A Personalization Web Service for Curricula Planning and Validation

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We present a service-oriented personalization system, set in an educational framework, based on a semantic annotation of courses, given at a knowledge level. The system supports reasoning-based curriculum sequencing and validation:

- curriculum planning: building personalized curricula, formalized by means of an action theory. Classical planning techniques are adopted, which take into account both the student’s initial knowledge (context) and her learning goal.
- curriculum validation: verifying the compliance of curricula w.r.t. the course design goals.

Course design goals are specified in a curricula model, where the design goals formalized as a set of LTL temporal formulas expressing constraints at the knowledge level.

Learning Objects are modeled as Actions:
What the course teaches, and what is requested to know for attending it in a profitable way, is described by means of preconditions (prerequisites) and effects (learning objectives).

User can select the effects / knowledge she wants to acquire

The user can submit an existing plan or re-use one stored in her profile

PLANNER
SWI-Prolog
Generating the plan from the request

The system displays the result in a way, so the user can add, remove, modify elements in her plan

VALIDATION
SPIN model checker
The system validates the plan

The system can back to refine her plan

VALIDATION
SPIN model checker
The system shows a summary of the validation step

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