3rd FaSMEd Meeting

13-14-15 October 2014, Torino

Aula Principi D'Acaja, Rettorato dell'Università, via Po 17, Torino

SCIENTIFIC PROGRAM

13th October

9.00 Arrival and registration

9.15 Overview of the Meeting

Presentation of WP1 by UNEW (15 min) and discussion (30 min)

Presentation of the draft of WP2 by UNITO (30 min) and discussion (30 min)

11.00 Break

11.30 The Toolkit – example, structure, technology (DUE)

Discussion

13.00-14.30 Lunch

14.30-16.00 Group work (Jigsaw –phase 1, coordinated by DUE): presentation of further examples from UNOTT, UNITO, AIMSSEC, UU

16.00 break

16.30-18.00 Group work (Jigsaw – phase 2, coordinated by DUE): overview of the examples and discussion on the structure of the toolkit and on the role of technology

14th October

9.00-10.30 Summary: structure, technology, content (coordinated by DUE)

10.30 break

11.00-12.30 Research activity (starting phase): an overview table of what each team will use/work on (coordinated by DUE)

12.30 lunch

14.00-16.00 Research activity: further developments (coordinated by DUE)

16.00 break

16.30-18.00 Dissemination and Forward planning (e.g. future meetings; dissemination activities) and distribution of the upcoming work tasks between the teams (coordinated by UNEW)

15th October

9.00 Departure from Torino (the exact meeting point will be communicated) to reach the school "Istituto Comprensivo di Vinovo"

10.00-12.00 Visit of the school

13.00 Arrival in Torino

DELIVERABLE D8.2 Phase Two Launch (toolkit)

FaSMEd meeting Turin 13th October 2014

Work Package 1

1. Need project specification for our ethical approaches, e.g. Data storage etc., this can be passed to partners to be used and adapted by each partner in their own country.

Work Package 5

2. Teacher demographic details – Newcastle and Norway to lead on guidelines to send out to all partners.
3. What is the Unit of analysis?

Cases – Norway propose 2 from each country for cross-case analysis? Class and teacher?

Choice of activity/technology tool across countries?

Common activity – formative assessment is the commonality? What is the activity? Is it activity type? Questioning? Would work across maths and science.

Common activity focused on a single activity – difficult to manage, different ages etc., focus on a particular aspect of teaching rather than a topic? Different cultural values. Every teacher has questions? Content first then pedagogy.

Teacher report details. Series of lessons. Reflection on lessons – what will they change as a result of the lessons.

Observations – schedules? Re-design observation

Student questionnaire – could include attitudinal measurements (Zan & Di Martino) give us an idea of disposition. No pre- and post-test questionnaire. Then follow up through interview. Anonymous but trackable? Need to know the class we are working with. Interviews linked more directly to the intervention. Go together with our attitude measurement. Student attitude to how they work, needs to be really accessible.

Attainment data pre- and post-test not possible. Propose local attainment data.

Cross-country analysis – do we have to use all countries? Local data – from schools – but Norway, would be from the teacher rather than the school etc. soft data – what teacher is telling us and what pupils say, how they feel, how they learn. DOW states try and attempt and affect size, so need something.

Agreed to try and get soft data, local, asking teachers, the project can provide a template for info to include/suggest.

With-in case analysis to be completed by each partner (detailed grid of items to include to be provided)

Cross-case analysis completed by Norway – proposed to be based on two cases from each country.

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To be decided:

1. Type of activity
2. Student questionnaire/attitudinal data.

Work Package 2

Deliverable. Data from partner questionnaires plus contextual European papers.

Identification of low achievers (see table).

Do we know of any references to the trajectory of low achievers – a summary paragraph of the work rather than a full report. Lack of information about the outcomes. UNITO to send email with request with clear instructions. Ready for the deliverable end of October 2014. To NEW on Thursday 30th 2014.

D2.2 Survey of EU systemic practices.

Part 1 – survey. Eurodyce reports. Study of causes.

Part 2 – same resources.

Examples of technology (digital) and tools to support.

Work Package 3 – Toolkit

1. Structure of the Toolkit

Professional development	and	classroom material + assessment lesson + concept development + problem solving

How can we implement technology?

Diagnostic test – Vollrath, 1989; Malle, 2000)
Relation-aspect (r)
Co-variation-aspect (cov)
Function-as-a-whole (wh)

Students need to be introduced to all 3 aspects.

Leuders & Prediger 2005
Duval 2002

Competencies to include in the toolkit (7 examples)

Check cards –make sure the language and use is appropriate for low achieving pupils.
Where does the technology come in?
Pen and paper version plus two versions – Navigator Inspire and a web page version.
These would be used at the end – alternatives rather than re-teaching?

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Based on the literature and what we know and also the pupils can help themselves.

Good strategy for professional development.

Jack version = online version- computer-aided assessment and exercises that could be adapted for use in the classroom. http://jack-demo.s3.uni-due.de Free for all FaSMEd partners.

Role of technology

To support cognitive activities. At student level – analysing, structuring, generalising, creating, documenting, reflecting, calculating.

Features we might need:
Sharing screens
Providing feedback
Collecting info
Processing, etc.

For assessment lessons:

- Multiple representation tools
- Hubs for sharing to facilitate collaboration

For diagnostics tests:

- Tools for computer-aided assessment
- Providing feedback
- Collecting info
- Dynamic visualisations
- Hyperlink structure.

Contents

Mathematical goals

Reference to national education standards

Alternatives for the use in your classroom (alternate 1: self-diagnosis; Alternative 2: whole-class diagnosis)

- Materials required
- Time needed
- Structure of the materials
- Suggested lesson outline
- **Common issues and suggested questions and prompts**
- Role of technology.

DELIVERABLE D8.2 Phase Two Launch (toolkit)

Nottingham team

Fasmed.wikispaces.com

Activities for teachers to do in relation to professional development (activities for students are embedded within it).

Looking at what's involved in changing pedagogies to use Formative Assessment.

Classroom resources: sample diagnostic tests, lesson plans: concepts, lesson plans: problem solving.

e.g. students becoming assessors.

Possibly a title for technology on left hand side.

Take videos and possibly use

Examples of how technology helped, and also where it did not work so well (card sorting activity, etc.). Technology can be a substitute (just doing it differently) or can add value (e.g. thumbnails) or can mean have to do something completely different.

Formative assessment – is it about teachers adapting – it's the whole thing and not just about testing.

It is also a social process – about pupils working together. FA from the start.

Models are independent of us – teachers build their own community and share experiences – can't rely on an expert being there. Action research/action learning project

Turin Team

Activities – content – early algebra etc. building on learning from other European projects

Promote student reflections on their own processes.

Argumentation can be a FA tool – e.g. explain what you did and why your method works. Systematic use of mathematical discussions. Intertwining of affect and cognition.

Technology: focus on processes and sharing data (not just collecting) – sharing screens and final products. Collecting student opinions during the activity and then at the end (affective and metacognitive)

Technology to promote FA. No support from TI.

Different technologies – netsupportschool – student response system + sharing screens. Also need to consider the system support. Smart classroom suite? Schools already familiar with FA but want creative activities. Classflow and boards? (Promethean)

How to develop the toolkit?

Activities – task and methodology

ArA1 projects example – models of sequences of didactical projects.

DELIVERABLE D8.2 Phase Two Launch (toolkit)

Utrecht Team

Problem solving, 1. No tool/mental calculation, notepad, table, sliderule. Outputs – 4 columns – see which students chose which strategy and which tool. Working on the display, and talking with teachers about how it has worked. Then design a number of key problems, what model can be used, maths grade 5 (ages 10 and 11).

Give teachers the tools and will they be giving them any guidance on using it formatively? So want to know whether they find the tools helpful or not? So looking for something we can use that will give them added value.

South African team

South African curriculum very tightly specified with many schools following a programme of what to teach each week – therefore the SA toolkit needs to be compatible with this.

Toolkit to consist of classroom activities, real life equations, lesson plans and collaborative tasks.

The toolkit will draw on Shell centre materials broken down into accessible chunks, simplified language and adapted to the SA context. There will be a facility for teachers to post comments/ask questions.

There will be areas on:

- Formative assessment
- Diagnostic testing
- Professional development

The ongoing draft SA toolkit can be seen at: https://fasmedaimssec.wordpress.com

German team

Presented science activity 'Who has the juiciest apple?' using the structure of an assessment lesson.

Variant 1 – prompts with subsequent differentiation (formative), teacher acts as consultant.

Varient 2 – independent diagnosis as individuals or partner work. Although there may be an issue with language that will be accessible to students for card system.

Irish Team

Observations – using FA in a 'technical' way and tick boxing rather than actually using FA properly.

Want to be able to use technology for formative feedback between the teachers and university as well as between teachers and students (teacher blogs etc).

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French team

Core idea – tried to find common ground for the science and maths teachers. Are we emphasising on content too much it's about the processes rather than the content.

Website with integrated tools – mainly based on lesson plans. Technology as a support.

Would be useful to have examples from each partner website and bring them together for a common website for the European commission?

Possible to identify each stage where FA could happen? E.g. beginning, next phase, all phases.

Desirable and undesirable practices, demo tool,

Group 3 – card sorting (task) and questioning (pedagogical practice), diagnostic tool, percentage (content), similarities, all fit?

Group 2 – common content? No fixed content? Structure fits. Technology is a cross-aspect.

Group 1 – all have FA elements and professional development. Use of technologies specific to the activity and some form of diagnostic testing. Helping teachers move on after diagnosis. Labelling?

Common website (Nottingham) so 8 toolkits that will vary but one overall one. Translation issue.

DELIVERABLE D8.2 Phase Two Launch (toolkit)

14th October 2014

Toolkit prototype – structure of the website. Target is teachers and trainers. Add position papers, for teachers to access.

Website is open for teachers to use and access.

FA needs to be in front.

Design principles…. And how they can use to create new and own FA examples.

With 2 page explanations, and all examples completed in the structure.

Science and maths together.

Like model for Edumatics – translate to target languages.

Deliverable = Prototype by 31/10/14

Classroom activities can be also strategies.

Classroom tasks and lesson plans – not separate – documents together to use together.

What about the teaching after the activity? Materials collected and changes made – changing teaching – include this – under the strategies? And also design principles? Both. Also part of the research.

First point – what is FA and it is the whole process, but needs to be explained and emphasised. Vision and perspectives.

What are the design principles? Leave out at this point?

Every country different and has different priorities – Newcastle website for general info – rationale about what criteria and why criteria is chosen.

Whole class and individuals? Alternative could be working with groups or working with individuals.

Avoid term diagnostic?

Tagging? Periodic? Extended? Tests are different as don't use the every lesson.

Sense of audience – section on ways of using the toolkit? Difference between teachers and teacher educators. PD for the teachers but make it explicit for teacher educators. Could have a TT link (teacher trainers) like Edumatic site.

Structure – labelling.

Technical issues – WP3 – SA offered to begin work on toolkit website.

Website in English – general – links to other country websites. Cross-case analysis on a common website.

Case studies of people using the toolkit could be good example for use in PD? Research section?

Also what doesn't work. Case studies and research section in the toolkit? Lessons from the field?

DELIVERABLE D8.2 Phase Two Launch (toolkit)

Professional development prototype

Design principles for effective CPD:

- Competence orientation – CK and PCK related to research; transparent goals (Lipowsky & Rzejak 2012; Garet 2001)
- Individual preconditions – connecting to necessities of participants ; active engagement (Clarke 1994; Krainer, 2008)
- Sustainable collaborations – Initiating longitudinal collaborations (PLC) (Scherer & Steinbring, 2006; Bonsen and Hubner, 2012)
- Case orientation – working on (own) teaching examples (Timperley et al 2007; Lipowsky & Rzejak 2012)
- Versatile design – different methods – arrangements in training, different days (Lipowsky & Rzejak 2012)
- (self-)evaluation – deepening the understandings of teaching & learning processes (Putman Borko 2000)

Possible CPD structure?

3 workshops

Research focus

Norway – common misconceptions rather than diagnostic testing or assessment.

NL - % - no PD plan yet. Primary schools.

Ireland – PD – impact on practice in FA in both maths and science. Policy implications for use of technology and spending in schools. No attainment data but schools could have Xmas data and summer exam data – soft.

South Africa – focus on the teacher. Maths only. Taking lessons already developed and looking to shift teacher behaviour from transmission. Possibly mobile phone technology, mini whiteboards, posters, etc., not looking at students.

Germany – maths and science in research part in relation to topic.

Ncl – problem-solving strategies – enhanced by technology. Teachers and students.

Nott – 3 schools – Ipads – PD will help on the FA side and what they do with the technology. Enhanced or impedes? Peer assessment and how technology can enhance. Good FA practices and less good FA practices – and if introduce technology do we get more? Videos of lessons where technology used. Community of inquiry and professional learning. Lot of existing resources but nothing on technology yet. Teachers involved and engaged in the project.

Commonalities? Issues: unit of analysis and type of activity? And student survey and attitude data?

DELIVERABLE D8.2 Phase Two Launch (toolkit)

Work Package 4

October 2014 until December 2015 - Focus on intervention:

- Cluster meetings
- School visits
- Case studies

Monthly meetings not realistic for all partners. How to share practice and progress monthly?

Fasmed platform? Local toolkits? What has to be shared and how? Common grid support? What is public and what is private?

Gilles to suggest a grid to start a model forward and then we can review what is public and private in Lyon in April 2015.

School visits: reports

What is important to share? Not time to read everyone else's. Each group responsible for their own contribution and reports.

Case studies –are questions the same? Norway and France to provide grid as soon as possible.

Numbers – case studies

Every partner does one?

Jill to present the cases to Maria – two cases and then the proposal of one 14 and 5 or 5 and 4? Can we do cross comparative analysis about more cases?

WP3 deliverable 31/10/2014 – toolkit for PD – 3 meetings – what is FA? Prototype to work with. UDE to send out next week for comment and then deliverable.

Case studies, and questions, activity tool across the countries. Do we agree on an activity? E.g. the graphical task? Or just working with graphs generally? And would go in the case. One lesson? Longer process with the review and re-design. Graphs OK for physics and chemistry but not so straight forward for biology? (WP4 case write up – December 2015.) latest 10-15 January deadline 2016. UU can work with when teachers are doing it.

Do we measure pupil attitude?

Student questionnaire, or interviews have both? What their attitudes towards that intervention - attitudes to FA and use of technology. Focus group how they are feeling about the work. Qualitative data will help to measure attitudinal data. Examples of visual methods to be creative and innovative.

Questionnaire - - scales we can use for the whole pupils in Fasmed? But what would we be trying to find out? For comparison? Do we want questionnaire data for the cross-case analysis?

Remind ourselves about the design study – case studies that have an impact and improve the toolkit.

Interview schedule questions – Birgit to work with UNEW to develop questions.