Knowledge dating in Learning Networks

-learning support through peer tutoring-

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Overview

- Inventory the problem: two surveys
- Solution: explored in current OUNL project

- Current work: model calibration
- Next: software update & experiment(s)

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Routledge
Taylor & Francis Group

Identification of critical time-consuming student support activities in e-learning

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Higher education staff involved in e-learning often struggle with organising their student support activities. To a large extent this is due to the high workload involved with such activities. We distinguish support related to learning content, learning processes and student products. At two different educational institutions, surveys were conducted to identify the most critical support activities, using the Nominal Group Method. The results are discussed and brought to bear on the distinction between content-related, process-related and product-related support activities.

Problem Identification

- Two target groups
  - educational experts with Open University (online)
  - teachers with Fontys teacher education school (f2f and blended)
- Two questions
  - which support activities are taxing?
  - which support activities deserve attention, but receive too little of it because they are time-consuming?

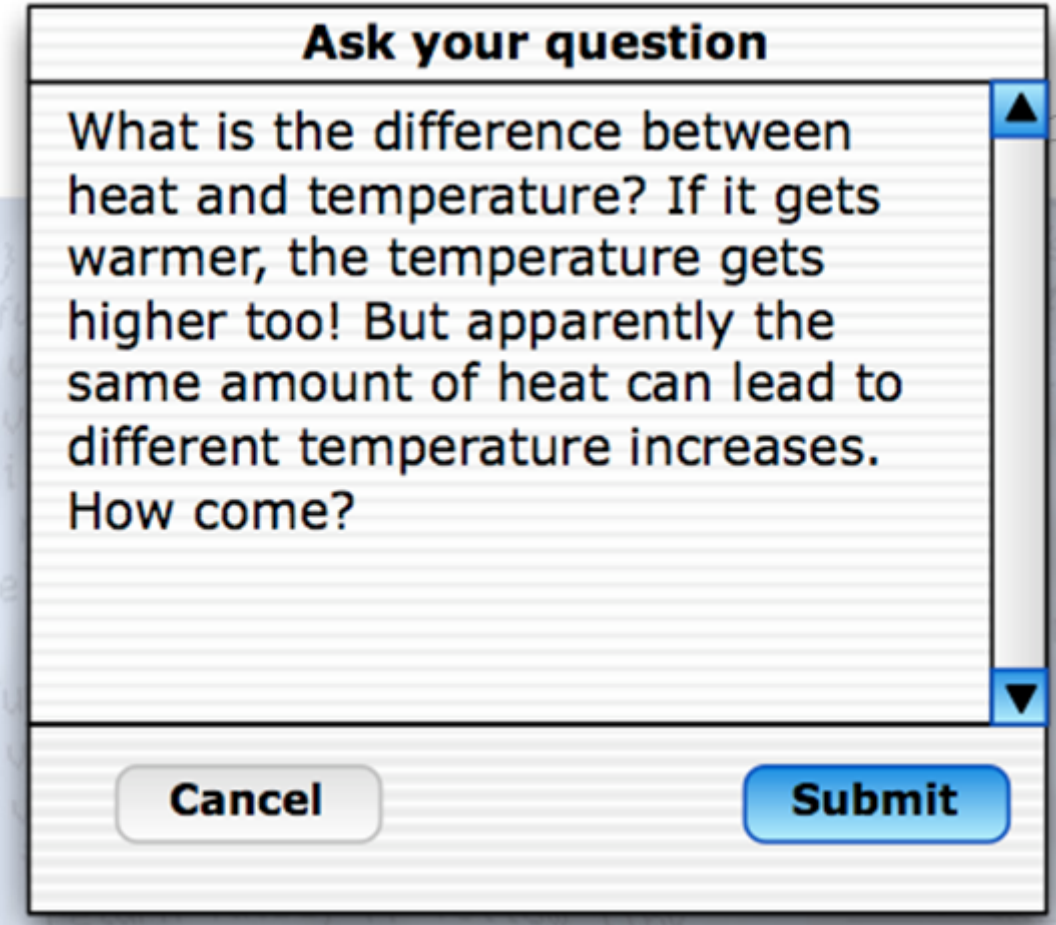
Method

- Nominal group approach
  - answer the questions, post them on a blackboard, explain them, add new questions, rephrase questions
  - score the questions for relevance
- Categorisation by experts
  - problems with the subject matter and content
  - problems with the learning process
  - problems with the assessment

Selection

- Providing process support is seen as important
- Focus:
  - **question-answer**
    - High frequency
    - Disruptive
    - Important for the learner
    - Possibility to explore language technology
  - through ***peer support***

Question



ENHANCING SOCIAL INTERACTION AND SPREADING TUTOR RESPONSIBILITIES IN BOTTOM-UP ORGANIZED LEARNING NETWORKS

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ABSTRACT

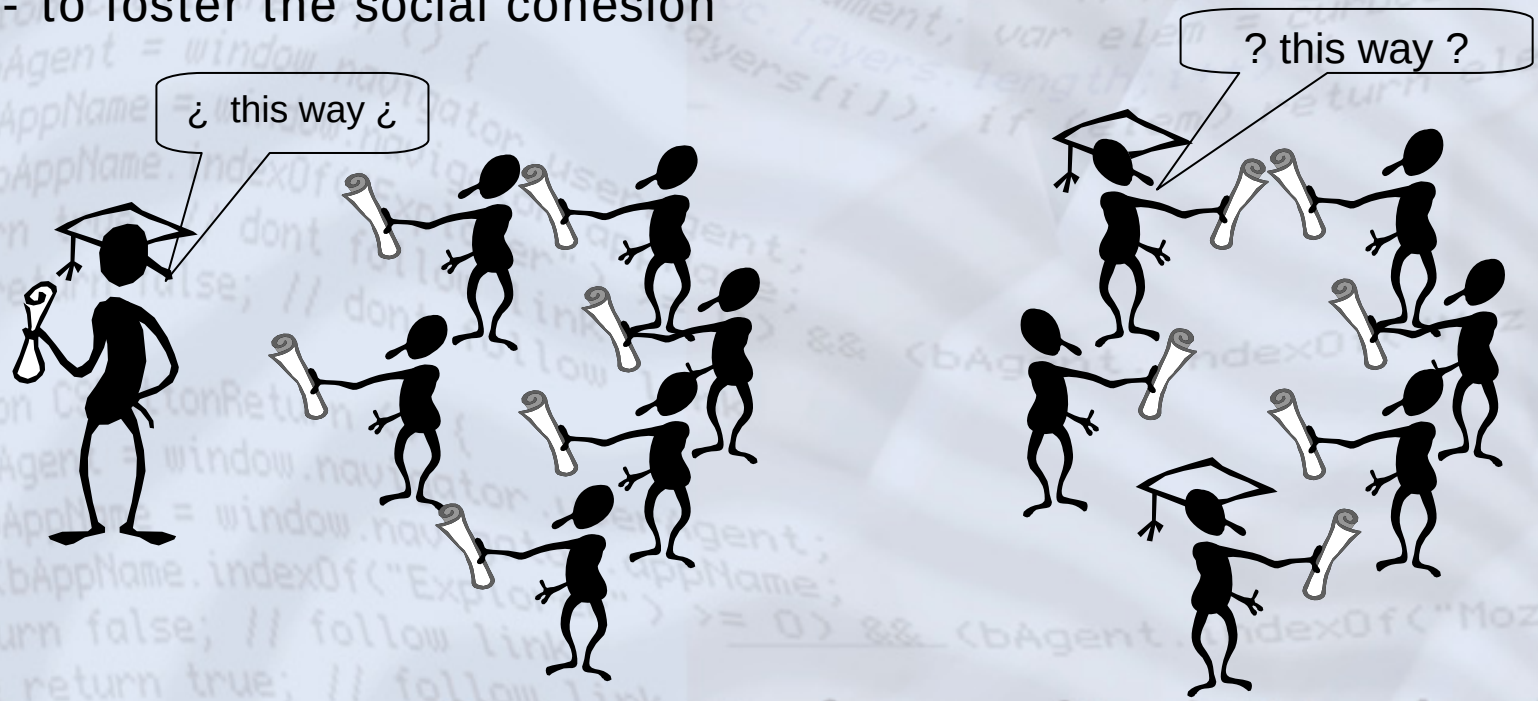
A Learning Network is an ensemble of individual users, institutions and learning resources which are mutually connected through and supported by information and communication technologies. Learning Networks are particularly attractive to self-directed learners, who themselves decide on their learning program as well as on the timing, pace and place of their studies. Such learners may easily become isolated, which is detrimental to their studies. Supporting them is difficult and, if done properly, may rapidly lead to staff overload. This paper discusses of *ad hoc, transient communities* as a means of tackling both problems. It is argued that such communities are well poised to enhance the sociability of a Learning Network and increase learning effectiveness.

Essence of the approach

- to develop learning technologies that help ‘tutors’ support their ‘students’ in learning networks

&

- to foster the social cohesion



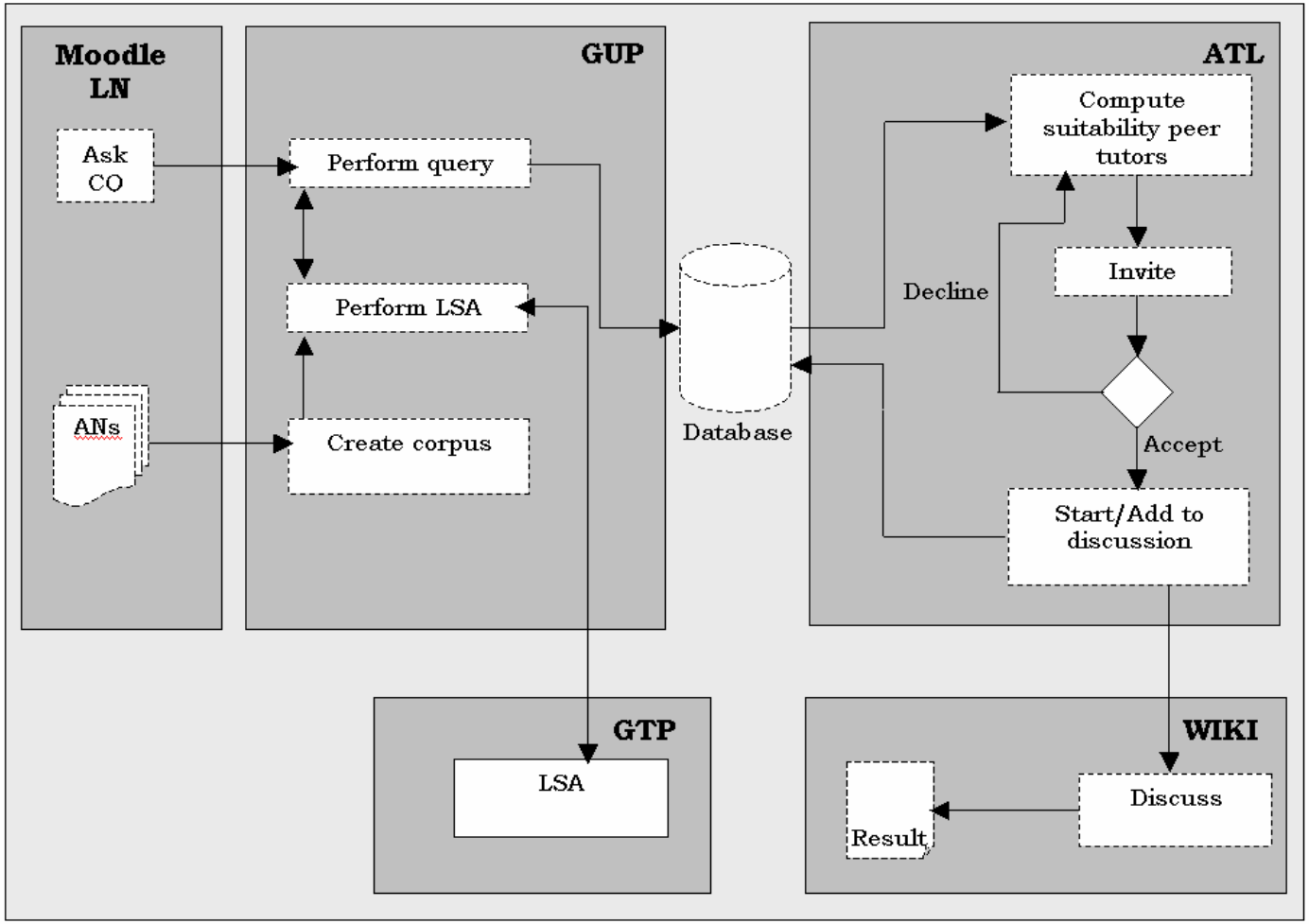
Essence of the approach

- find suitable peer tutors
  - analyse student questions with Latent Semantic Analysis: map the questions on the Activity Nodes
- set up a wiki and create an *ad hoc*, *transient* community
  - seed the wiki with proto-answers found with LSA
  - (store the results (log files, student portfolio, FAQ) for later use)

Steps

- Create & calibrate a corpus from the LN
  - each document belongs to an AN
- For each question, map (LSA) the question on the corpus
  - ranked set of (correlation, doc)
- Look at the top 3 of the ranked set
  - question – AN(s) association (peer identification)
  - three proto answers (feed to ad hoc, transient community)
- set up a wiki and create an *ad hoc*, *transient* community
  - seed the wiki with proto-answers found with LSA

Software



Current Work
- model calibration & simulation -

- Does the model work:
  - identify an appropriate combination of LSA parameters
- Is it possible to do it efficiently:
  - a simple, programmable procedure
- How will it work in real use:
  - a simulation of the model: a LN + 16 ‘student’ questions

Calibration Steps

Initial setting based on literature

Simple depth-first strategy:

- **Create the corpus**
  - Copy of raw material
  - (1) Correlation measure and method – cosine & top 3
  - (2) Pre-processing: stoplist selection – 33%, 50%, standard
- **LSA parameters**
  - (3) Normalisation – y / n
  - (4) Global weights - inverse document frequency, logarithm and entropy
  - (5) Singular values – 30/40/50% of square

Results

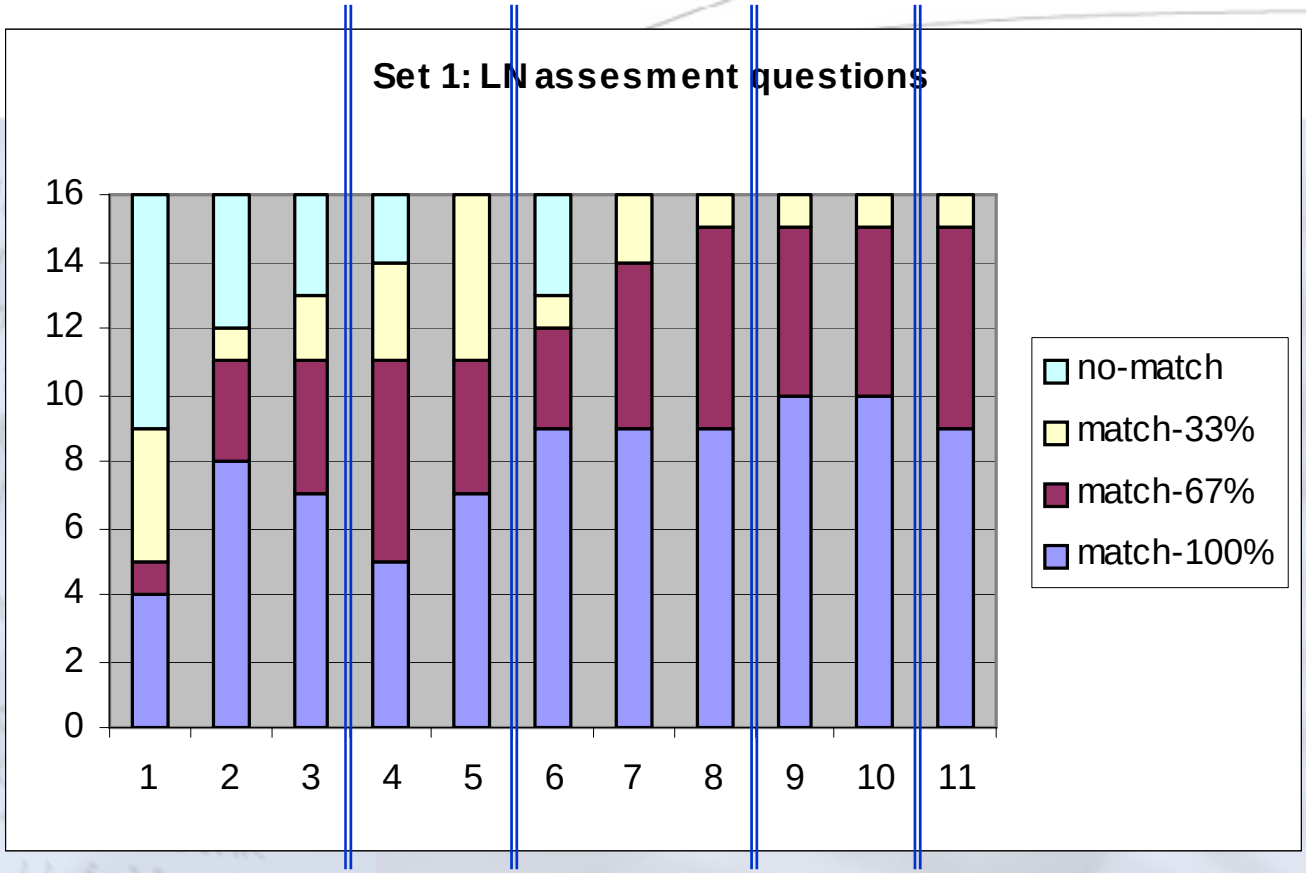
A LN on ‘Internet Basics’: 11 ANs

Corpus is relatively small:

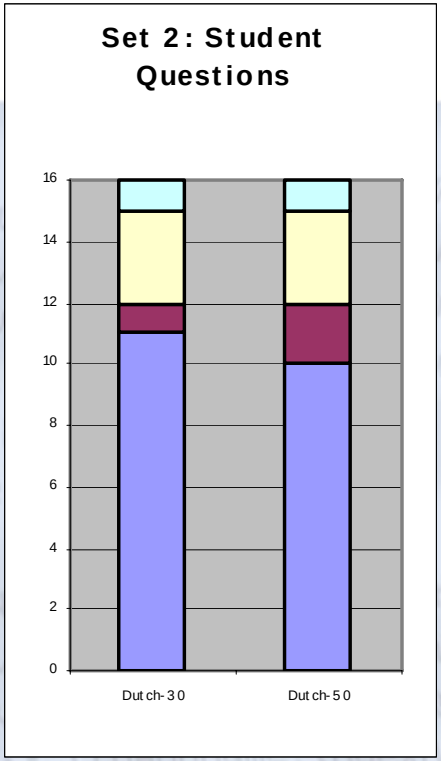
- 327 documents in size ranging from 50 to 23,534 bytes (41 documents smaller than 250 bytes; 50 documents above 3,000 bytes).
- a total of 82986 words divided over 10601 terms, 4440 of which occur in at least 2 documents

Results Calibration

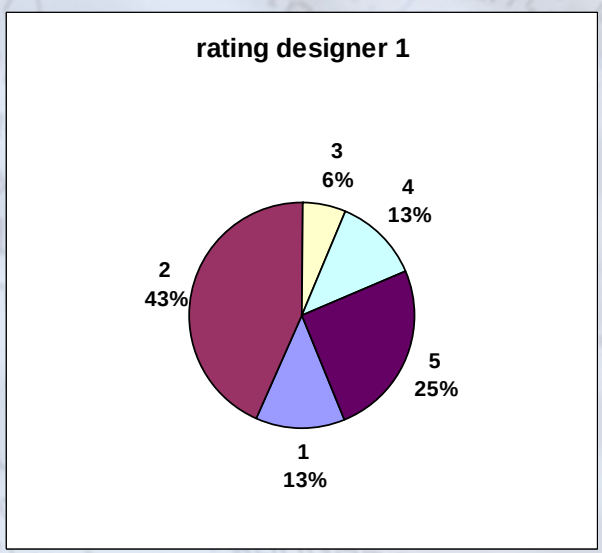
11 ANs
16 Assesment Questions

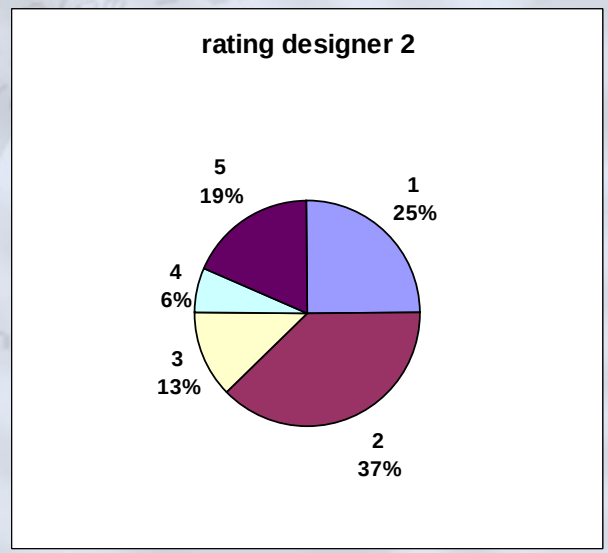


Results Simulation



11 ANs; 16 Student Questions





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Conclusion – so far

Model is technically feasible

- Calibration approach
- Recognition rates & text suggestions

Peer involvement may improve the learning, the social cohesion (literature) & addresses the need for support

Experiments required to determine:

- the ad hoc, transient community conditions
- usability & user acceptance

Questions …….