Work Package 3:
Toolkit & PD Package

FaSMEd
1. Deliverables
2. D3.2: Evaluation of toolkit
3. D3.5: Evaluation of PD package
4. Structure of final toolkit
1. Deliverables

Month 10 (Oct. 14): Submitted
- D3.1: Prototype Toolkit
- D3.4: Prototype PD Package

Month 25 (Jan. 16): Submitted
- D3.2: Evaluation of Toolkit
- D3.5: Evaluation of PD Package

Month 36 (Dec. 16):
- D3.3: Final Toolkit
- D3.6: Final PD-Package
2. D3.2 Evaluation of toolkit

- Classroom Activities of the prototype toolkit were implemented with different technologies & modifications by different partners
- Many additional classroom activities were developed & implemented in classrooms (see D3.2 for complete list)
  - Wide variety of FA practices & technologies were explored
  - NOT YET TRANSPARENT IN TOOLKIT

Midterm review:
- Toolkit website & main project website should be linked or integrated
- Question of what & how materials are published needs to be addressed
2. D3.2 Evaluation of toolkit

Therefore:

- **Organisation:**
  The final toolkit will be hosted at Newcastle University (Wordpress).

- **Content:**
  - Adapt existing classroom activities (incl. role of technology)
  - Add new classroom activities
  - HIGHLIGHT CONNECTIONS BTW. FORMATIVE ASSESSMENT, CLASSROOM PRACTICES & TECHNOLOGY

- **Structure:** → 4.
3. D3.5 Evaluation of PD package

- Principles for effective CPD
- PD approaches in FaSMEd:
  - Active involvement of teachers in design-based research process (all partners)
  - Professional learning groups (PLGs, UNEW & UNOTT)
  - PD courses (e.g. NUIM & UU)

Midterm Review Report:
- Clear structure of PD package necessary
3. D3.5 Evaluation of PD package

Efficacy of PD is measured based on:

- Teachers‘ feedback, interviews, researchers‘ observations, teachers‘ adjustments to lesson plans, teachers‘ attitudes & beliefs
- Meta-Didactical Transposition model (ENS de Lyon)
- 4 dimensions by Lipowski & Rzejak (DUE)
  1. Acceptance of PD among teachers
  2. Consequences of PD for teachers‘ prof. competencies
  3. Consequences of PD for teachers‘ actions in classroom
  4. Changes in students‘ achievements
4. Structure of final toolkit

Starting Point(s):

FaSMEd

A TOOLKIT TO SUPPORT FORMATIVE ASSESSMENT
for teachers of science and mathematics

Home  Project  Theory  Classroom activities  Professional development  Research
Science activities  Maths activities

Home

FaSMEd is a research project in mathematics and science education, with a particular focus on formative assessment.

Home  About our Project  News & Events  Meet the Team  Deliverables  Newsletters  Contact Information  Dissemination Activity

FaSMEd

Improving Progress for Lower Achievers through Formative Assessment in Science and Mathematics Education (FaSMEd)

Welcome to our FaSMEd Project website.

FaSMEd is a Science in Society Collaborative Project of the European Community

Muizenberg, 9.2-11.2.2016
Bärbel Barzel, Philipp Schmiemann, Hana Ruchniewicz
4. Structure of final toolkit

We propose: to combine the two exciting websites of FaSMEd Toolkit website & FaSMEd website

HOME

Include Framework Cuboid (without explanation)

PROJECT

• Aims & Objectives (summarized, less than on UNEW main website)
• Understanding the toolkit
• Partners (Meet the Teams)
4. Structure of final toolkit

THEORY FRAMEWORK

• Introduction (FaSMEd framework)
• Glossary
• What is FA?
• Role of Technology for FA
• Raising achievement ???
• Effective PD
CLASSROOM ACTIVITIES (Resources/ Examples)

- We suggest to omit the differenciation according to Science/Maths
- Same structure for all activities including characteristics serving as an appetizer – similar to MASCIL (template needed)
  - Tag for Science/Maths (maybe use symbols)
  - Title
  - Topic
  - Informative, catching picture/photo
  - Students‘ age-range
  - Tags according to FaSMEd framework (Highlighted cuboids)
  - Tag for type of technology (maybe use symbols)
  - Short abstract (< 500 words)

- DUE to provide template for characteristics
- Template for writing up classroom activities needed?
4. Structure of final toolkit

CLASSROOM ACTIVITIES

- Title (as a clear topic)
- Tag for Science/Maths (maybe use symbols)
- Age
- Used Technology
- Materials
4. Structure of final toolkit

Example for tags (MASCIL):

<table>
<thead>
<tr>
<th>Discipline</th>
<th>All</th>
<th>Biology</th>
<th>Physics</th>
<th>Chemistry</th>
<th>Mathematics</th>
<th>Interdisc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>All</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Type</td>
<td>All</td>
<td>Module</td>
<td>Video</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>All</td>
<td>≤ 10 min.</td>
<td>11–50 min.</td>
<td>51–100 min.</td>
<td>Longer</td>
<td></td>
</tr>
</tbody>
</table>

- **Waterquality: Swim without risk...**
  
  Students will investigate how water quality can be determined

  - **module** 0 min.
  - **Age:** 15–18
  - 1.767 views (2012) ★★★

- **Design a parking garage**
  
  Working as an architect: parking in the basement

  - **worksheet**, 100 min.
  - **Age:** 11–15
  - 1.529 views (2013) ★★★

- **Emergency calls: immediate response...**
  
  Interpret the data about the immediate response success rate

  - **module**, 50 min.
  - **Age:** 11–15
  - 657 views (2013) ★★

- **Epidemics: modelling with maths...**
  
  Understanding the use of vaccination in preventing the spread of epidemics.

  - **module**, 50 min.
  - **Age:** 11–15
  - 767 views (2013) ★★
4. Structure of final toolkit

Example for a tag (GTR-Kompakt):

**ModulA:** Beispiele zur Untersuchung von Funktionstermen und Graphen mit dem GTR insbesondere in der Einführungsphase

**Zentrale Inhalte**
- Begrüßen und Kennenlernen
- Erste Schritte mit dem GTR
- Gestalten der ersten GTR-gestützten Stunde. Dies geschieht anhand einer einfachen Aufgabe (Potenzblume, s.r.)

**Ziele für Lehrkräfte:**
Die Lehrkräfte
- kennen die wichtigsten Befehle im Umgang mit dem Rechner:
  - Graphen erstellen (auch stückweise definierte)
  - Funktionen auswerten (auch durch Ablesen am Plot)
  - Gleichungen und Gleichungssysteme lösen
  - Funktionen ableiten
  - Funktionsscharen erzeugen
  - Tangenten an den Graphen erzeugen
  - Wertetabellen erzeugen
- erkennen den Mehrwert des Rechnereinsatzes im Bereich der Funktionenlehre anhand einer exemplarischen Aufgabe (s. Potenzblume).
- erfassen den didaktischen Hintergrund zum Einsatz des GTR im Mathematikunterricht (Darstellungswechsel, Grundvorstellungstheorie)

**Benötigtes Material:**
- PowerPoint-Dateien AP1, AP2, AP3
- Aufgaben AA1, AA2, AA3, AA4
- Tagesablauf-Poster
- Hilfe siehe ZUM und WIKI TI
HOME: That is our idea....
PROJECT: Who we are
FRAMEWORK:
   - (TECHNOLOGY: What technology did use for the technology... (ARS, Tools, ...linked with other arts)
FA Learning environments/experiences/
Examples of FA in classrooms/
CLASSROOM EXAMPLES: These examples has worked for us...
PD: How we worked with teachers....
RESEARCH: What we fpund out...
4. Structure of final toolkit

PROFESSIONAL DEVELOPMENT

• Principles (same as in FRAMEWORK)
• PD Approaches:
  o Self-training (UNOTT material in prototype & links to others)
  o PLGs (as active involvement in research process) – e.g. example of organisation by UNOTT
  o Teacher Training: Structure/Timetable/Contents/Materials – examples by NUIM, UU, DUE, ...
• PD materials: (structured along topics like FA, technology, ...)
  – Format (Text, Video, Activity, Presentation, ...)
  – Title
  – Topic
  – Short abstract (< 100 words)
4. Structure of final toolkit

RESEARCH

- Case Studies (including Intervention Cases)
- Publications inside FaSMEd
- Partner update
- Cross-country analysis

NEWS & EVENTS (as we can not keep it up to date)

- Maybe Newsletters

DELIVERABLES (Will these be of interest to teachers in the future?)

CONTACT INFORMATION (included in „Meet the Teams“)
4. Structure of final toolkit

DISSEMINATION ACTIVITIES (included in Publications)