INTEGRATING LANGUAGE LEARNING AND MATHEMATICS LEARNING

a case study from Sweden
This is a story about... making opportunities for low educated immigrants in Sweden.
This is a story about... teachers changing their way of teaching.

Before
- Individual guided practice
- Individual memorizing

Now
- Group-based instruction
- Experiencing through discussion and problem solving
This is a story about learning language and mathematics

Basic arithmetics

Language-learning theory

Socio-cultural theory

Inter-cultural theory

Three methods

Scaffolding Workshops

Developing Literacy and Numeracy through ICT

Formative assessment
ADULT EDUCATION IN SWEDEN

- Swedish tuition for immigrants
- Special education for adults
- Compulsory school level
- Upper secondary level
- Municipality adult education
Three Methods

Formative assessment

Feed forward

Workshops

Scaffolding workshops

Responding to teacher and students texts

Reading texts

Writing through ICT

Developing Literacy and Numeracy through ICT
The Workshops
I already knew in my language but now I also know in Swedish. This way is good, you can learn better.
I think it’s really important for me as a math student to know the language of mathematics. I can count with the numbers but the language is difficult. Today I have learned many words for the mathematic language.
Learning the terminology of basic arithmetic operations

The conversation strategies

- encourage students to explain how they think.
- encourage students to explain to each other.
- Confirm and clarify students' examples.
- Insert mathematical words, move between mathematical language and everyday language
- Challenge students to progress in their thinking.
- Provide examples of concretization
- Provide summaries to clarify.
- Highlight students' different experiences

The socio-cultural theory

- Participate in a community
- Language for communication
- Language as an intellectual tool
- Mediated action
The names of numbers

Theory of variation (Marton)
Strategies of mental arithmetics

Aim
- Promoting self confidence
- Awareness of the variety of strategies for the same task

Inter-cultural theory
- Confirm and support different cultures
- Allowing approach towards different ways of seeing and using different strategies
Mathematic’s in context – joint construction
<table>
<thead>
<tr>
<th></th>
<th>Oral story telling</th>
<th>Joint construction and problem solving</th>
<th>Independent problem solving</th>
<th>Independent problem construction</th>
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<tbody>
<tr>
<td>1</td>
<td>T tells a story about a problem from everyday life</td>
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<td></td>
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<tr>
<td>2</td>
<td>S tells a story</td>
<td>T makes a mathematical problem of the T-story</td>
<td>T and S solve together</td>
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<tr>
<td>3</td>
<td>S tells a story</td>
<td>T solves the problem of the S-story</td>
<td>T and S solve together</td>
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<tr>
<td>4</td>
<td>S makes a problem on their own</td>
<td>T and S solve together</td>
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<td></td>
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<tr>
<td>5</td>
<td>S solves the problems</td>
<td>S makes a problem on their own</td>
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Today we had a very active math lesson. We interpret our daily problems into a mathematical problem together with our teacher. I think that we develop our knowledge each lesson in different ways through discussion. It was interesting to create our own tasks outside the book.
Independent problem construction
3 kommentarer:

Antonette 2 december 2011 09:05
För att också ha hjälp är
67000x 100 = 6700000
Rätsel per månad 9000000/100 = 9000
Rätsel per hlm 9000/30 = 300
Vanligtvis ska du betala
9000+300=9300 kr
Vanligtvis ska du betala
67000x100=6700000
Du skulle veta hur lång tid det ska ta för att betala din skuld 480000
kr/14148.487=33,9
Svara Fackara

Antonette 5 december 2011 09:16
Jag hoppas att det är rätt.
Svara Fackara

Ellinna 4 december 2011 14:16
Om Marjann betalar 4800 kr/månad så bär väl ränta in i den summan? Eller

Hooman 28 november 2011 15:05
54000xlander med 9,0 x 5400xlander
5400xlander
24600-2460xlander
Du ska betala en räkningen på 24600
Svara Fackara

David 1 december 2011 18:30
Fyndar kostar 22000 kr
Du man har betalat 10% ränta
I korta tider det 10000

För att kunna veta hur mycket du har betalt vi multiplicera 22000 x 10% = 2200
Därefter vi multiplicera 2200 x 3000 = 660000
Ränta som kommer ovan är 660000 x 3000 = 200000 skatt
Svara Fackara

Independent problem solvning
Writing
Literacy through ICT Scaffolding

- Record speech, film or take pictures with phones for memory support
- Write with Word and Exel

Genre pedagogy

- Write different texts with support from teacher
- Create text and Powerpoints
- Publish on blogs
### Willys Storheden

<table>
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<tr>
<th>Varu-märke</th>
<th>Pris</th>
<th>Mängd</th>
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WHY SHOULD STUDENT`S PUBLISH THEIR TEXTS ON INTERNET?

- Interaction with teachers, students and others
- To work with cognitive demanding tasks.
- To be a part of a math´s community.
- Authentic response
- Instantaneous motivation.
- Develop both the teachers and the students digital competence.
- Documentation and evaluation.
- The student stretch their language by being blogger's.
- Inter-cultural learning is mind-opening
LITERATURE

- Rose & Martin (2012) Learning to Write, Reading to Learn Equinox publishing
MY EMAIL

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