

ISiS: an intention-oriented model to help teachers in learning scenarios design

Jean-Philippe Pernin *, ** - *Valérie Emin* *, ** - *Viviane Guéraud* *

Laboratoire Informatique de Grenoble – MeTAH TEAM

INRP – EducTice – Lyon

France

Research Fields: Technology Enhanced Learning, Learning scenarios

Computer Science Associated Research Fields: Business process

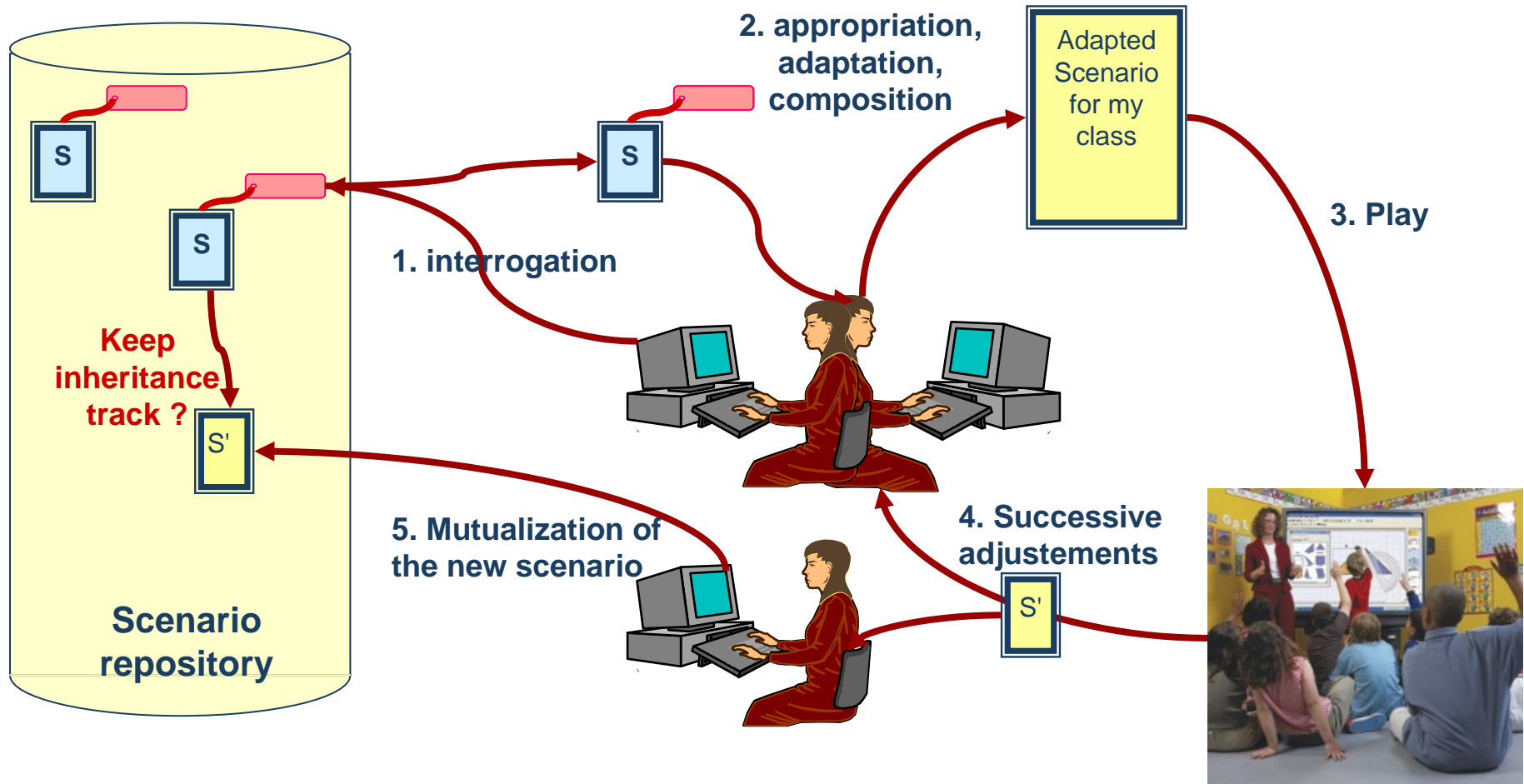
Engineering, Requirements Engineering, Model Driven Engineering

Outlines

- Research context
- Research Goals and Methodology
- LearnElec Scenario and ISiS Model
- ScenEdit Environment
- Conclusion

Use cases : an « ideal » vision

search, find, use, modify and enrich a bank of scenarios...



Research Goals

■ Provide models, methods and tools

- to sustain **design** by eliciting Intentions, using patterns of pedagogical or didactical strategy, situation...
- to favour **sharing** and **reusing** practices of **learning scenarios** using ICT by using common formalism

■ High level models

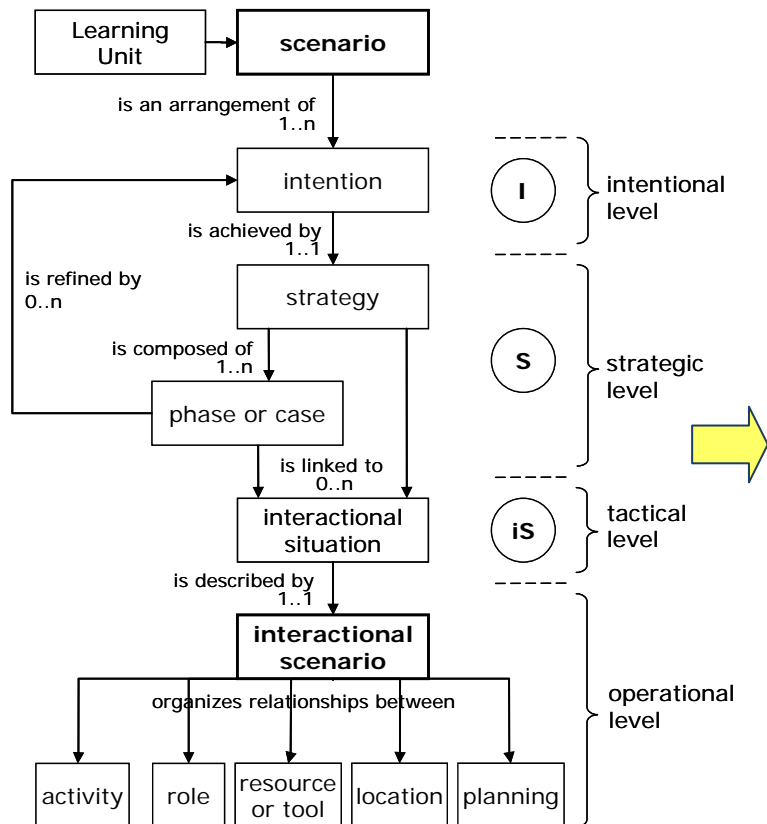
- close to teachers' current representations
- able to be translated towards learning design languages (i.e. IMS LD)

Research Methodology

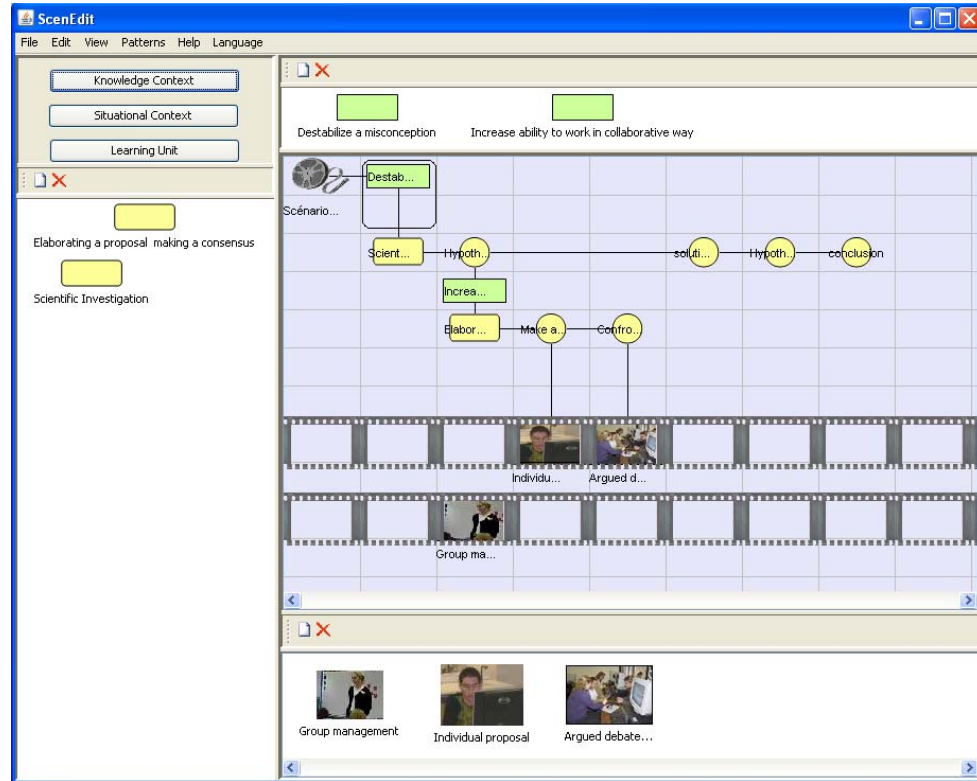
- **Preliminary phase: definition of targeted audience, state of the art in Learning Design, Learning Scenarios, Requirements Engineering...**
- **Phase 1: Analyzing current uses of french institutionals repositories**
- **Phase 2: Co-elaboration of an intention-oriented model**
- **Phase 3: First experimentation of the model (paper forms)**
- **Phase 4: Development of a dedicated authoring tool**
- **Phase 5: Experimentations of the tool with teachers**

ScenEdit Environment

- **ISiS conceptual model :**
structures scenario design describing organization and planned execution of a learning unit.



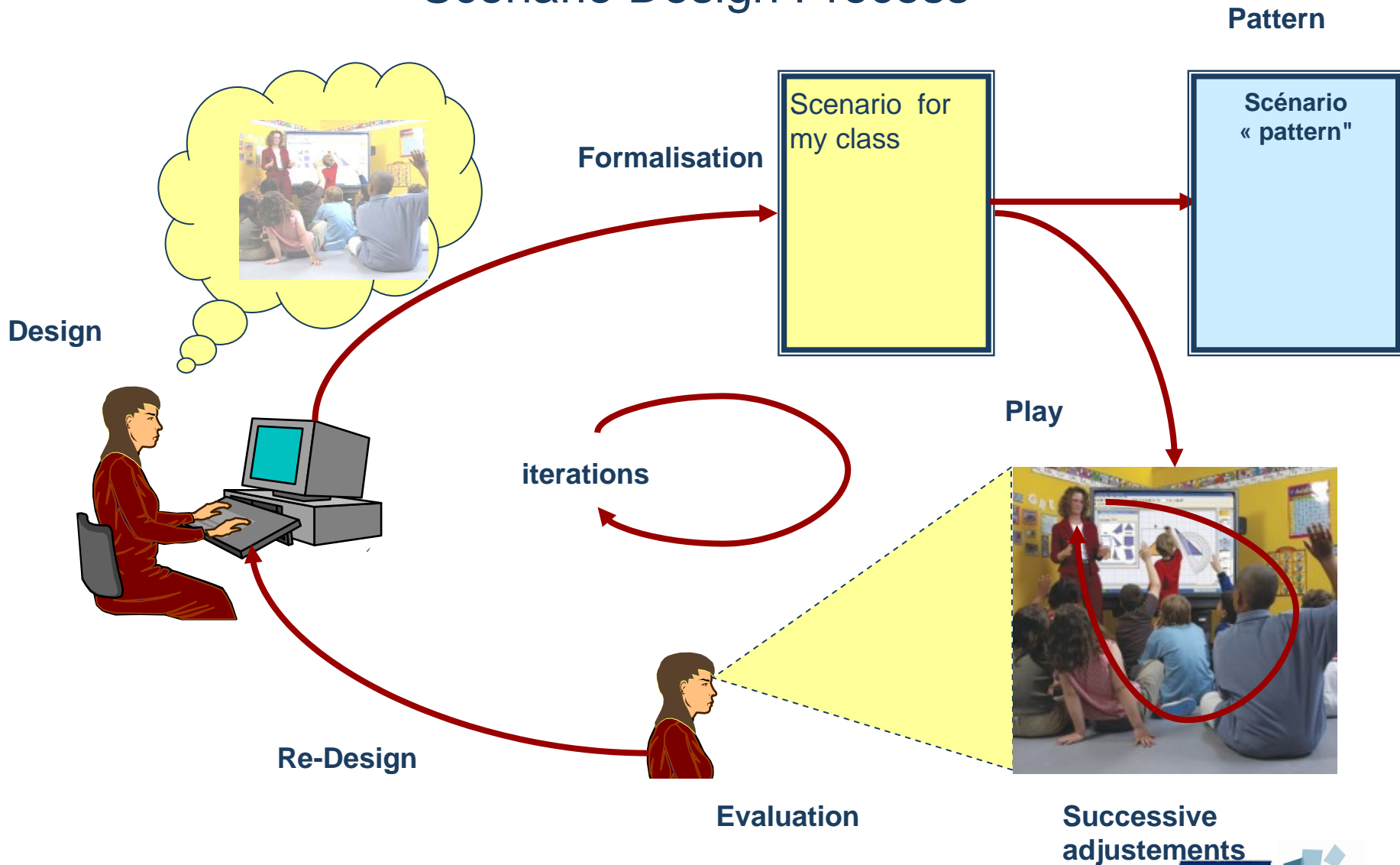
- **ScenEdit :** specific authoring environment dedicated to teachers-designers based on ISiS model.



Outlines

- Research context
- Research Goals and Methodology
- **LearnElec Scenario and ISiS Model**
- ScenEdit Environment
- Conclusion

Scenario Design Process



General description

Subject :

Effective power of a light bulb in a series circuit

Goal : destabilize *misconceptions*

- “the bulb close to the battery shines more than the other one!”*
- “current wears out when crossing a component”*
- “proximity of the battery has an influence on current intensity”*

Actors : student, group, tutor

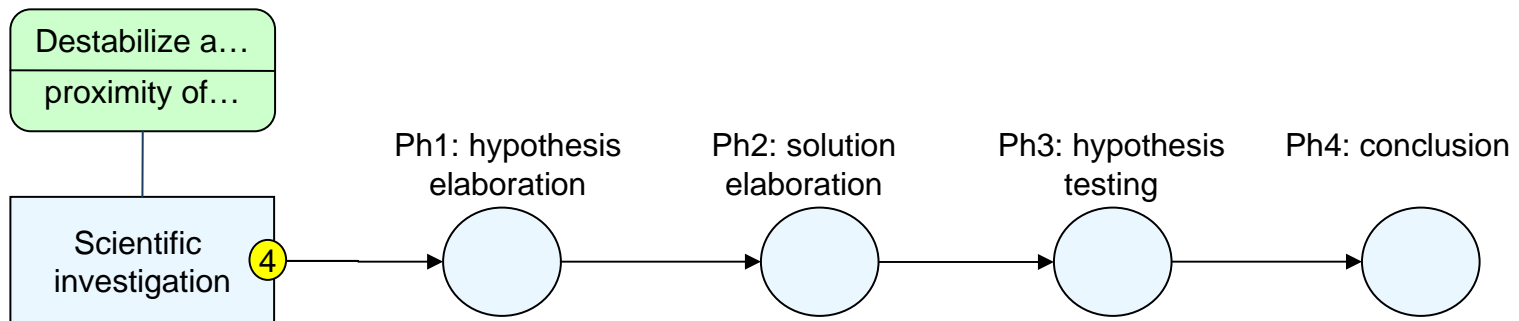


Strategy : alternate individual and collective work with :

- heterogeneous groups*
- nickname (anonymity)*
- debates to solve “conflicts”*
- hypothesis experimentation*
- human tutoring*

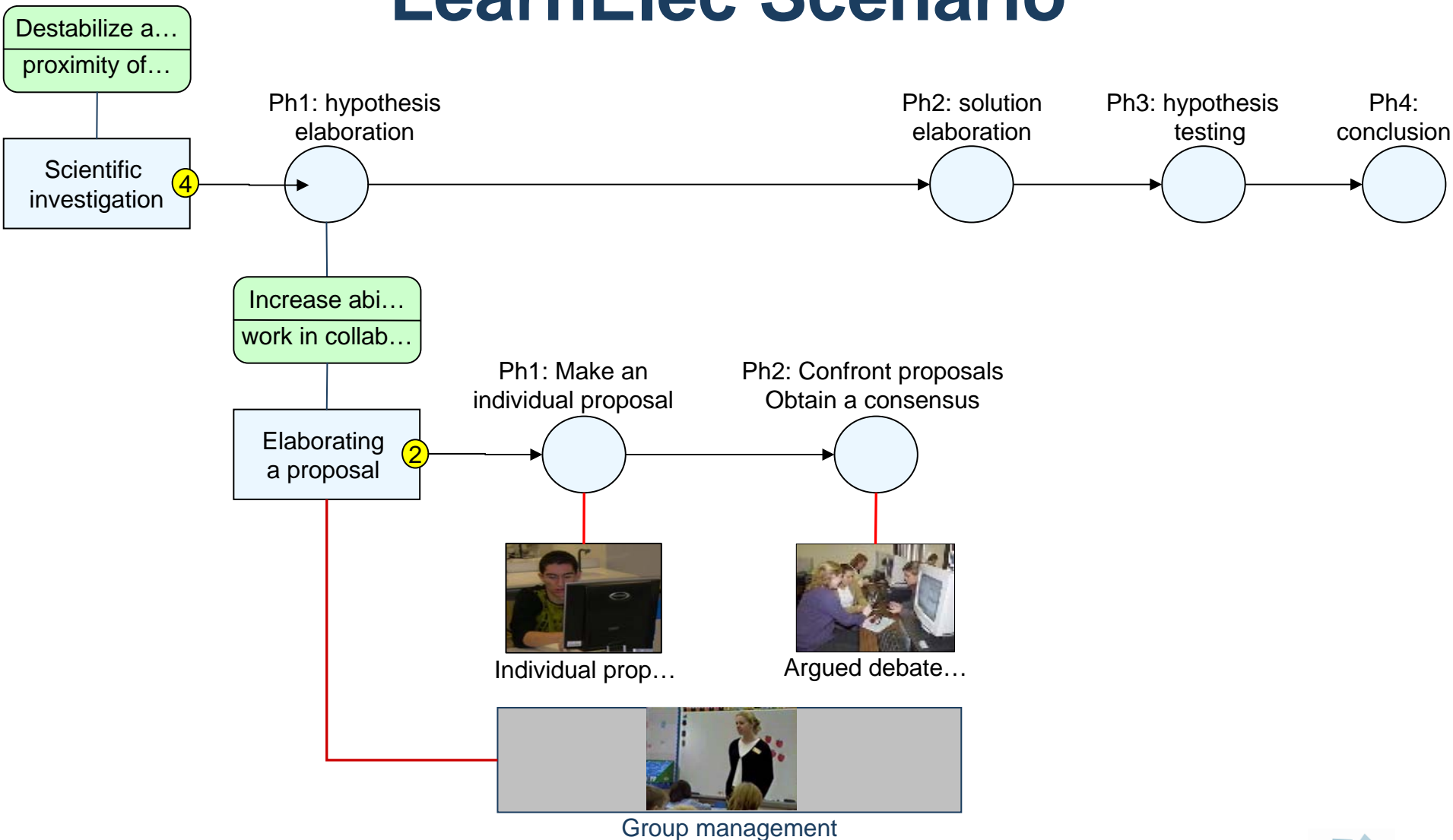
LearnElec Scenario : an ISiS and ScenEdit illustration

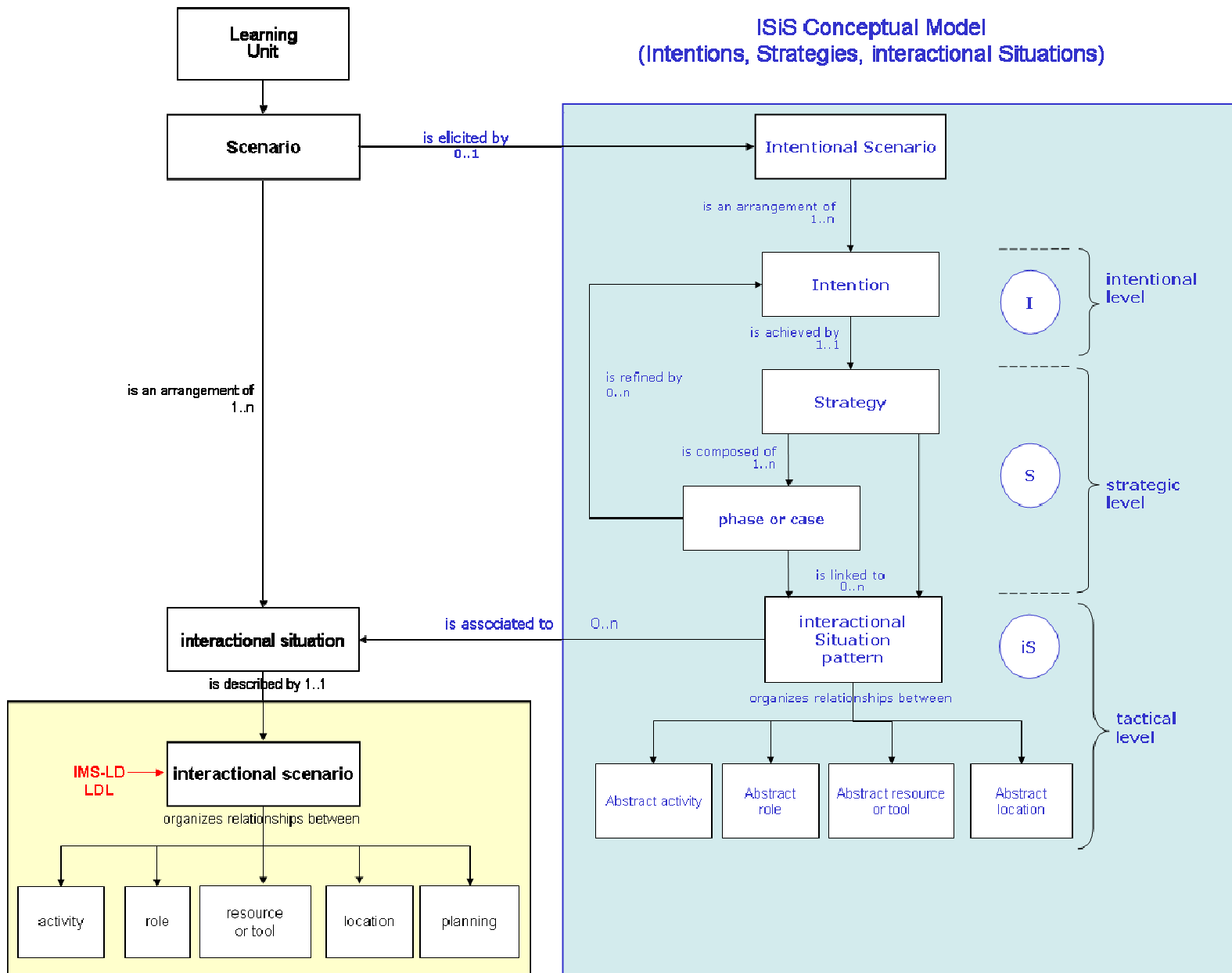
- The first didactical **intention** of the *teacher* is to **destabilize a misconception** : *proximity of the battery has an influence on current intensity*
- This intention will be implemented with a specific didactical **strategy** called “scientific investigation” composed of four **phases**: hypothesis elaboration, solution elaboration, hypothesis testing and conclusion



Intention and strategy implemented with ISiS model

LearnElec Scenario





ISiS Forms : First Experimentations

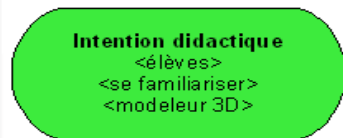
Description du scénario pédagogique

Nom unité apprentissage :

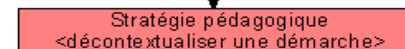
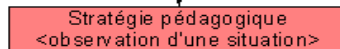
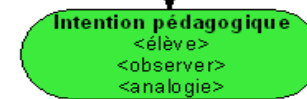
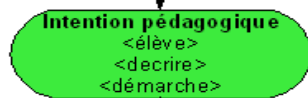
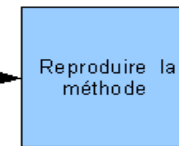
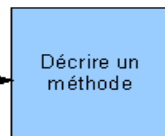
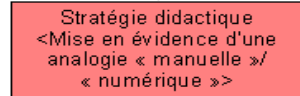
Auteur(s) :

Page
.. / ..

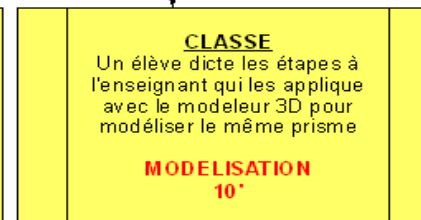
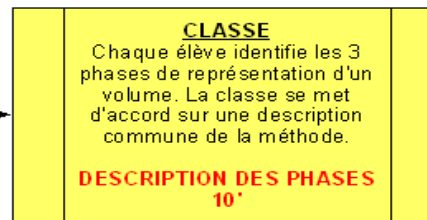
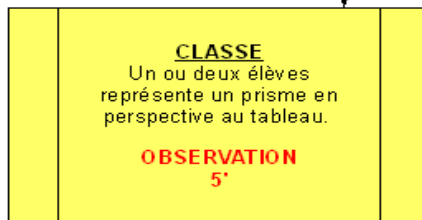
Intentions et objectifs



Stratégies, Phases ou cas



Situations d'interaction



Poursuivre si nécessaire sur une autre page du même type

- Elève
- Groupe d'élèves
- Classe entière
- Professeur
- Tuteur
- Autres(s):
- ...

- | | |
|---|---|
| Salle de cours <input type="checkbox"/>
Salle informatique <input type="checkbox"/>
Salle de chimie <input type="checkbox"/>
Salle de TP <input checked="" type="checkbox"/>
Atelier <input type="checkbox"/> | Salle de sport <input type="checkbox"/>
Terrain de sport <input type="checkbox"/>
Autre salle spécialisée <input type="checkbox"/>
... <input type="checkbox"/>
.. <input type="checkbox"/> |
| Dans l'établissement | |

- | |
|---|
| <input type="checkbox"/> Sortie de terrain
<input type="checkbox"/> Domicile
<input type="checkbox"/> N'importe où
<input type="checkbox"/> Autre lieu : _____ |
| Hors l'établissement |

- Soi-même
- Elève
- Groupe d'élèves
- Classe entière
- Professeur
- Tuteur
- Autres(s):
- ...

OU ?

QUI ?

Décrivez la situation en vous aidant si nécessaire d'une illustration graphique

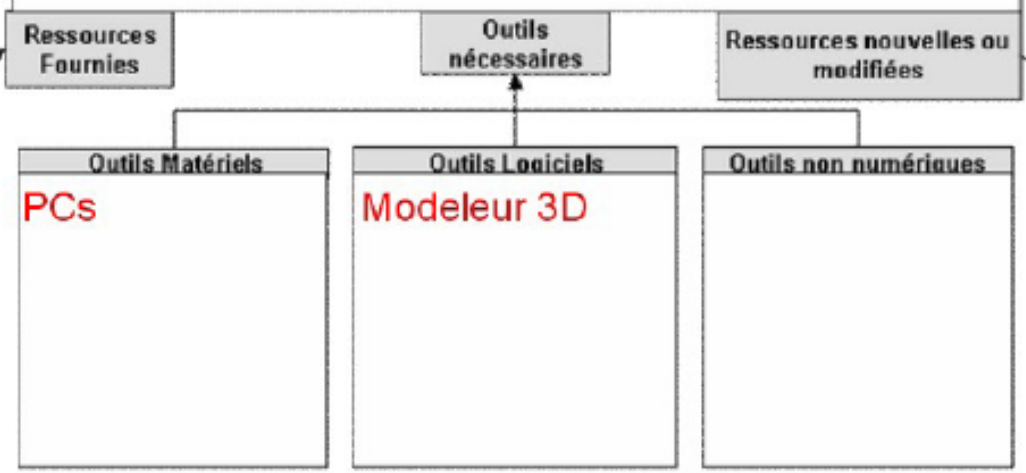
POUR QUI ?

Les élèves mettent en oeuvre les 2 démarches de conception vue en première partie (Extrusion et révolution) pour modéliser la pièce sous le modèleur 3D.

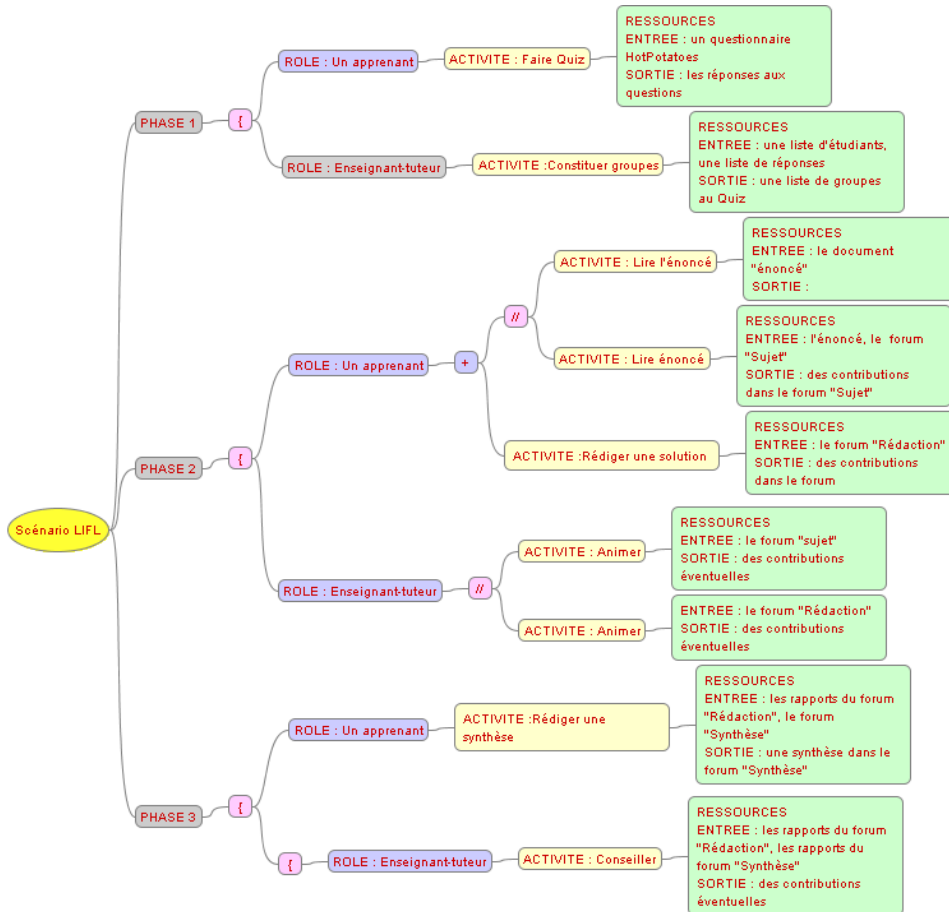
Cette modélisation se réalise en binôme.

Une perspective à main levée de la pièce en question

La pièce modélisée et aux cotes.



Scenedit Tools : First Experimentations



Freemind

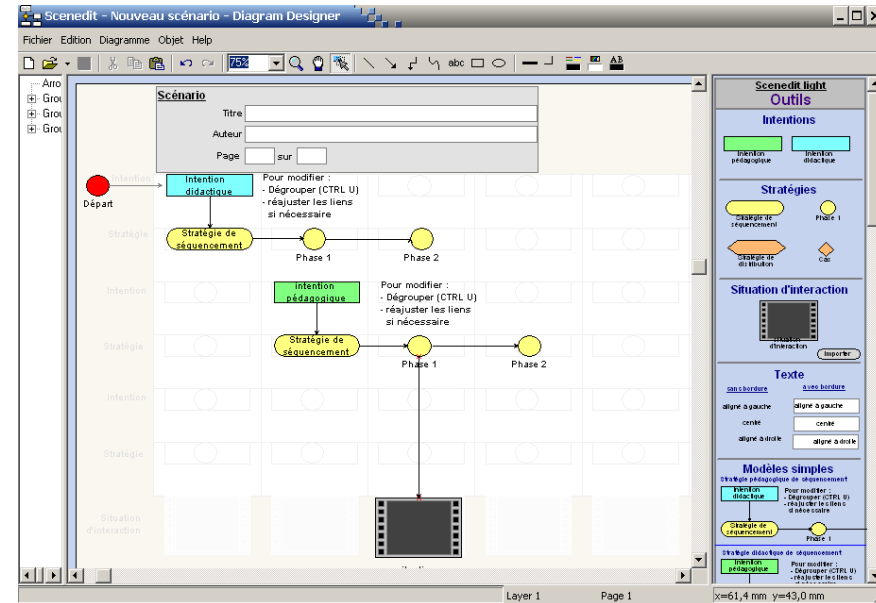


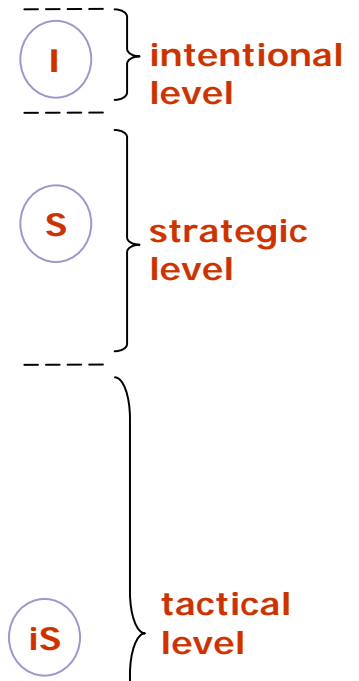
Diagram Designer

Outlines

- Research context
- Research Goals and Methodology
- LearnElec Scenario and ISiS Model
- **ScenEdit Environment**
- Conclusion

ScenEdit First Prototype

The screenshot shows the ScenEdit software interface. On the left, there is a sidebar with three main sections: 'Knowledge Context' (with buttons for 'Knowledge Context', 'Situational Context', and 'Learning Unit'), 'Elaborating a proposal making a consensus', and 'Scientific Investigation'. The main workspace contains a flowchart on a grid. At the top, two green boxes represent goals: 'Destabilize a misconception' and 'Increase ability to work in collaborative way'. The flowchart starts with a 'Scénario...' box, leading to 'Destab...', then 'Scient...', 'Hypoth...', 'soluti...', 'Hypoth...', and 'conclusion'. Below this, there are boxes for 'Increa...', 'Elabor...', 'Make a...', and 'Contro...'. A filmstrip below the flowchart shows three scenes: 'Individu...', 'Argued d...', and 'Group ma...'. At the bottom, there are three image thumbnails labeled 'Group management', 'Individual proposal', and 'Argued debate...'. The interface includes a menu bar (File, Edit, View, Patterns, Help, Language) and window controls.



Scenedit Web Version 0.1

Scenedit Editor : LearnElec fr (Press F11 to full screen)

Scenario	Context	ISIS Components
Edition	Properties	

[Back to home](#)
 You are connected as : **emin**
 Scenedit version: 17 April 2009 - 19:44

Intentions
 Strategies
 Situations

- ▲ Scenario : Scenario LearnElec
 - ▲ Step
 - student-destabilize-proximity of the battery has an influence on current intensity
 - ▲ Strategy: scientific inquiry in 4 phases
 - ▲ hypothesis elaboration
 - ▲ Step
 - student-increase-the ability to work in a collaborative way
 - ▲ Strategy: elaborating a proposal by making a consensus
 - ▲ Make an individual proposal
 - Individual proposal on a MCQ
 - ▲ Confront proposals. Obtain a consensus
 - Argued debate on a forum with consensus

Scenario tools

- Add Step
- Import intention
- Add intention
- Import a strategy
- Add a strategy
- Import an interactional situation
- Add an interactional situation
- Update
- ✗ Delete

Actual Work

- Formalization of patterns
 - With Associated teachers in various subject matters (English, German, History, Technological Fields)
 - From literature in Educational Fields
- Experimentation of ScenEdit Tool : qualitative inquiry
 - Group of teachers in Technological Fields in Lycée Aristide Briand of St-Nazaire
 - teachers in Secondary school in Lyon and Grenoble

Conclusion and Perspectives

- Need some complementary tools to manage scenarios
 - Scenarios edition
 - Provide best practices and patterns
 - Favour diversity of design approaches
 - Sharing and mutualization tools
 - Based on communities of practice
 - Using key informations defined by the designers to index scenarios

Publications

- Emin, V., Pernin, J.P., Guéraud V.: Goal-oriented authoring approach and design of learning systems, RIGIM Workshop in ER 2008, Barcelone (2008)
- Pernin, J.P., Emin, V., Guéraud V.: ISiS: an intention-oriented model to help teachers in learning scenarios design, European Conference on Technology Enhanced Learning 2008, Maastricht (2008)
- Emin V.: ScenEdit: an authoring environment for designing learning scenarios, ICALT'08, IEEE International Conference on Advanced Learning Technologies, Santander, (2008)
- Pernin J.P., Emin V., Guéraud V., Intégration de la dimension utilisateur dans la conception, l'exploitation et l'adaptation de systèmes pour l'apprentissage, atelier PeCUSI, dans le cadre de la conference INFORSID, Fontainebleau 2008
- Emin V., Modèle et environnement « métier » pour la création, le partage et la réutilisation de scénarios pédagogiques, Rencontres Jeunes Chercheurs en EIAH, Lille 2008
- Emin V., Pernin J.P., Prieur M., Sanchez E., Stratégies d'élaboration, de partage et de réutilisation de scénarios pédagogiques, Revue internationale des technologies en pédagogie universitaire vol.5, <http://www.profetic.org/revue>, 2008.
- Pernin J.P., Emin V., 2006, *Evaluation des pratiques de scénarisation de situations d'apprentissage : une première étude*, actes du colloque TICE Méditerranée 2006, Genova (Italie), http://isdsm.univ-tln.fr/PDF/isdsm25/PerninEmin_TICE2006.pdf

Thank you for your attention 😊

Any questions

???

Valérie EMIN

Valerie.emin@imag.fr

ScenEdit Project

<http://eductice.inrp.fr/EducTice/projets/scenario/scenedit>

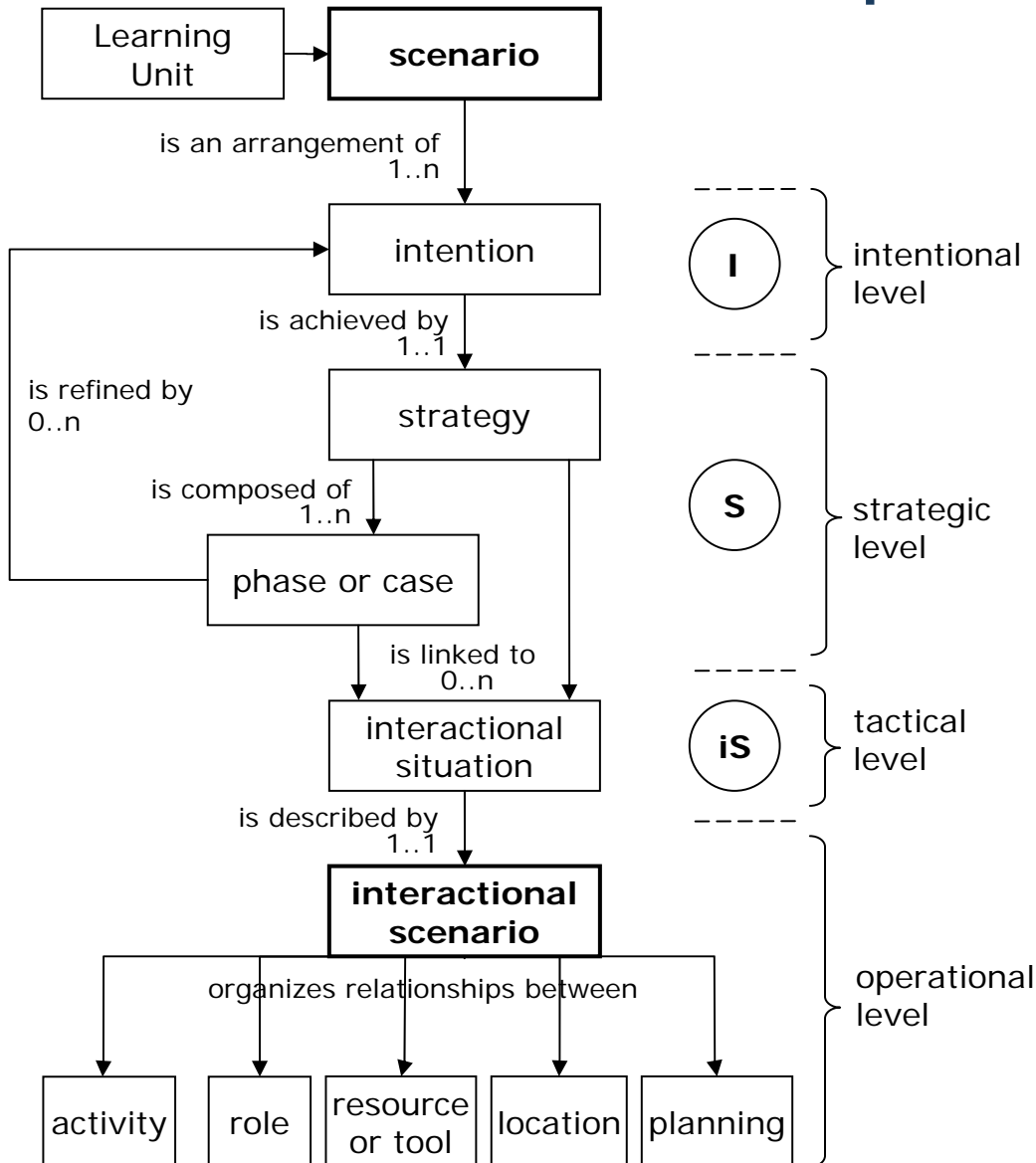
Personal Page

<http://www.noe-kaleidoscope.org/people/emin/>

Publications

- Emin, V., Pernin, J.P., Guéraud V.: Goal-oriented authoring approach and design of learning systems, RIGIM Workshop in ER 2008, Barcelone (2008)
- Pernin, J.P., Emin, V., Guéraud V.: ISiS: an intention-oriented model to help teachers in learning scenarios design, European Conference on Technology Enhanced Learning 2008, Maastricht (2008)
- Emin V.: ScenEdit: an authoring environment for designing learning scenarios, ICALT'08, IEEE International Conference on Advanced Learning Technologies, Santander, (2008)
- Pernin J.P., Emin V., Guéraud V., Intégration de la dimension utilisateur dans la conception, l'exploitation et l'adaptation de systèmes pour l'apprentissage, atelier PeCUSI, dans le cadre de la conference INFORSID, Fontainebleau 2008
- Emin V., Modèle et environnement « métier » pour la création, le partage et la réutilisation de scénarios pédagogiques, Rencontres Jeunes Chercheurs en EIAH, Lille 2008
- Emin V., Pernin J.P., Prieur M., Sanchez E., Stratégies d'élaboration, de partage et de réutilisation de scénarios pédagogiques, Revue internationale des technologies en pédagogie universitaire vol.5, <http://www.profetic.org/revue>, 2008.

ISiS Conceptual Model



Program, Knowledge, competencies, know-how, etc.



Pedagogical approach, succession of phases
Differentiation :
set of cases



IMS-LD, LDL...

ScenEdit Environment Architecture

