

# Question-answering through selecting and connecting peer-students

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# Introduction

## Why Question-Answering

### Objectives

- Connecting the learners (proactive sharing)
- Creating sustainable support facilities (effective support)

### Stakeholder workshops

- A set of critical support activities

### One of the main examples raised, question-answering

- High frequency
- Disruptive
- Important for the learner



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# What is a Question ?

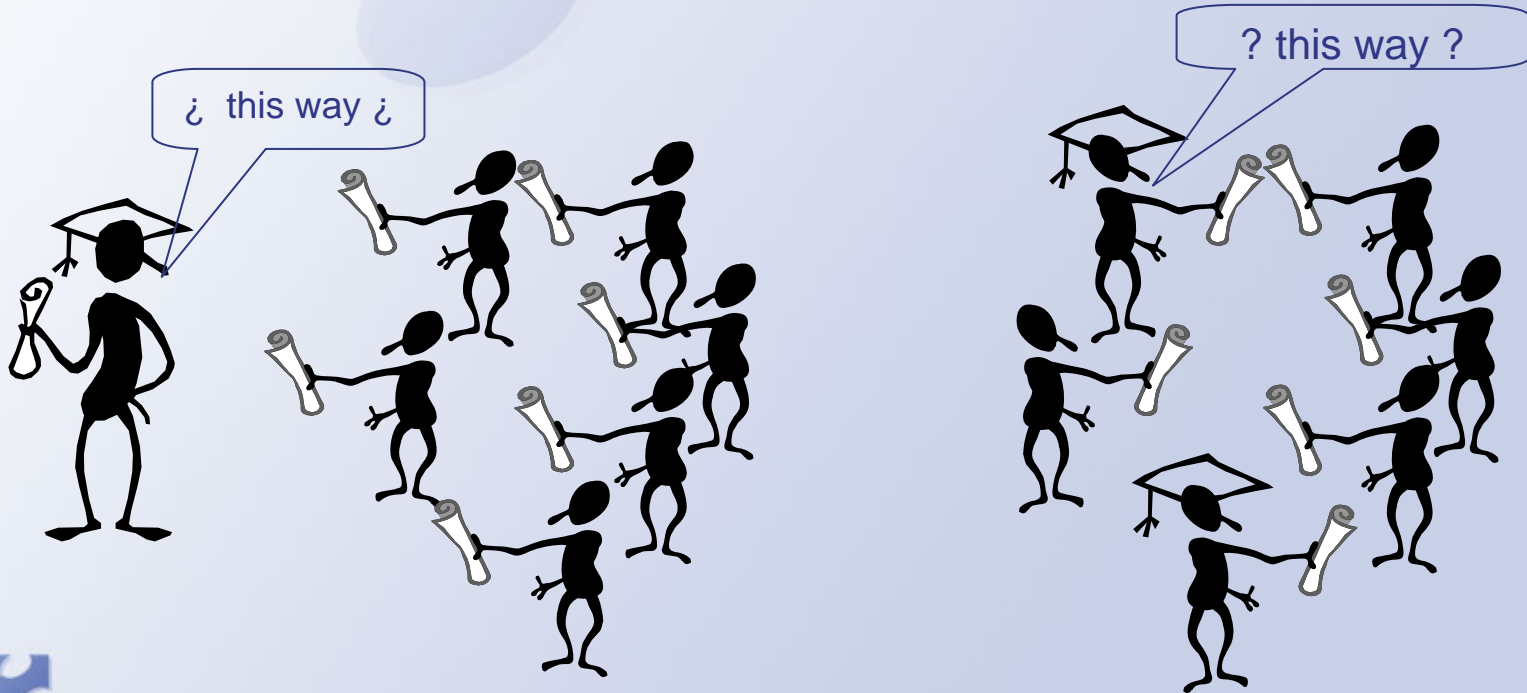
**Ask your question**

What is the difference between heat and temperature? If it gets warmer, the temperature gets higher too! But apparently the same amount of heat can lead to different temperature increases. How come?

**Cancel** **Submit**



# Essence of the approach



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# Main steps

1. *A student* poses a question.
2. The *system* determines:
  - text fragments to help answering the question;
  - the topic(s) of the question;
  - the most suitable peer-learners.
3. The *system* sets up a wiki with the question, the text fragments and guidelines.
4. The selected *peer-students* receive an invitation to assist.
5. *The questions poser and his peers* discuss and phrase an answer in the wiki.
6. The *question poser* closes the discussion and rates the answer.



# The main steps

## methods used

Text fragments to help answering the question:

- Latent Semantic Analysis to select the text from the studied material

The topic(s) of the question:

- Latent Semantic Analysis to identify the topic(s)

The most suitable peer-learners, a selection based on a weighted sum of four criteria:

- content competency
- availability
- tutor competency
- eligibility



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# Student Question interface

Minicursus Internet+

Calendar

<< March 2007 >>

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Vraag-Antwoord Module

Klik hier voor uw vraag of antwoord pagina, of stel een nieuwe vraag

Internet Explorer

Favorieten Extra Help

Zoeken Favorieten

moodle/at2/vraag.php?action=newQuestion&course=1

Ga naar Koppelingen

## Module

You are logged in as Peter Van Rosmalen (Logout)

### Vraag-Antwoord Module

Vraag-Antwoord-module kunt u vragen stellen over de **inhoud** van de cursus. Een vraag wordt automatisch geplaatst op een speciaal soort prikbord (wiki) en doorgestuurd naar daarvoor speciaal geselecteerde medewerkers en medestudenten. Technische vragen en technische problemen moet u bij de **help-desk** zijn.

U wordt verzocht de daarbij behorende vraag zo goed mogelijk zodat het ook voor een ander duidelijk is wat uw

vraag inhoudt.

2

Cursusonderdeel:

Onbekend

3

Send

## Algemene informatie

Je bent ingelogd als Peter van Rosmalen (Log uit)

### Minicursus » Algemene Info »

Deze wiki is opgezet namens "Peters Adminaccount" om bijgaande vraag te beantwoorden:

- Lees de vraag en de tekstsuggesties aandachtig voordat u een antwoord formuleert.
- Stel zonodig in de wiki een vraag ter verduidelijking.
- Probeer in overleg zo snel mogelijk tot een antwoord te komen.
- Selecteer "Bewerk" om uw antwoord in te voeren.
- Tot slot, "Peters Adminaccount" rondt de vraag af door een beoordeling van het antwoord te geven. Als een vraag afgerond is, wordt dit aangegeven door een vinkje voor de vraag.

Vraag:

*Laatste was ik aan het chatten en in de chatbox waar ik in zat hadden mijn mede-chatters allemaal mooie avatars. Ik vroeg me af hoe je aan deze avatars komt en kan je ze ook zelf maken? Is er misschien software waarmee je je eigen avatar kunt ontwerpen*

De cursus bevat de volgende teksten die mogelijk relevant zijn bij het beantwoorden van de vraag. Klik op de bijbehorende links om de teksten te bekijken:

[Tekst 1](#)

[Tekst 2](#)

[Tekst 3](#)

Toon

Bewerk

Links

Geschiedenis



# Validation of the system

Is it possible to determine an appropriate combination of LSA parameters to identify topics and text fragments:

- Calibration based on 2 sets of 16 questions (system vs experts)

Selection rules: do they live up to the expectations e.g. involvement and workload spread:

- Simulation of a number of situations: questions and students' status

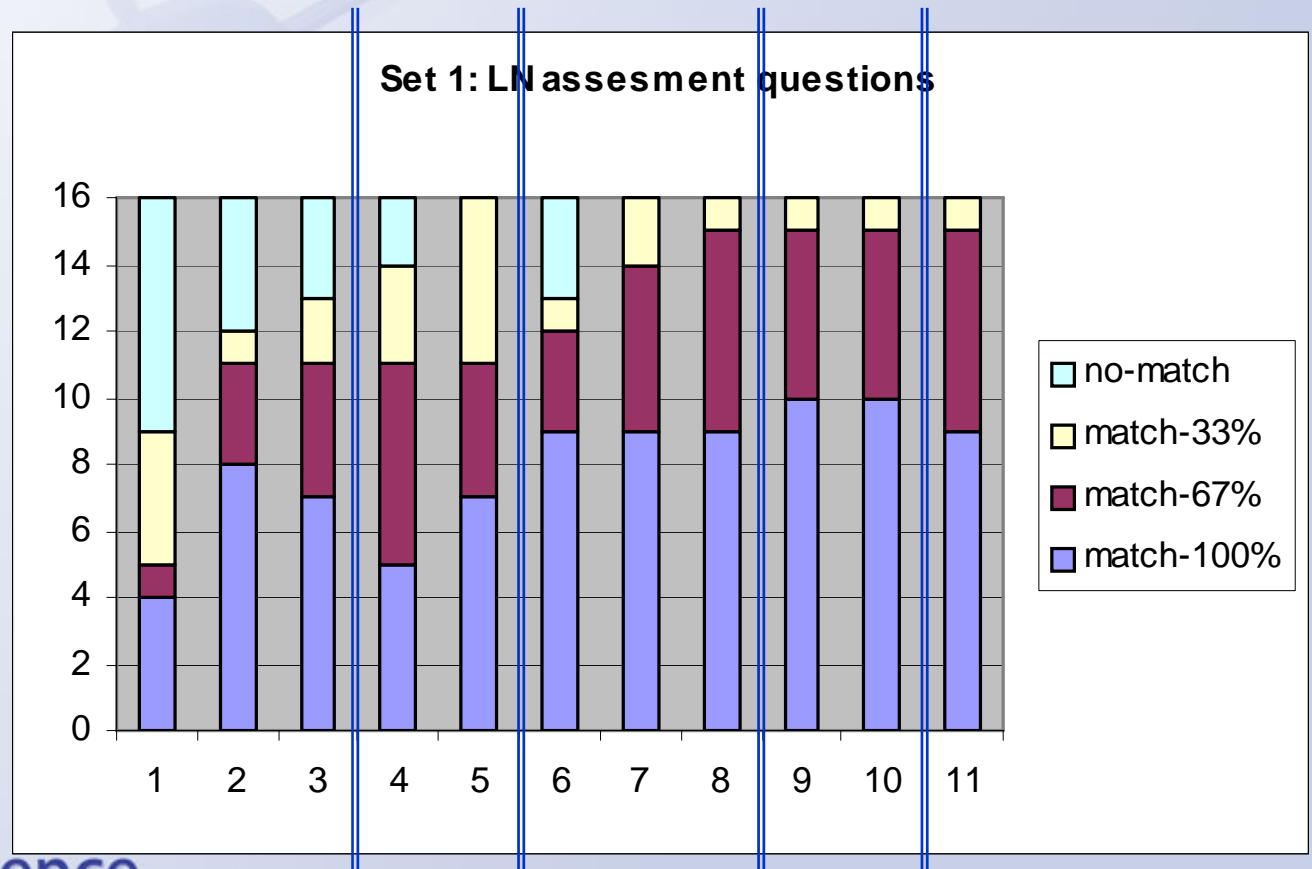
How will it work in real use a.o. user acceptance & questions resolved:

- An experiment with 2 groups of students (2 settings of criteria)



# Results Calibration

11 Topics  
16 Assessment  
Questions



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# Results Simulation

peer-selection

Question-id		Q5					
Correlation	0.78	AN2: 'Using Internet Explorer'					
Student-id		St2					
Tutor Suitability		0.83					
WC	$C_{LNU}$	WE	$E_{LNU}$	WA	$A_{LNU}$	WT	$T_{LNU}$
1	1	0.5	0.80	0.5	0.5	0	0
Student-id		St3					
Tutor Suitability		0.78					
WC	$C_{LNU}$	WE	$E_{LNU}$	WA	$A_{LNU}$	WT	$T_{LNU}$
1	1	0.5	0.6	0.5	0.5	0	0



# Experiment data

- Learning network with 11 topics; 8 weeks
- 110 students in 2 groups: 78 active (40 : 38)
- Data: *loggings; various ratings*; questionnaire; expert
- 101 questions
- 82 resolved (10 under discussion; 9 failed so far)
- 3.8 average answer rating (5-point scale)
- 47 students posed; 65 assisted; 68 involved



# Experiment data

## solved questions

		Group		Total
		Experimental	Control	
Solved Questions	Not solved	17 (28,8%)	23 (54,8%)	40 (39,6%)
	Solved	42 (71,2%)	19 (45,2%)	61 (60,4%)
Total		59 (100%)	42 (100%)	101 (100%)

# Experiment data

Number of invited students per questions

		Group		Total
		Experimental	Control	
Number of invited students	2	47 (79,7%)	21 (50,0%)	68 (67,3%)
	4	12 (20,3%)	21 (50,0%)	33 (32,7%)
Total		59 (100,0%)	42 (100,0%)	101 (100,0%)



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# Experiment data

answer time

	Group	N	Mean Rank	Sum of Ranks
Answer time in hours	Experimental	53	35,24	1867,50
	Control	29	52,95	1535,50
	Total	82		



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# Experiment data

## user feedback

Almost all respondents (n=57) agreed that answering a question is a good investment of time, motivations:

- “I am aware that other students also have questions” (n=24)
- “It improved my knowledge and understanding” (n=29)

Usefulness: 26 experimental; 17 control

Usability: 22 experimental; 16 control

Use it again: 25 experimental; 16 control



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# Conclusions

Model is successful:

- + Calibration approach
- + Simulation results
- + Experiment data

Open questions:

- ? Community formation
- ? Open, 'unending' course
- ? Use of already achieved competences (eportfolio)



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# Questions .....



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