Process modeling in instructional design

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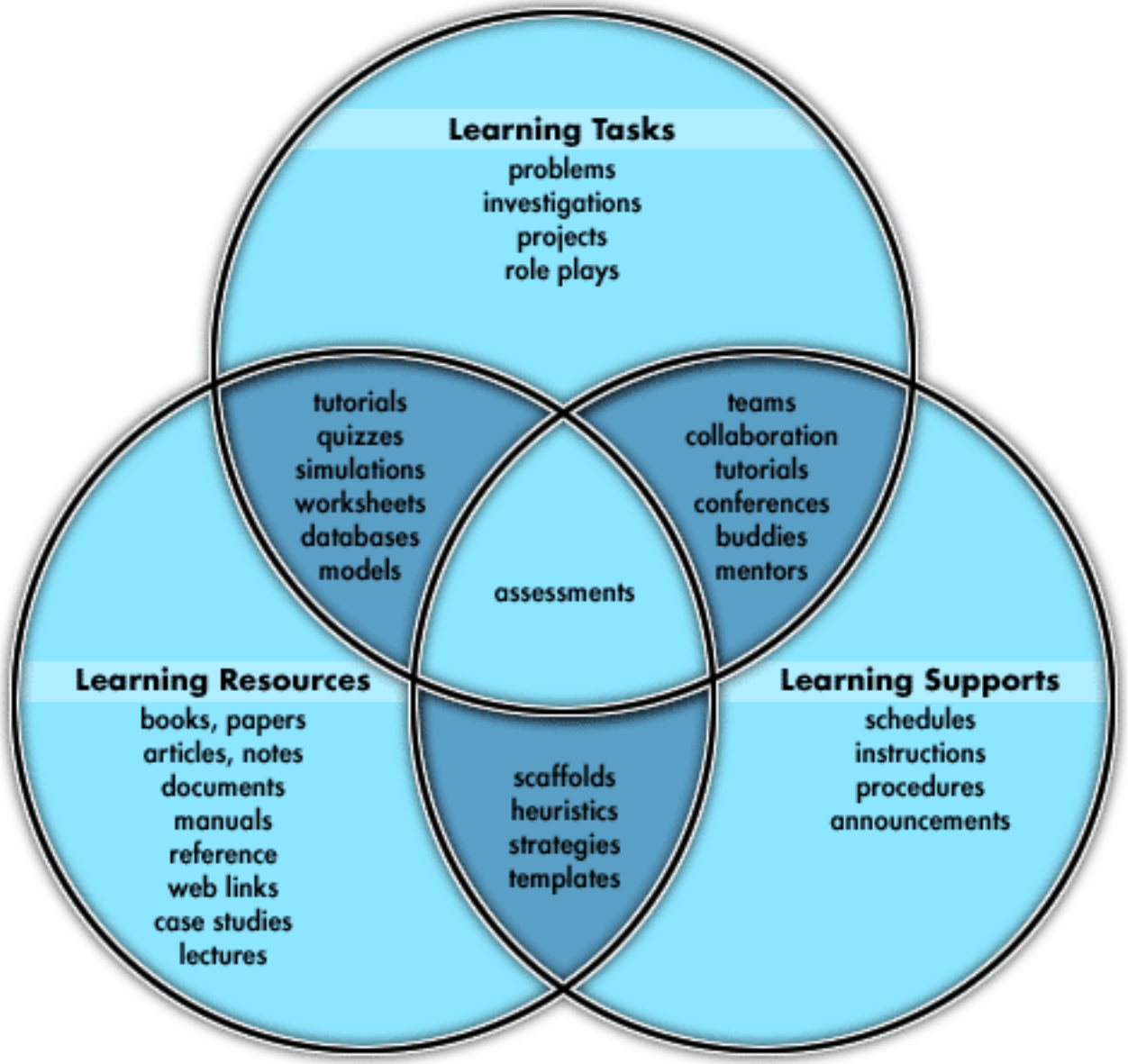
Learning Designs

- Formally: (IMS) Learning design is a specification for a meta-language that enables the modeling of a learning or teaching process.
- Informally: representations of pedagogical practices that can be used to communicate and instantiate those practices.



http://www.learningdesigns.uow.edu.au/project/learn_design.htm#usingsite

GENERAL APPROACHES

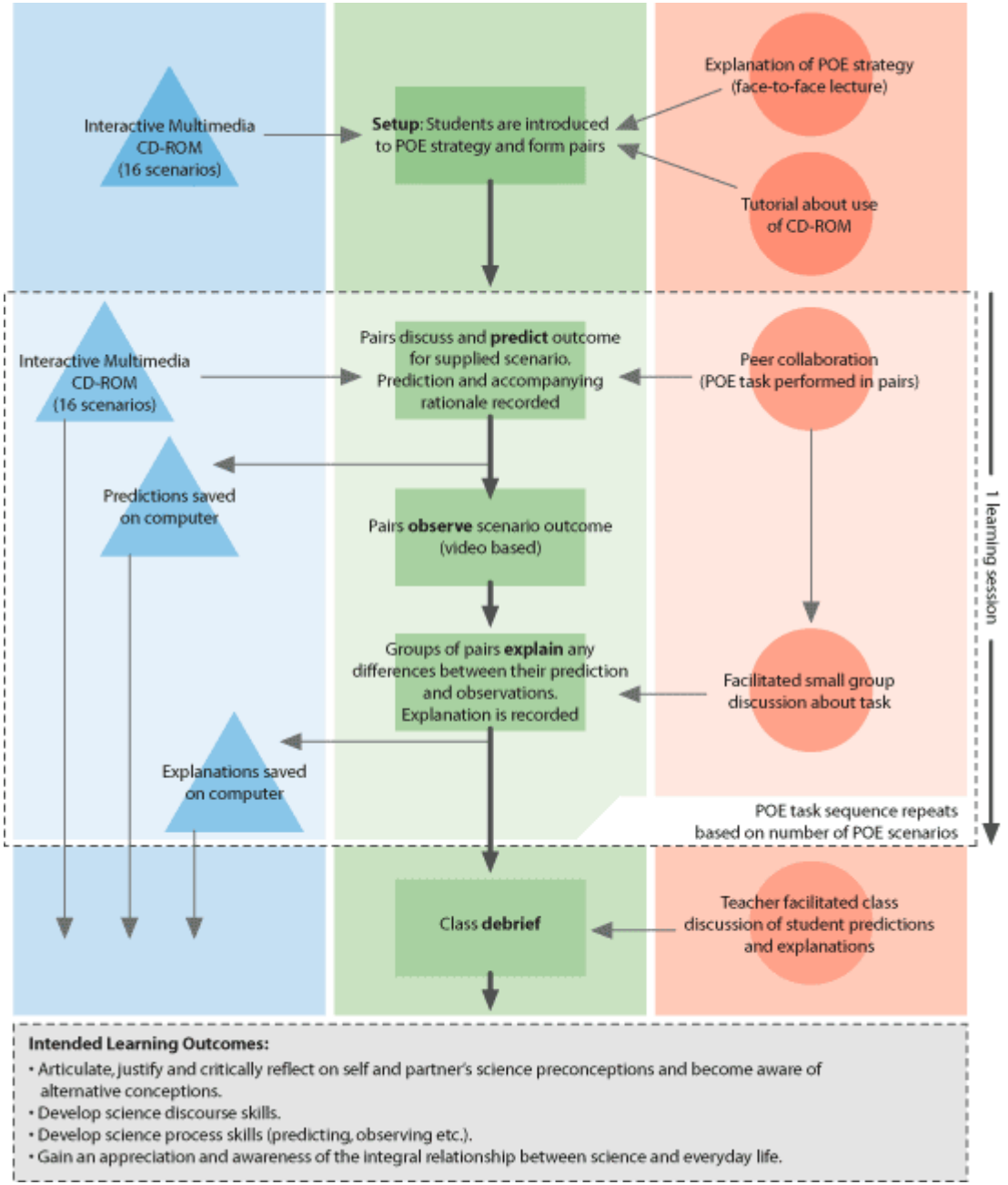
In what forms are pedagogical designs communicated?

- Case studies
- Video case studies
- Controlled vocabularies
- Matrices/tables/templates
- Patterns
- Concept maps
- Temporal sequences
- Flow diagrams
- Executable sequences (LAMS, IMS LD)

Computational work on LD

- IMS LD specification
- E2ML – Educational Environment Modelling Language
- Diverse applications of UML, such as coUML (modeling cooperative environments)
- MOT+ - a visual language for knowledge-based instructional design
- LDL – Learning design language
- Etc.

	Tutor Role	Student Role	Resources (Content)	Resources (Services)	Assessment/ Feedback
Online	Divide students into groups; Introduce students to task and article;	Review task and download article	Online article – link to university library (.pdf file)		
Offline	Moderate discussion; Offer feedback and encouragement to students	Group discussion face-to-face One group member summarizes discussion		Discussion board	Feedback from peers within the group
Online	Comment on summaries; Post feedback to discussion board	Submit summary to discussion board Group should comment on summaries of 2 other groups	Summaries generated by each group (.doc);Feedback comments from tutor can be reused across student groups	Discussion board	Group summaries are formatively assessed Feedback from peers and tutor



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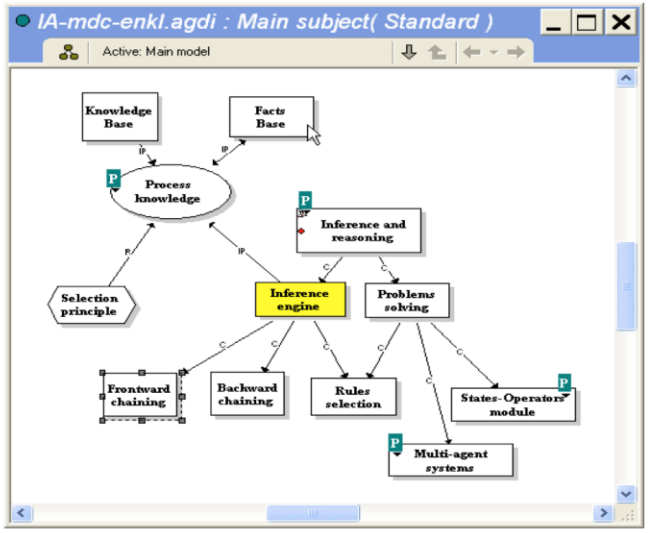
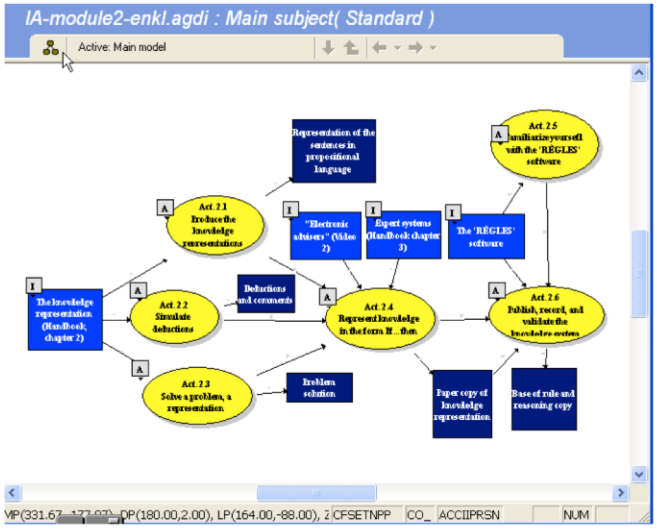
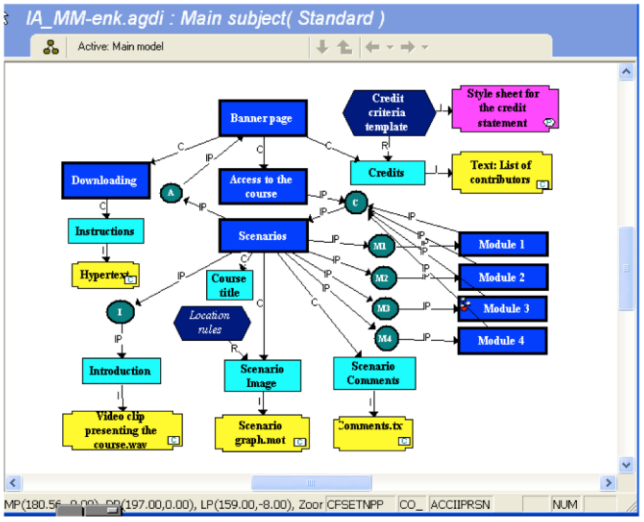
Knowledge Model



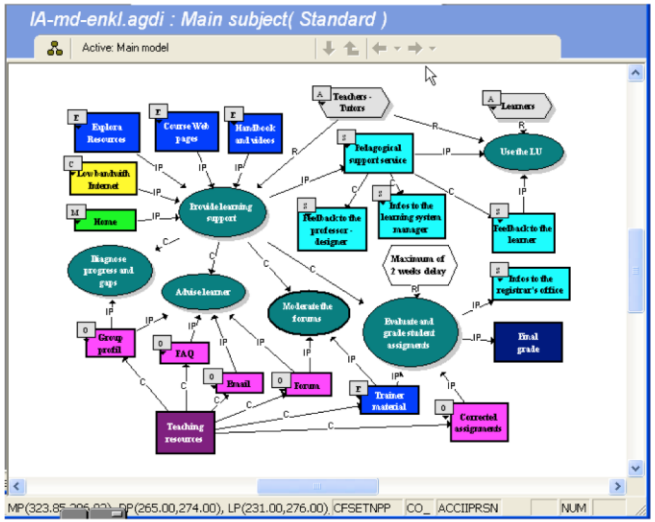
Instructional Model



Resource Model



Delivery Model



LAMS

Welcome to LAMS

About LAMS

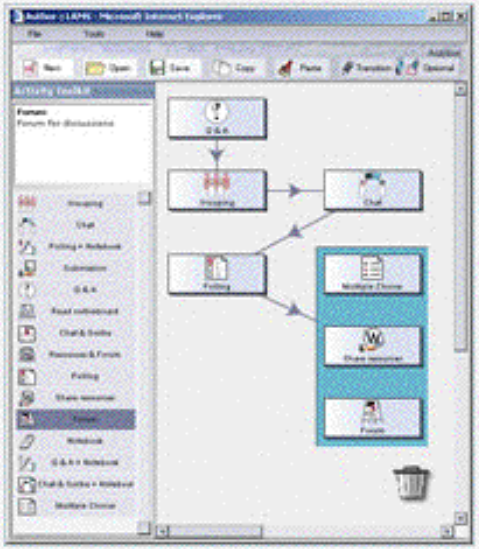
LAMS is a revolutionary new tool for designing, managing and delivering online collaborative learning activities. It provides teachers with a highly intuitive visual authoring environment for creating sequences of learning activities. These activities can include a range of individual tasks, small group work and whole class activities based on both content and collaboration.

If you want to trial LAMS, click here to get an account on one of our demonstration servers.

About LAMS International

LAMS International is the organisation that provides a range of services built around the LAMS software. These services include; technical support, hosting, training, integration and software development.

Click here for more information about these services.



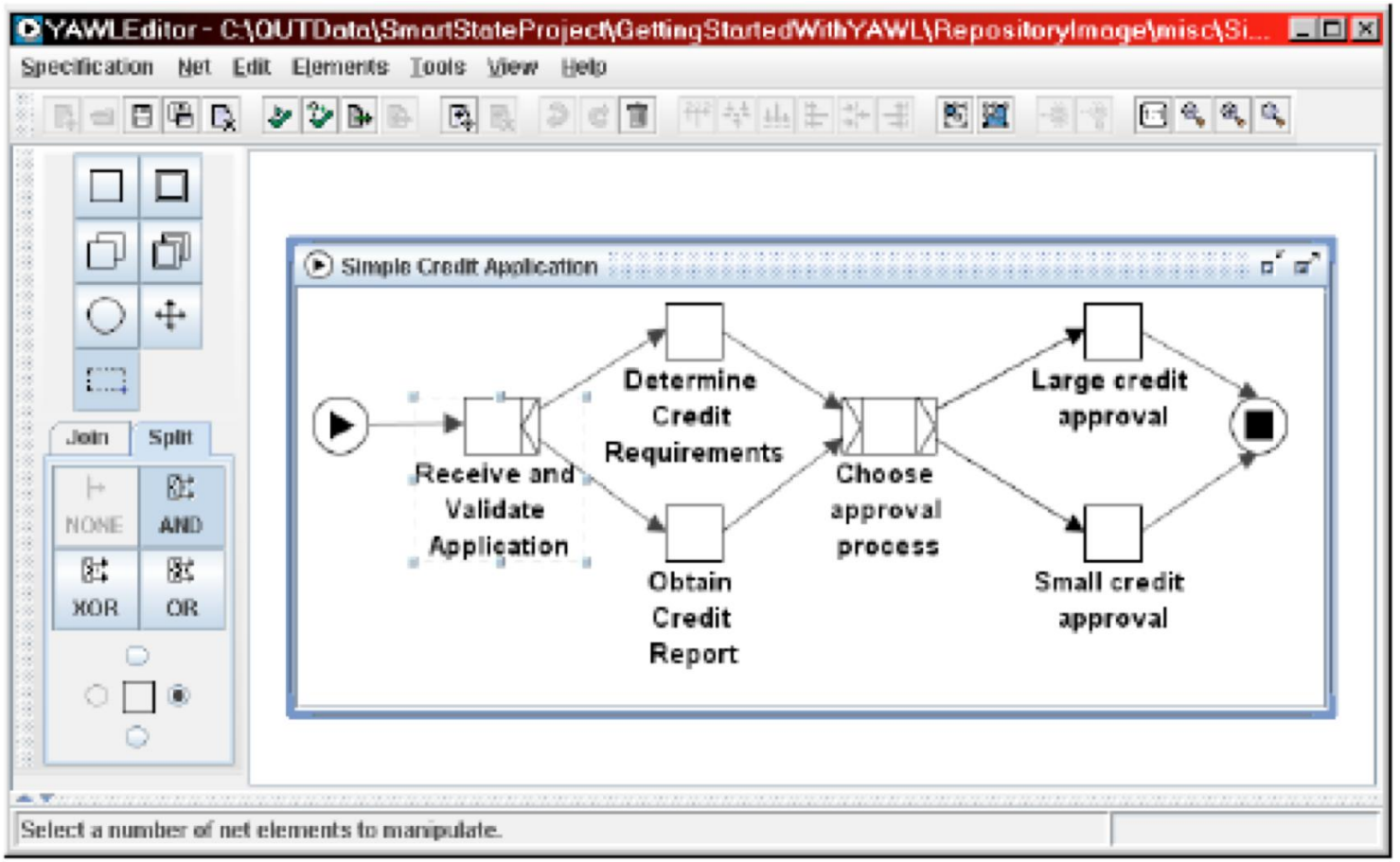
eduWeaver

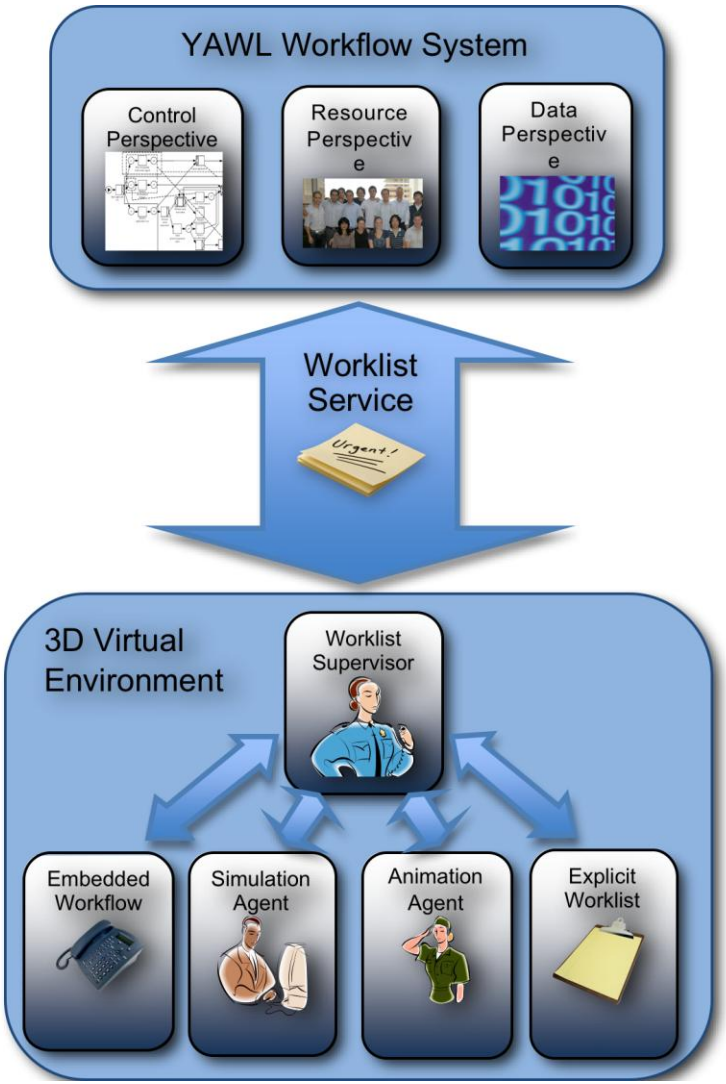
Layer		Contents	Example	
M_3	**Meta-meta-model**	Language to describe the Meta-Model of eduWeaver	ADVISOR®	realised in C++ by Method Engineer
M_2	**Meta-model**	Language to describe Models in eduWeaver	eduWeaver Model Type "Course Map" Course: Attribute 1 … Attribute n Aggregation: Attribute 1 … Attribute n Note: Attribute 1 … Attribute n	realised in ADOscript, JavaScript, ALL by Programmers and Customisers
M_1	**Model**	Language to describe designed Courses of Instructors	Course: Mathematics 1	realised by Instructor with eduWeaver
M_0	**Data**	Data (Attributes) that represent one particular Course of one Instructor	Course Name: Mathematics 1 Description: This course covers … Keywords: Algebra, Geometrics, … Version: 2.5a Owner(s): Prof. James Tobin Date of Creation: December 24, 2003	realised by Instructors and (maybe) Students in Learning Mgt. Platform (→ Collaborative Learning)

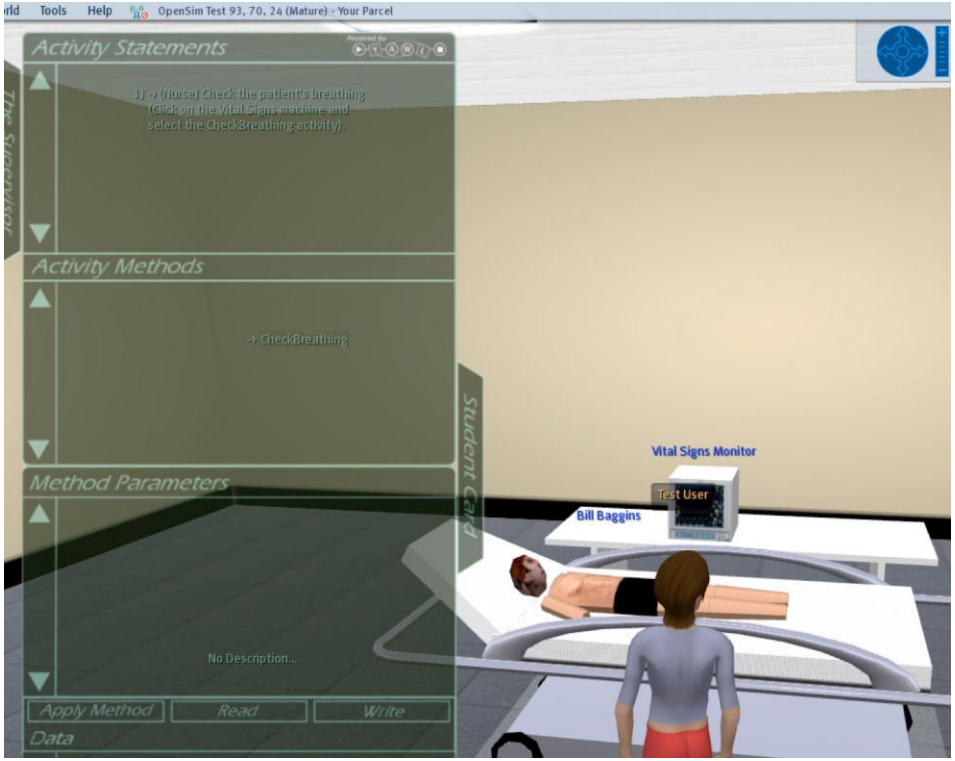
→ is Instance of

SOME OF OUR OWN WORK

Workflow based (e.g. Yawl)




YAWL Workflow System
Control Perspective
Resource Perspectiv e
Data Perspectiv e
Worklist Service
Urgent!
3D Virtual Environment
Worklist Supervisor
Embedded Workflow
Simulation Agent
Animation Agent
Explicit Worklist

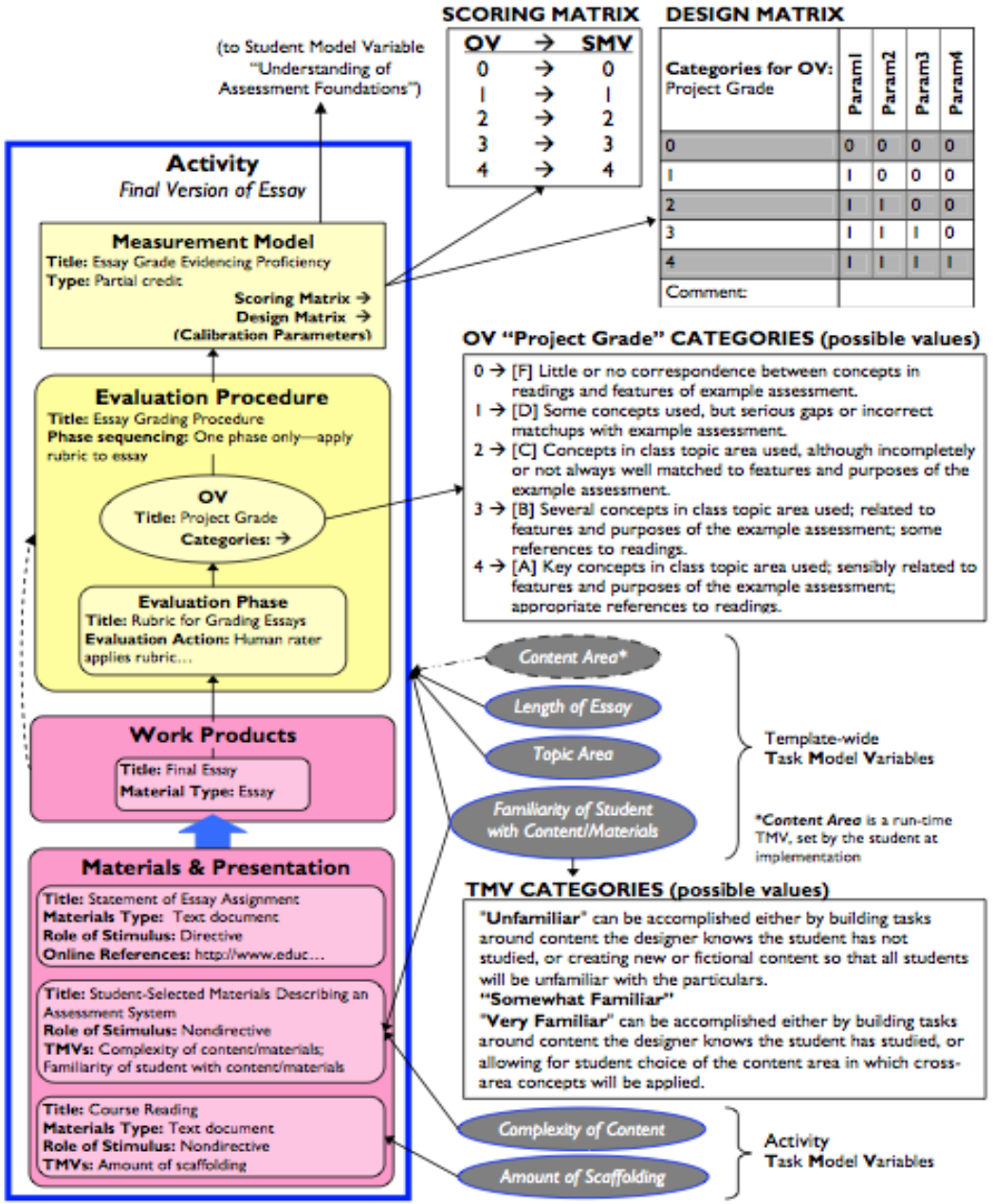

Tools
Help
OpenSim Test 93, 70, 24 (Mature) - Your Parcel
Activity Statements
1) → (Nurse) Check the patient's breathing (Click on the Vital Signs machine and select the CheckBreathing activity).
The Supervisor
Activity Methods
→ CheckBreathing
Method Parameters
No Description...
Apply Method
Read
Write
Data
Student Card
Vital Signs Monitor
Test User
Bill Baggins

NEXT-TELL – A new IP with focus on assessment

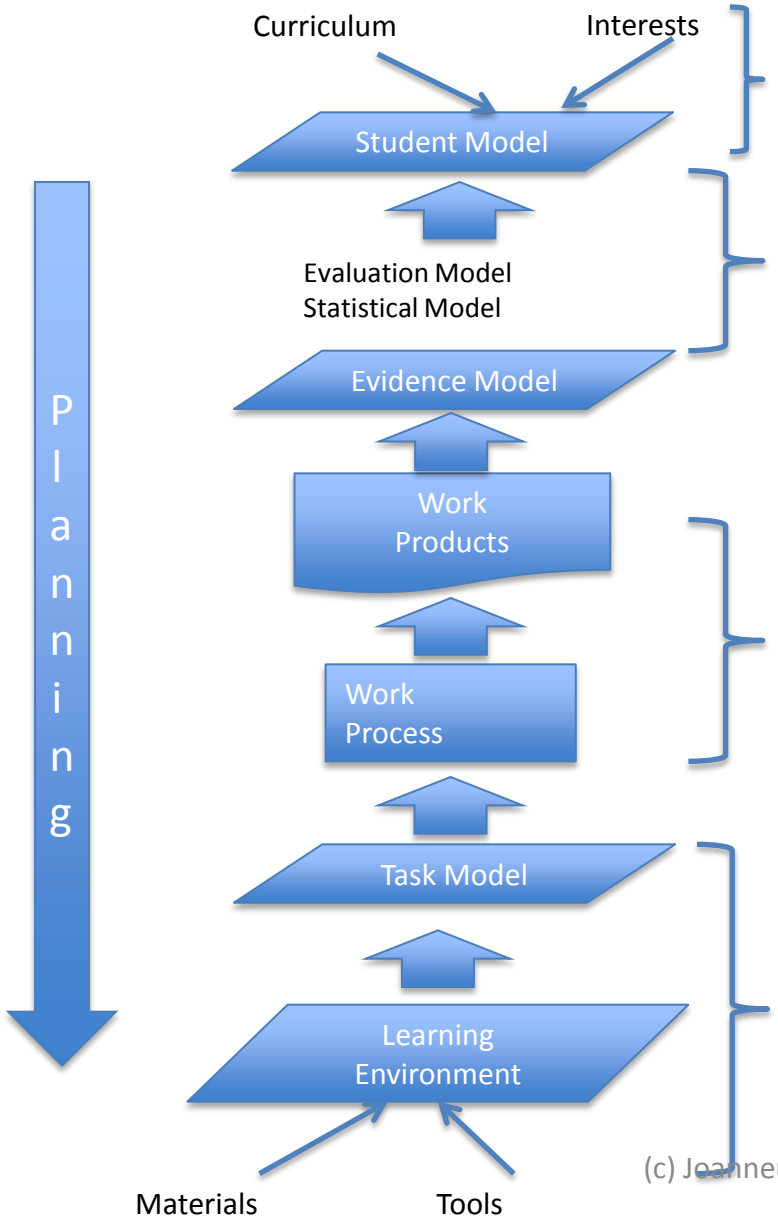
- Main objectives:
  - Model assessment methods
  - Model the process of developing assessment methods
  - Integrated ‘lesson’ design: activities and (formative) assessments
- Builds on existing work on modeling assessment methods: ECD, PADI

PADI Activity Example

Figure 9. Details of "Final Version of Essay" Activity



ECAAD Methodology



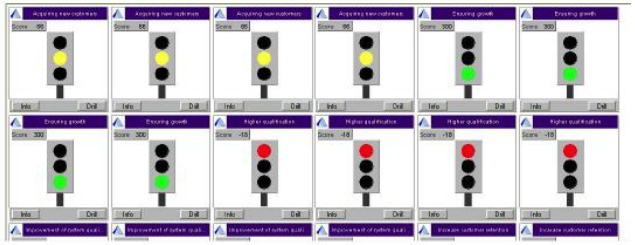
Communicate and Negotiate ← Google Wave, …

Appraise and Assess ← Testing engines, Essay grading tools, …

Capture and Visualize ← Data mining, process Visualisation, …

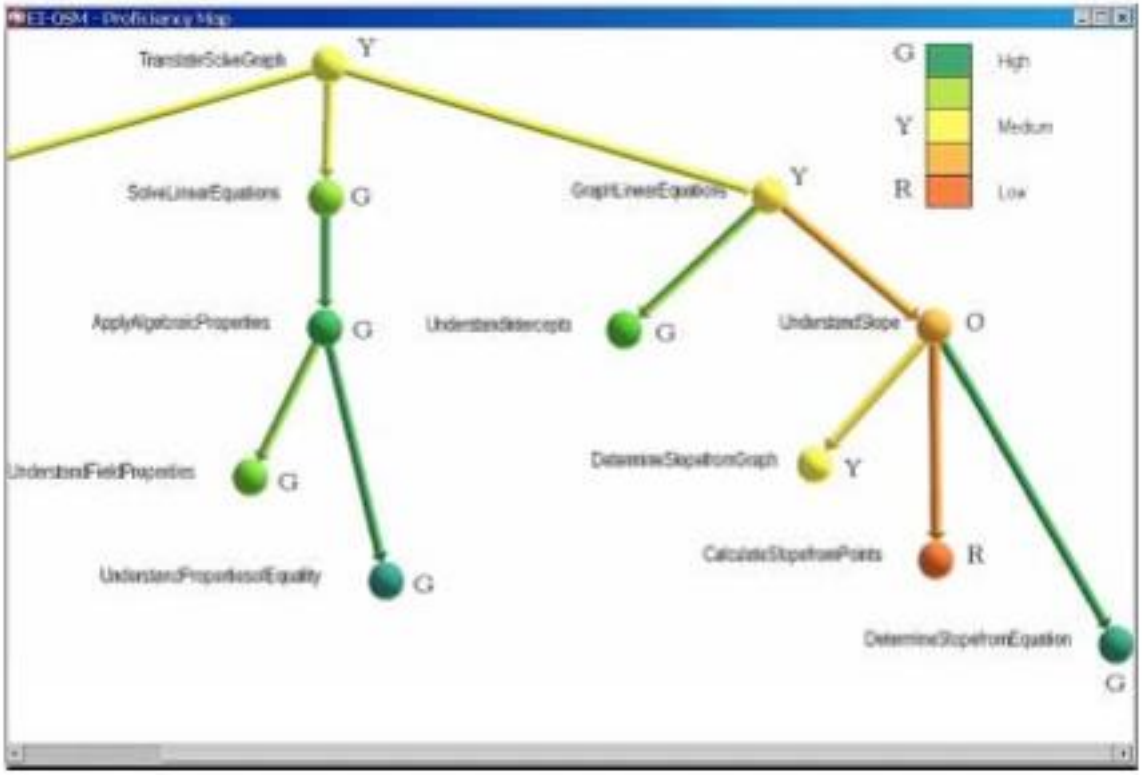
Act, Communicate, Learn ← Specific Apps, Web 2.0 Cloud tools….

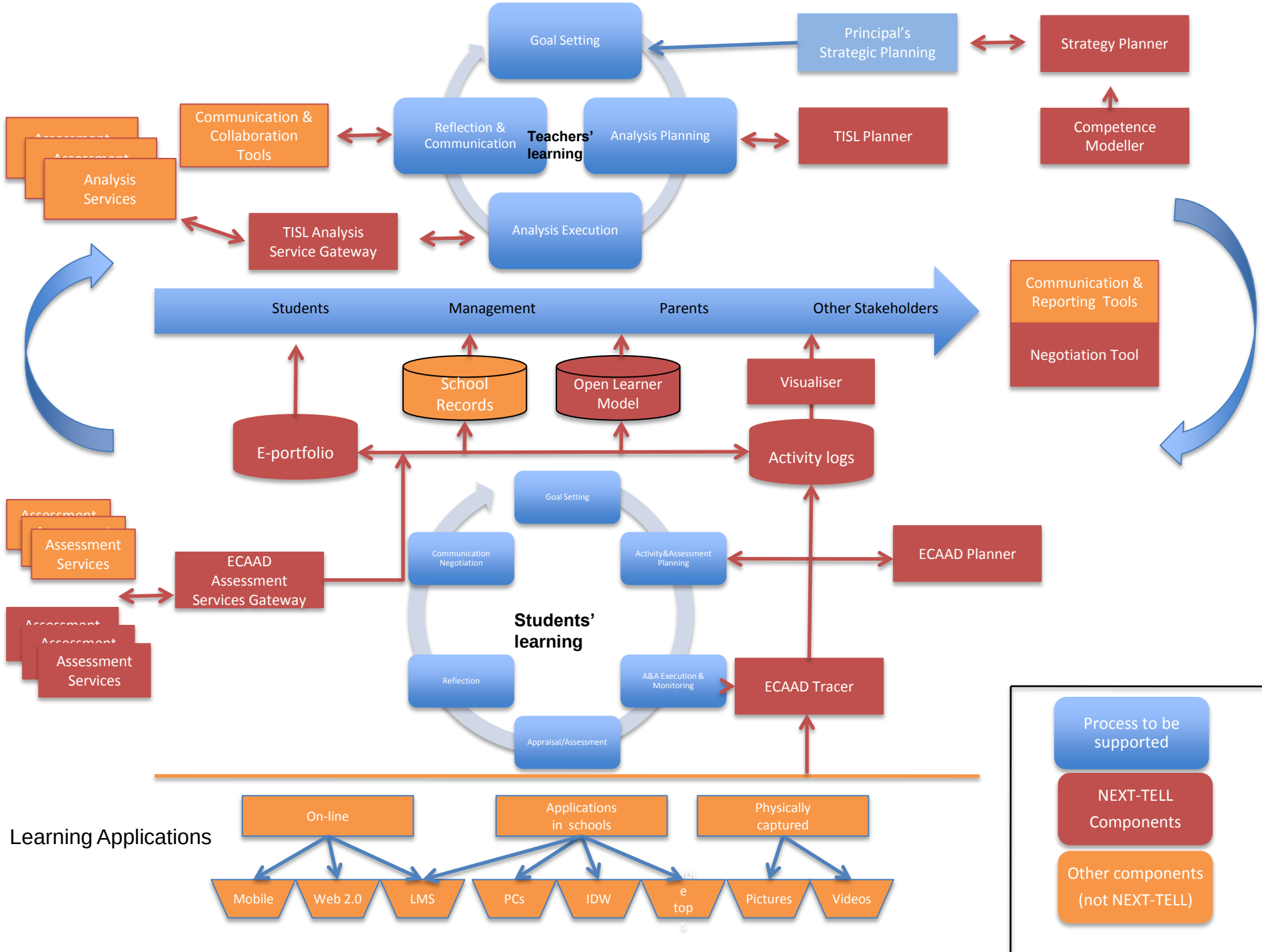
Information on students' learning



Will be provided in form of e.g. "dashboard" overviews….

… and in form of detailed knowledge, skill and competencies graphs:




Goal Setting
Principal's Strategic Planning
Strategy Planner
Communication & Collaboration Tools
Reflection & Communication
Teachers' learning
Analysis Planning
TISL Planner
Competence Modeller
Analysis Services
TISL Analysis Service Gateway
Analysis Execution
Students
Management
Parents
Other Stakeholders
Communication & Reporting Tools
Negotiation Tool
School Records
Open Learner Model
Visualiser
E-portfolio
Activity logs
Goal Setting
Assessment Services
ECAAD Assessment Services Gateway
Communication Negotiation
Activity&Assessment Planning
ECAAD Planner
Students' learning
Assessment Services
Reflection
A&A Execution & Monitoring
ECAAD Tracer
Appraisal/Assessment
Learning Applications
On-line
Applications in schools
Physically captured
Mobile
Web 2.0
LMS
PCs
IDW
Pictures
Videos
Process to be supported
NEXT-TELL Components
Other components (not NEXT-TELL)

Non-technical challenges for LD

- Aspiration vs implementation
  - How to capture pedagogical knowledge in form that invites engagement and change?
- Teaching is a highly reactive practice – routine frequently interrupted by ad-hoc intervention
- Teaching does not have a tradition of externalizing knowledge
  - E.g. shared notational systems
- Teaching is seen as an “art”

Potential Issues

- Granularity:
  - Are workflows the right level? Too detailed?
  - Process models instead?
  - Teachers think more in terms of constraints.
- Aspirational? Motivating?
- Usability
- Who are the users, anyway?
- Organisational acceptance