

Using *i** to Support a Summative Evaluation

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Overview

What's coming...

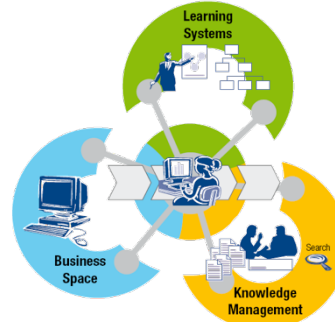
1. The APOSDLE learning environment
2. The challenges of a summative evaluation
3. Using *i** models to describe learning-related goals
4. Qualitative data collection against these goals
5. Summative evaluation outcomes
6. Conclusions and lessons learned



Learning in APOSDLE

Integrated support for

- Learner, worker and expert
- Learn within work processes
- Computational work environment
- Utilizing organizational memory



Coarse grained semantic models

- Automatic discovery of work task from user interactions
- Automatic maintenance of user profiles
- Automatic identification of similarities based on text, multi-media data and semantic analysis
- Automatic identification of prerequisite relations based on semantic analysis
- Embedded, tool-supported learning strategies

Some Interactions with APOSDLE

The screenshot shows the APOSDLE interface with several components highlighted:

- Visualizer:** A central area displaying a network graph or map with nodes and edges.
- Contents:** A pane on the right showing document metadata such as Author, Date, Name, and Size.
- Sidebar:** A vertical pane on the left containing a list of recommended resources and documents, such as 'Definition of a workshop' and 'Aposdle Mock-Up workshop video'.

The Summative Evaluation Challenge

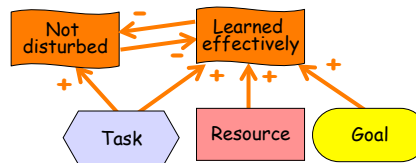
Evaluate effective learning

- Successful knowledge reuse by people
- Within working constraints
- Based on measures of learning and success
- Traditional controlled testing not possible

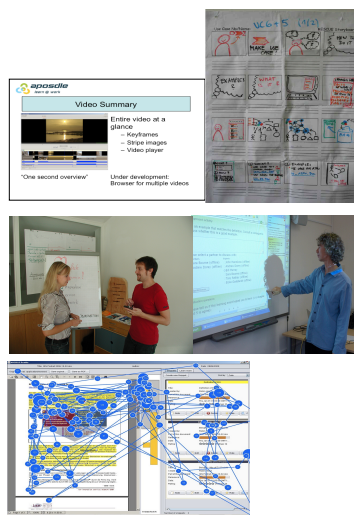
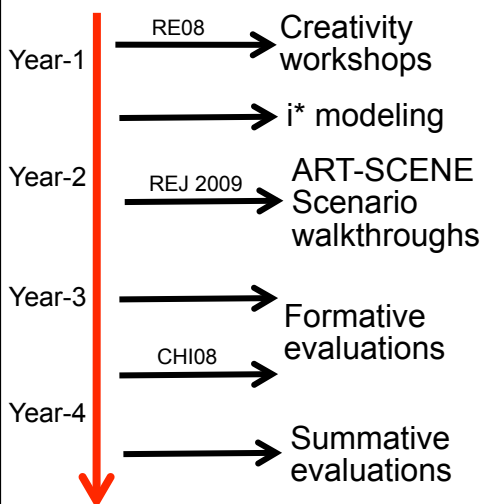


Refine effective learning

- More measurable tasks, resources, goals and constraints
- Argue that learning occurred, through a model

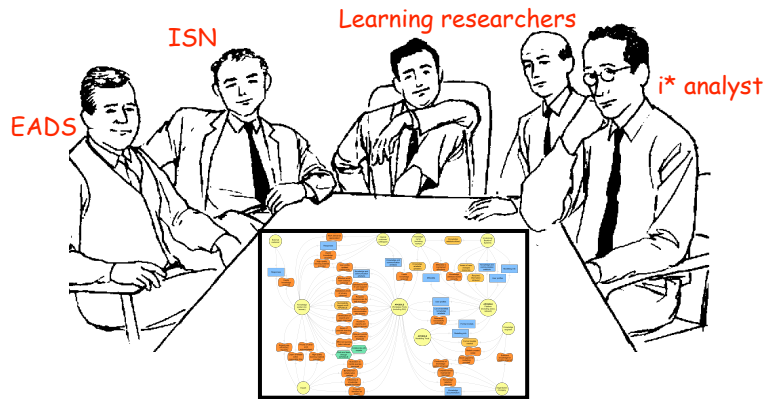


The Four-Year Project

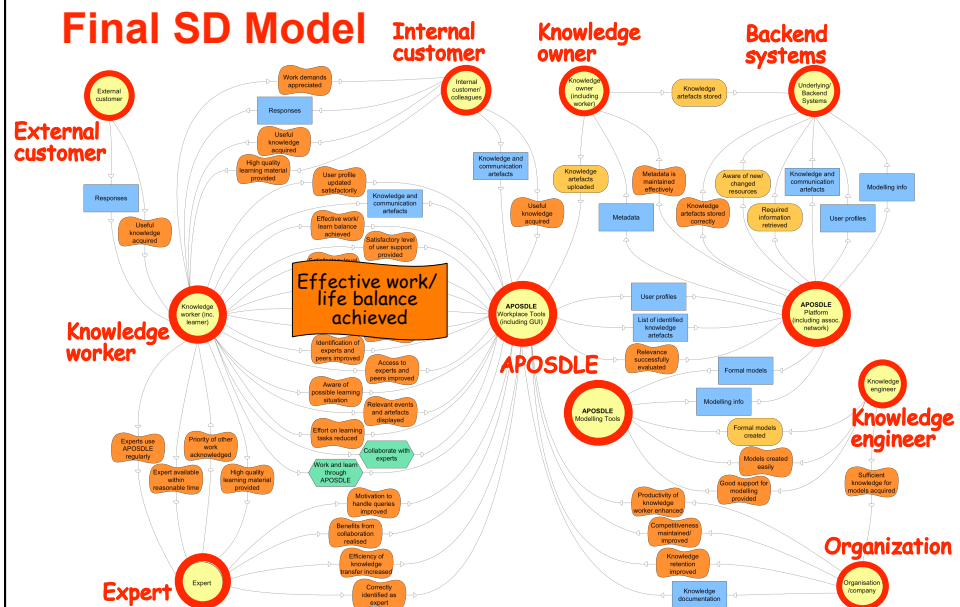


Building the *i** Models

Iterative build-and-refine process
 – SD model then SR model



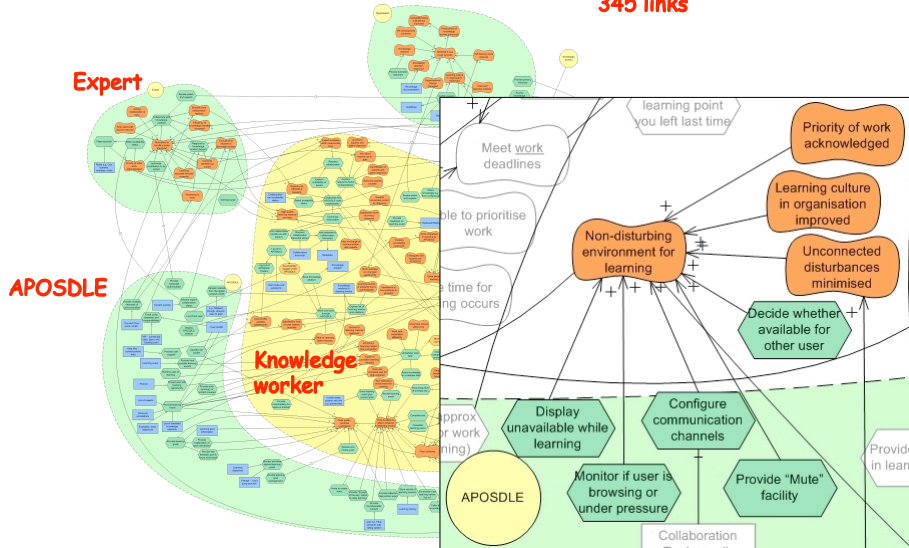
Final SD Model





Final SR Model

6 actors, 259 elements, 345 links



And....

i* models informed requirements on APOSLE...



..... and 18 months passed



Selecting Learning-Related Soft Goals

Chosen by application partners

- According to fit with user tasks, partner focus

Model too difficult to understand and navigate

- Extracted prominent hierarchies flattened into list

Selected soft goals scattered around hierarchies

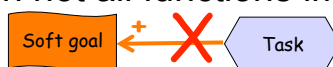


Selected Learning-Related Soft Goals

Eleven soft goals were selected

1. Learning material relevant to current task
2. Aware of learning material
3. Existing knowledge improved
4. High quality learning material provided
5. APOSDLE learning helped task completion
6. Unconnected disturbances minimized
7. Learning time planned and managed
8. Aware of possible learning situations
9. Experts accurately sorted by relevance
10. Identification of experts and peers improved
11. Knowledge/document sharing

Even though not all functions implemented



Qualitative Data Collection

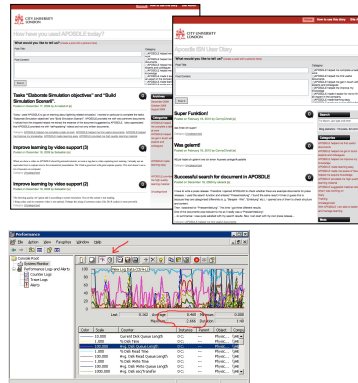
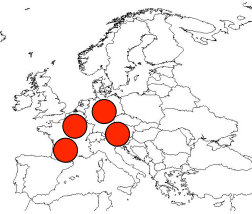
From 19 users over 4 months

– Distributed data collection

Different techniques combined

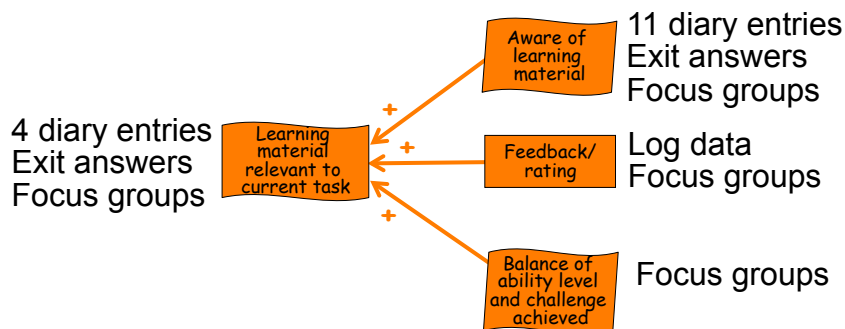
1. On-line shared user diaries monitored by evaluators
 - 235 key entries describing user successes, problems and other experiences
2. Exit questionnaire
3. Retrospective user interviews and focus groups
4. Analysis of log data from APOSDLE environment

Collect data by learning goal



Constructing the Arguments

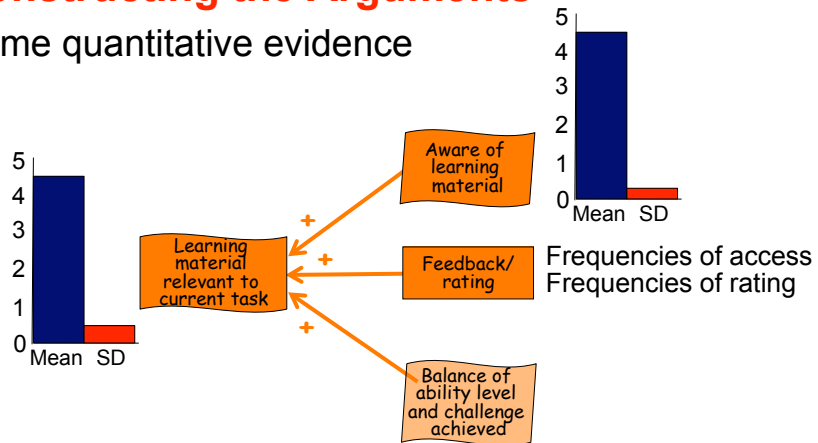
Combining the evidence from different sources





Constructing the Arguments

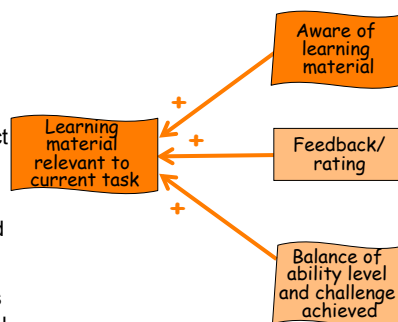
Some quantitative evidence



Constructing the Arguments

Interpreting qualitative evidence

"Recognized works great for me. Although I have still few request from clients, so that APOSDLE can't recognize that much. But if I search for something, each subject is recognized. I just, for example, used Google to find the way to the patent Forum today and immediately APOSDLE recognises the theme "patent". When one has not that much to do, you can read just what information is available and learn something new in this way." [#145]

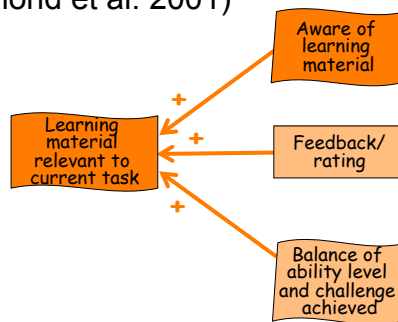


"Today, I used the tool of automatic detection of words available in Aposdle. I searched information about CEM in google and a message made me notice that aposdle had detected this word and that documents was available on this subject in the data base. I clicked on the link and the result I found was very relevant because a topic named EMC still exists in Aposdle that contains documents in relation with the activity of the company."

Constructing the Arguments

Important domain assumptions

- Highlights the role again for satisfaction arguments (Hammond et al. 2001)



1. Workers will seek to use APOSDLE to find learning material
2. Workers will not seek learning material from other sources

Learning Soft Goals Achieved

	Learning-related goal	New functions contributing to?	Functions used in evaluation?	So APOSDLE contributed?
Learning	Aware of learning material	Yes	Yes	Yes
	Learning time planned and managed	No	No	No
	Aware of possible learning situations	No	No	Some
	Existing knowledge improved	Yes	Yes	Yes
Working	High-quality learning material provided	No	No	Yes
	APOSDLE learning help task completion	No	No	Yes
	Learning material relevant to current task	Yes	Some	Yes
Collab	Unconnected disturbances minimized	No	No	Yes
	Identification of experts and peers improved	Yes	Yes	Yes
	Experts accurately sorted by relevance	Yes	Yes	Yes
	Knowledge/document sharing	N/a	N/a	Yes



Conclusions and Lessons Learned

*i** did contribute importantly

- Mapped out important learning and work trade-offs
- Discovered important goals, soft goals, tasks, resources
- Explicitly linked tasks and resources to tool functions
- Enabled consortium agreement about future APOSDLE
- Structured data collection during evaluation
- Structured arguments for data analysis

Some problems

- Scale of SR model – necessitated skilled analyst
- Absence of hierarchy inhibited stakeholder interpretation
- Some different interpretations of soft goals
- Measuring different elements was difficult