co-operation by Katja Maaß, Sona and Andreas know more about it, so I will hand the word over to Sona.

Sona: There is the **idea of joining several projects for mathematics and science, ICT, inquiry based learning etc. into one network, called ProCoNet**. There is of course the Compendium from EACEA but it is not enough, as it is only summary. This network is aimed at informing each other and also avoid double work. They invite us to be associated partners, to be informed and to also to present our projects at their conferences.

Vladimir: If we agree with this, **do we need special permission for that?**

Sona: **No problem** there, EACEA is going to be very happy with this.

Vladimir: How about funding, can we use our budget?

Andreas: They will fund our going to the conferences. As to their partnership meetings, we shall not have funding to go there, but we will probably not be interested in the partnership meetings anyway, but only in the conferences.

Vladimir: OK, so what is the opinion?

Partnership agrees to participate in ProCoNet.

Andreas: There was the same email for the Math2Earth project, so we will present this, too.

Oleg: So we have two representatives? Very good.

Jarmila: Let’s **come back** a bit **to the courses**. **How do you want to do the feedback?** It would be good to **compile one common piece of feedback form**.

Vladimir: Does **someone have some basis for this**, that you used for other projects**?**

Oleg: First we should read what we said about the courses.

Andreas: It should evaluate the materials, not so much on how the courses themselves went.

Jarmila: What we should have is "**what did I have to modify using this material**".

Sona: I have some from the Primas project, maybe we can modify it.

[Presentation of Primas feedback form]

Jarmila: It is very good to have this, but we need also a part for feedback from the participants. **We should have: "what do you have to change", "what did you appreciate", "what did you not like", "what did you find necessary", "what did you miss" etc.**

Oleg: Also we need **part of feedback not only about the materials, but also about the courses**.

Jarmila: Agreed, about organisation, teaching method etc.

Andreas: We will **need concrete questions for that**.

Jenny: This **will not be easy**. We would need notes for the teachers.

Oleg: We should also not go too deep in this, so let them have some freedom.

Jarmila: I have something from other project, that we shall try. There are two questionnaires, one for "students" (i.e. participants in the courses), one for "teacher" (the person who teaches the course).
[Presentation of questionnaires]

Oleg: Very nice, particularly the beginning. The details we might skip.

Andreas: Shall we **have subgroup to make the feedback form?**

Vladimir: Jenny, Andreas and I will do that, i.e. the feedback part of it.

Sona: And I **shall fine-tune the dissemination form**, i.e. the reporting part of it.

Vladimir: There should be three important points: Is the purpose clear, is the choice of materials good, is it presented in a clear way?

Sona: Would Vladimir want the dissemination form?

Vladimir: Yes please.

Deadline for the first version of feedback forms: Mid-March. Then feedback, final version to be done by end of March.

Vladimir: Final point for today: Fix the next two meetings, first in Arhus, then in Pisa.

First proposal for **meeting in Arhus: 20 – 24. June**, Jenny will let us know next week whether this is possible. **Alternative is June 16 – 20**.

Date for the meeting in Pisa: September 26 – 30.
Vladimir: As for the **evaluators' report, mid of March** it should be ready.

Vladimir: Thank you to everyone. Particularly thank you to Jarmila, both for being here as our evaluator, and congratulations for professorship!

Summary of decisions:

- **Materials to be finalized according to comments in discussion (see above) until January 15, 2012**
- **Intermediate report to be filed by Vladimir until April 30, 2012**
- **Upload all financial information and copies of evidence (tickets, boarding passes, receipts [if not on daily allowance base], nd particularly time sheets) to database until February 15**
- **SK and AT teams: Write summary for homepage until end of February 2012**
- **IT and BG teams: Write suggestion for consolidation of "work plan" part of homepage**
- **IT team: Stay in contact with ProCoNet-team**
- **BG, IT, AT teams: Write suggestion for feedback form until mid-March 2012, then commenting phase for partners, final version due end-March 2012**
- **Next meeting in Arhus, Denmark, either June 20-24 or June 16-20 [finally fixed to June 16-20]**
- **Meeting after that in Pisa, Italy, September 26-30**