

CEPIAG_III

AN ENVIRONMENT (VIRTUAL LAB) TO SIMULATE PSYCHOGENETICAL CONSTRUCTIONS

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AGENDA

- Who are we ?
- What do we try to achieve ?
- CEPIAG_III – virtual laboratory
 - Technological framework
 - Domain specific language
 - User interaction
 - Virtual machine - simulation
 - Activity log and encephalogram
 - Where are we ?
- Questions

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WHO ARE WE ?

CEPIAG is a private center of research supported by Jean Piaget Foundation for psychological and epistemological research (www.fondationjeanpiaget.ch).

CEPIAG extends the researches began by Jean Piaget, Seymour Papert and Guy Cellérier within the International Center for Genetic Epistemology.

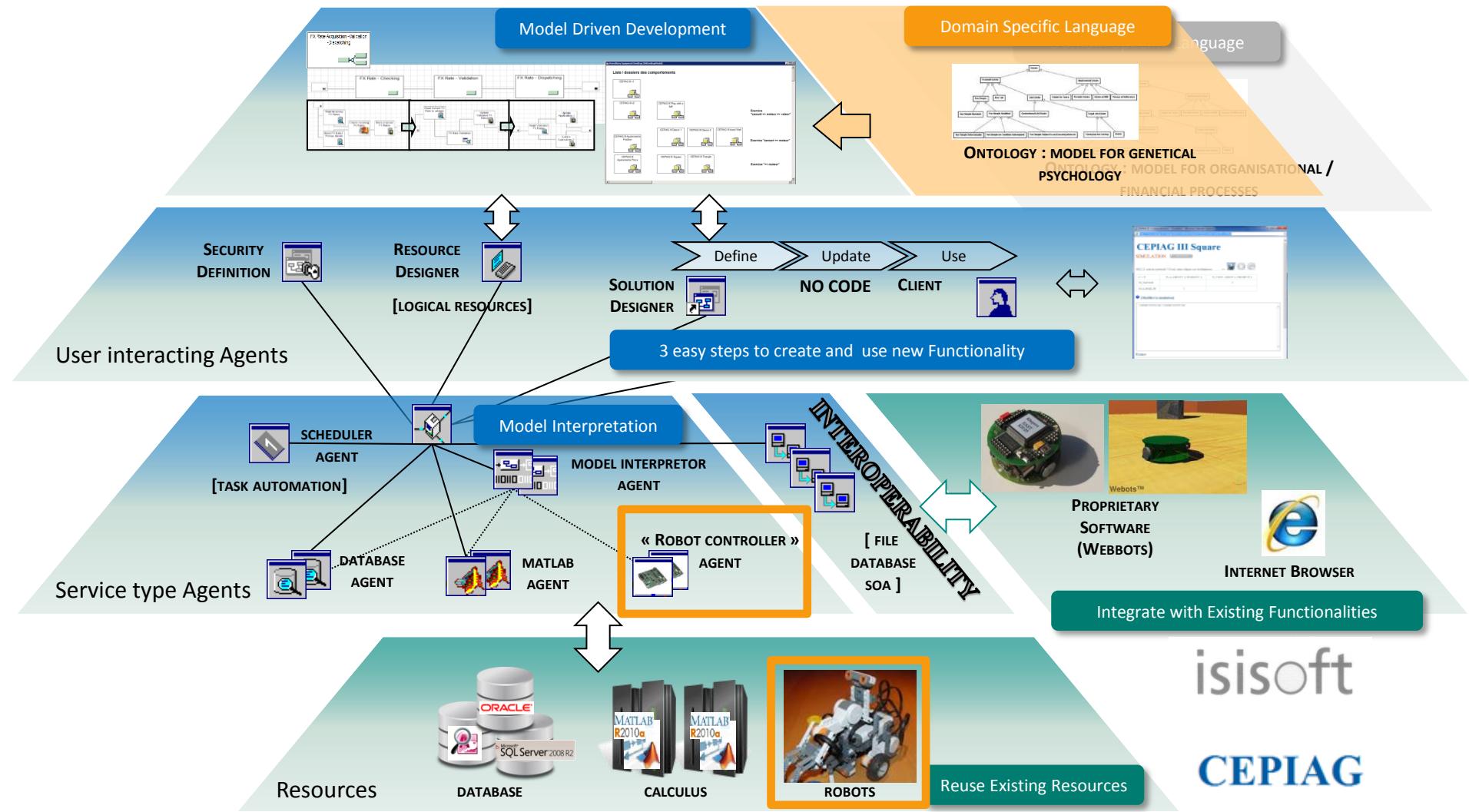
CEPIAG_III - PROJECT

WHAT DO WE TRY TO ACHIEVE ?

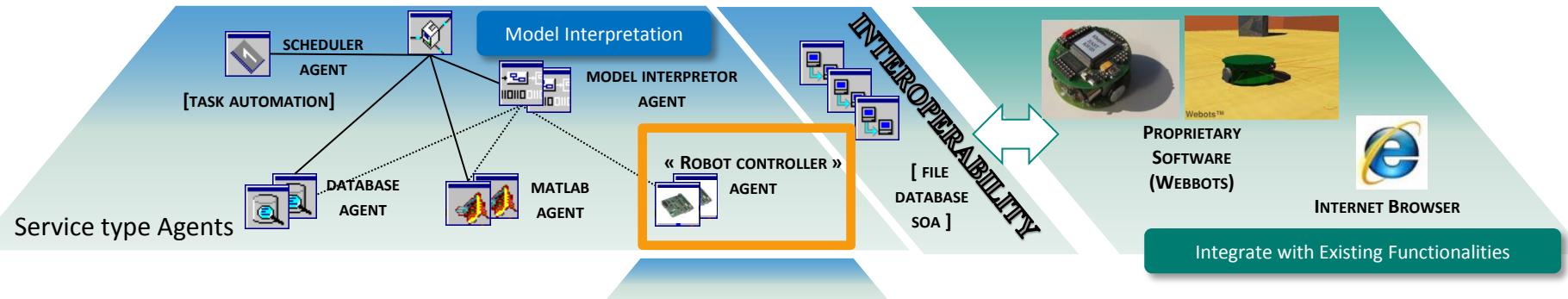
The goal is to allow psychologists, engineers and computer scientists
« to think with and to think through » theories such as:

- genetical psychology, or,
 - animal ethology.
- To achieve this goal, we are trying to provide them with a virtual laboratory where it is possible to define and simulate psychogenetical constructions.

CEPIAG_III TECHNOLOGICAL FRAMEWORK MODEL DRIVEN ARCHITECTURE FOR GENETICAL PSYCHOLOGY



CEPIAG_III TECHNOLOGICAL FRAMEWORK MODEL DRIVEN ARCHITECTURE: « ROBOT CONTROLLER »



Psychogenetical Simulation

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Cybernétique Epistémologie Psychologie Intelligence Artificielle Génétiques

- Agendators or Meta-schèmes
- Effector schèmes
- Assimilation
- Accommodation
- Equilibration, [...]

Server Part

Customizable MATLAB functions



INTEROPERABILITY

Physical interaction with the robot

- Bluetooth
- Motors interaction (start, stop)
- Sensors data reading

Client Part

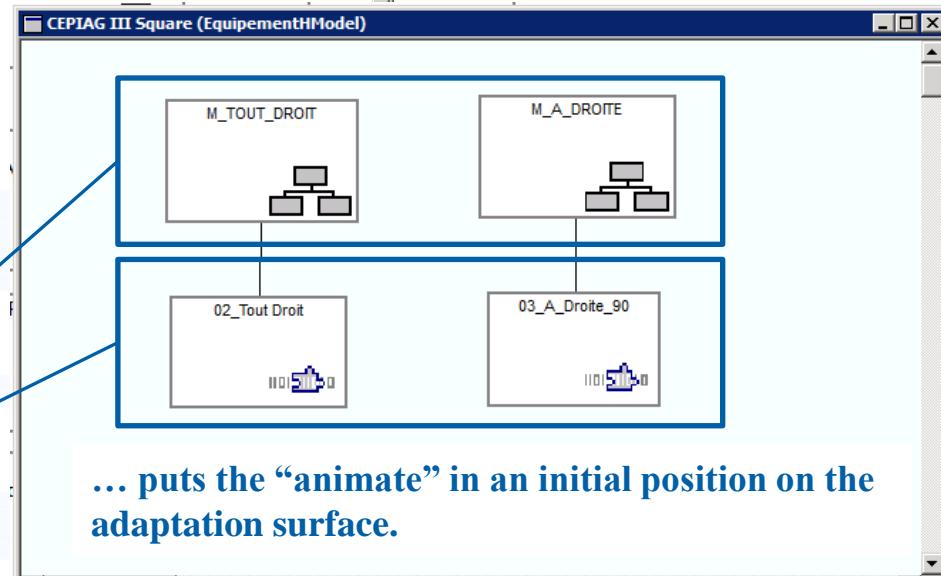
(may run on a PC, tablet or smartphone)

CEPIAG_III DOMAIN SPECIFIC LANGUAGE ONTOLOGY: MODEL FOR GENETICAL PSYCHOLOGY

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Agendators (meta-schèmes) / Effector schèmes:
internal structure independent of the environment ...

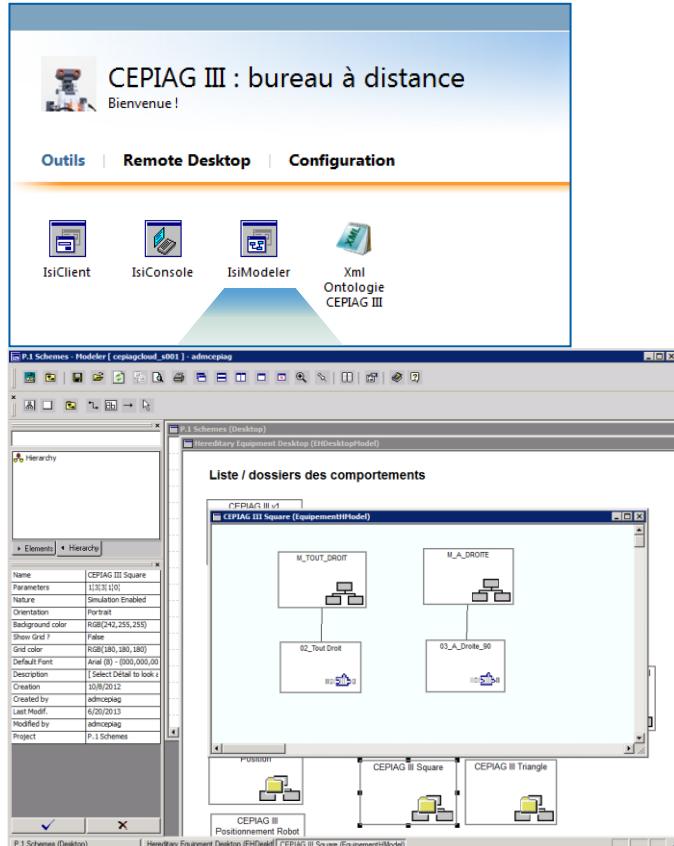


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CEPIAG_III TECHNOLOGICAL FRAMEWORK

USER INTERACTION

Define ...



... and simulate ...

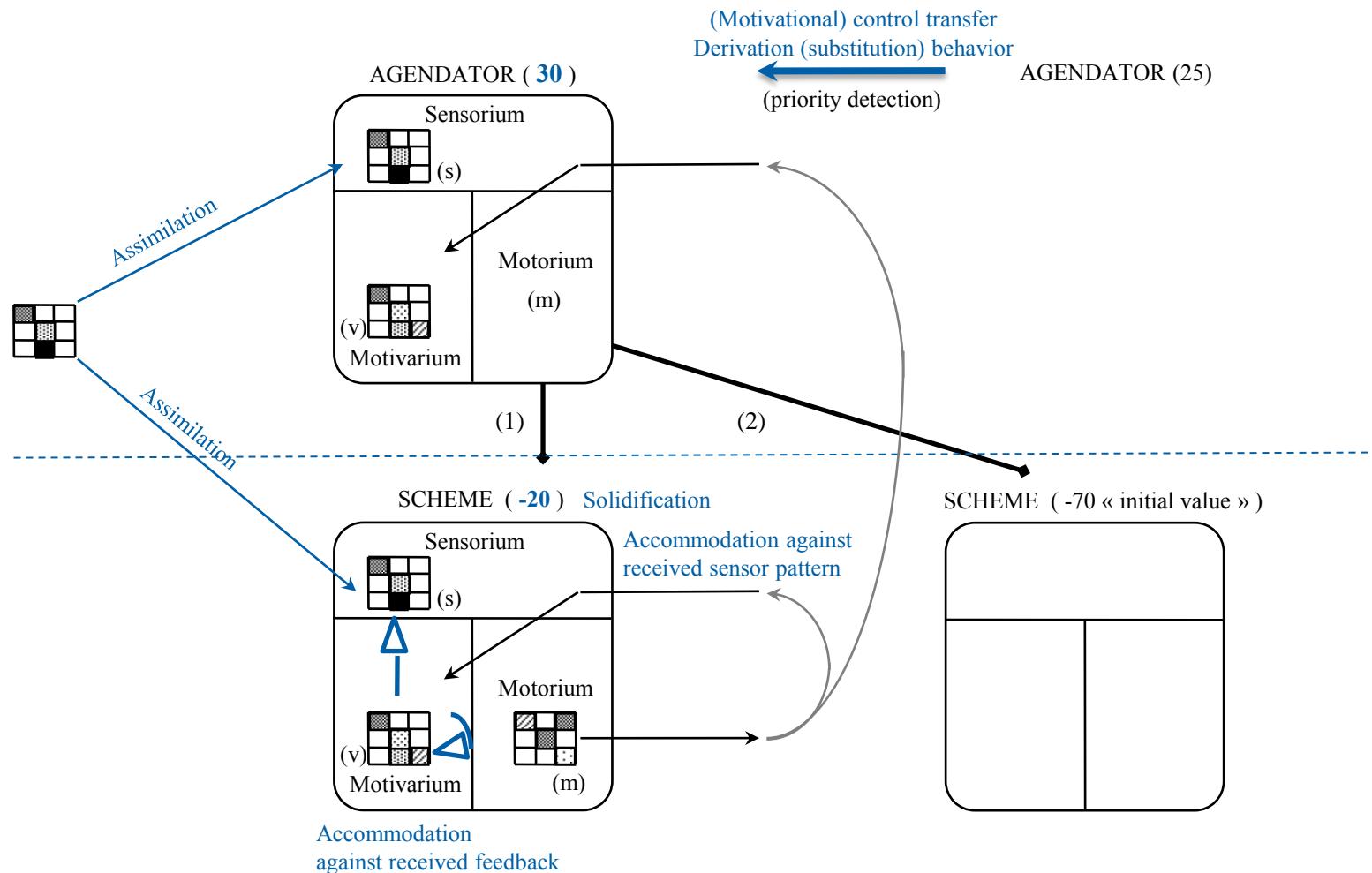


... and watch !

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CEPIAG_III VIRTUAL MACHINE

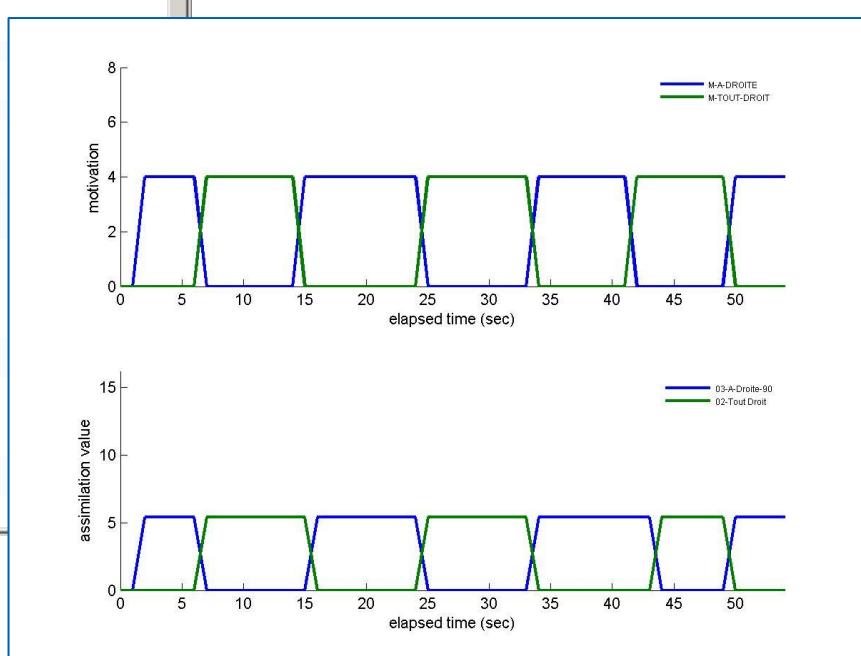
“ROBOT AGENT”: SIMULATION OF A SOCIETY OF SCHEMES



CEPIAG_III VIRTUAL MACHINE “ROBOT AGENT”: ACTIVITY LOG AND ENCEPHALOGRAM

Outputs to analyze / explain observed behaviors:

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    schemes
      scheme
      scheme
    sensorpattern
    meta-schema
    meta-schema
    meta-schema-activity
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      state
      timestamp
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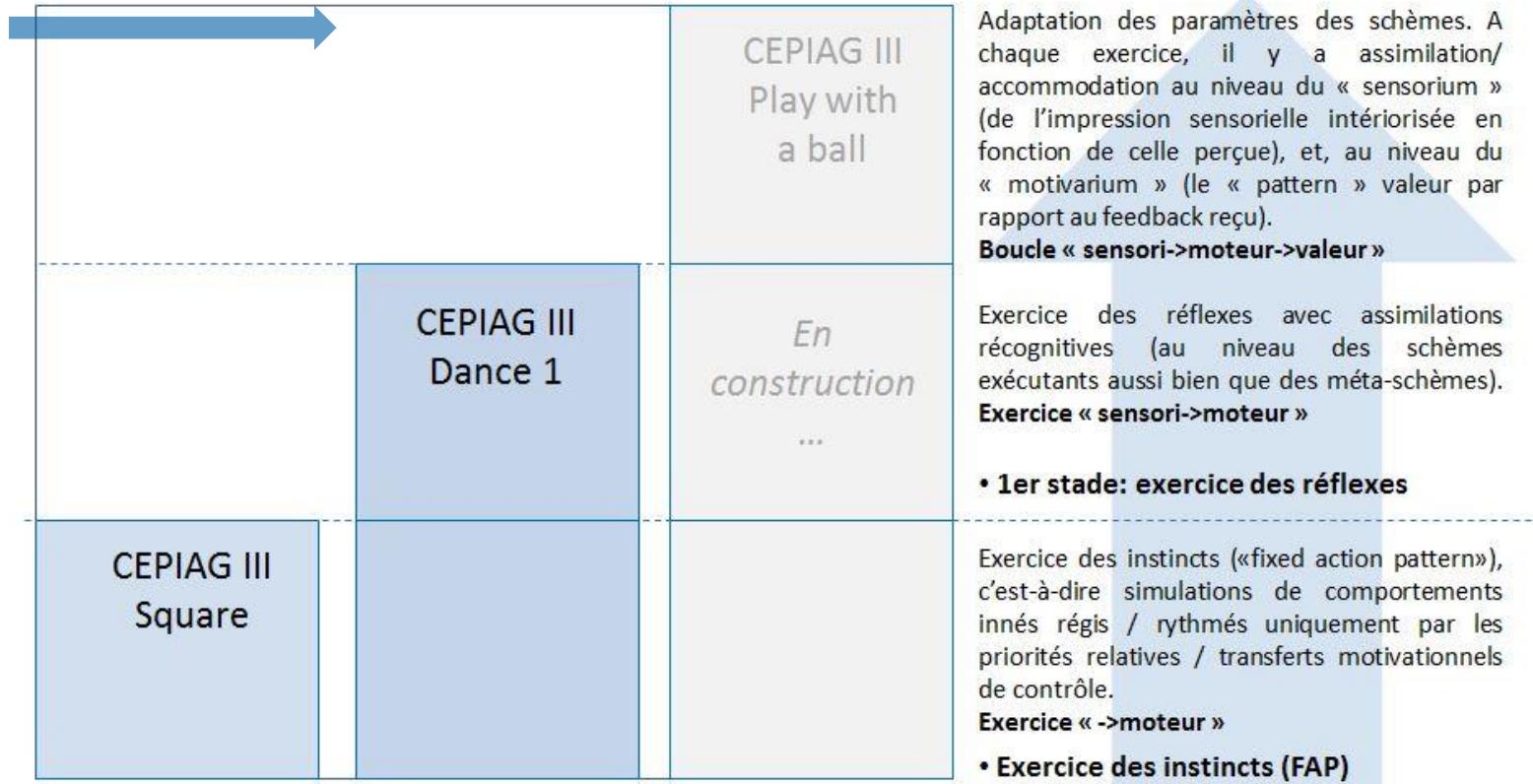


(Activity log in XML format)

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CEPIAG_III – PSYCHOGENETICAL CONSTRUCTIONS

WHERE ARE WE ?



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QUESTIONS



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