Doing Science
Maria Svedäng & Maria Spante
University West
SWEDEN
University West, Trollhättan, Sweden
The GNU-project

- Cross-border
- User-driven
- Practice-based
Cross-border communication

- Between teachers
- Between researchers
- Between teachers & researchers
- Between students
The Swedish Class

- 14-15 years old
- Seven groups
- Cooperation with Danish class
- Pilot: Presentation of the class on the mutual blogg

http://8cgnumblogg.blogspot.se/
Discussing via Skype
Choosing water-experiments

- Each group was assigned a field of their own to investigate
- Search for simple experiments online demonstrating the properties of water in different ways
- Communicate via Skype with the Danish students – deciding which experiment to perform

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Group 1 Saltwater</th>
<th>Group 2 Acid water</th>
<th>Group 3 Osmosis</th>
<th>Group 4 The sea</th>
<th>Group 5 Water in human beings</th>
<th>Group 6 Properties of water</th>
<th>Group 7 The water cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chosen experiment</td>
<td>Melting of ice with/without salt</td>
<td>Investigation of acidity in different soil samples</td>
<td>Osmosis through film from egg</td>
<td>Stratification of warm and cold water</td>
<td>Drinking water standing upside-down</td>
<td>Experiment with surface tension</td>
<td>Boiling saltwater and condensing the water vapor</td>
</tr>
</tbody>
</table>
Experiments chosen....

Grupp 5: Vatten i människan
Robin Kristensson, Jonathan Mossberg, Daniel Lengfelt

Grupp 6: Vattnets egenskaper, ytspänning
Jesper Dunér, Anton Nielsen, Elina Marberg

Grupp 4: Vattnets skiktning (oceaner)
Anton Sjöstrand, Sarah Andersen, Laura Haglund

Drinking water upside-down  Surface tension  Stratification

http://8cgnumblogg.blogspot.se/
GRUPP 1
Loggbok för grupp 1. Saltvatten, Hanna, Lisa
23/10: Letade fakta om salthalt i några hav
24/10: Letade mer fakta om saltvatten.
(http://spa.118100.se/search/salthalten+i+stilla+havet)
(http://www.havet.nu/?d=159)
5/11: Kommit på en lab: Hur fort saltvatten småler jämfört med sätvatten.
(http://www.fysik.org/website/enkla_experiment/exp2009_1.html)
Lab 2: Skillnad på salthalt i olika djup?
6/11: Skrev lab. instruktioner.
13/11: Vi har börjat på laben och filmat lite. (fryst in vatten inför imorgen)
14/11: Vi filmade när vi utförde laben.
What did the students learn?

- The students clearly reached the goals with respect to planning, implementing and documenting some kind of water experiment.
- Showed communication and digital skills.
- They really tried to reach out – speaking slowly, using body language, the chat, google translate, speaking English etc....
- The scientific learning was sometimes poor – misapprehensions of scientific concepts, sometimes misinterpretations of data.
What did the students think?

ifen evaluation together with the Swedish class – in spite of some technical problems and communication difficulties – everyone expressed satisfaction.

Enjoyed cooperating online with students from another country.

Enjoyed working with Science using unusual methods.

"It has been fun – because it has not been like ordinary lessons."

"Fun to try something new...."

"It has worked out well – but difficult to communicate..."
Doing vs Learning?

- Risk with too much focus on the doing-part of the task
- Risk for lack of reflection and discussion
- On the other hand positive effect of the "showing for others"-part of the task
- Promotes doing the task carefully and accurate
- Also positive attitudes towards Science – might benefit Science interest.....
Thank You!

maria.svedang@hv.se
maria.spante@hv.se
The students about the project

- **POSITIVE COMMENTS**
  - Communication/language
  - Technical support
  - Project planning

- **NEGATIVE COMMENTS**
  - The work with the laboratory task

- **EXPERIENCED LEARNING**

- **IMPROVEMENT PROPOSALS**