HOCHSCHULE HEILBRONN

TECHNIK WIRTSCHAFT INFORMATIK

UniversitätsKlinikum Heidelberg

CeLTech

Virtual Patients for Education, Assessment and Research

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Contents

Virtual Patient

- "…specific type of computer program that simulates real-life clinical scenarios; learners emulate the roles of health care providers to obtain a medical history, conduct a physical exam, and make diagnostic and therapeutic decisions"

[AAMC 2010]

Popular synomyms

- Case-based training systems
- Interactive Patients
- Patient Simulations

Reasons for the lack of real patients

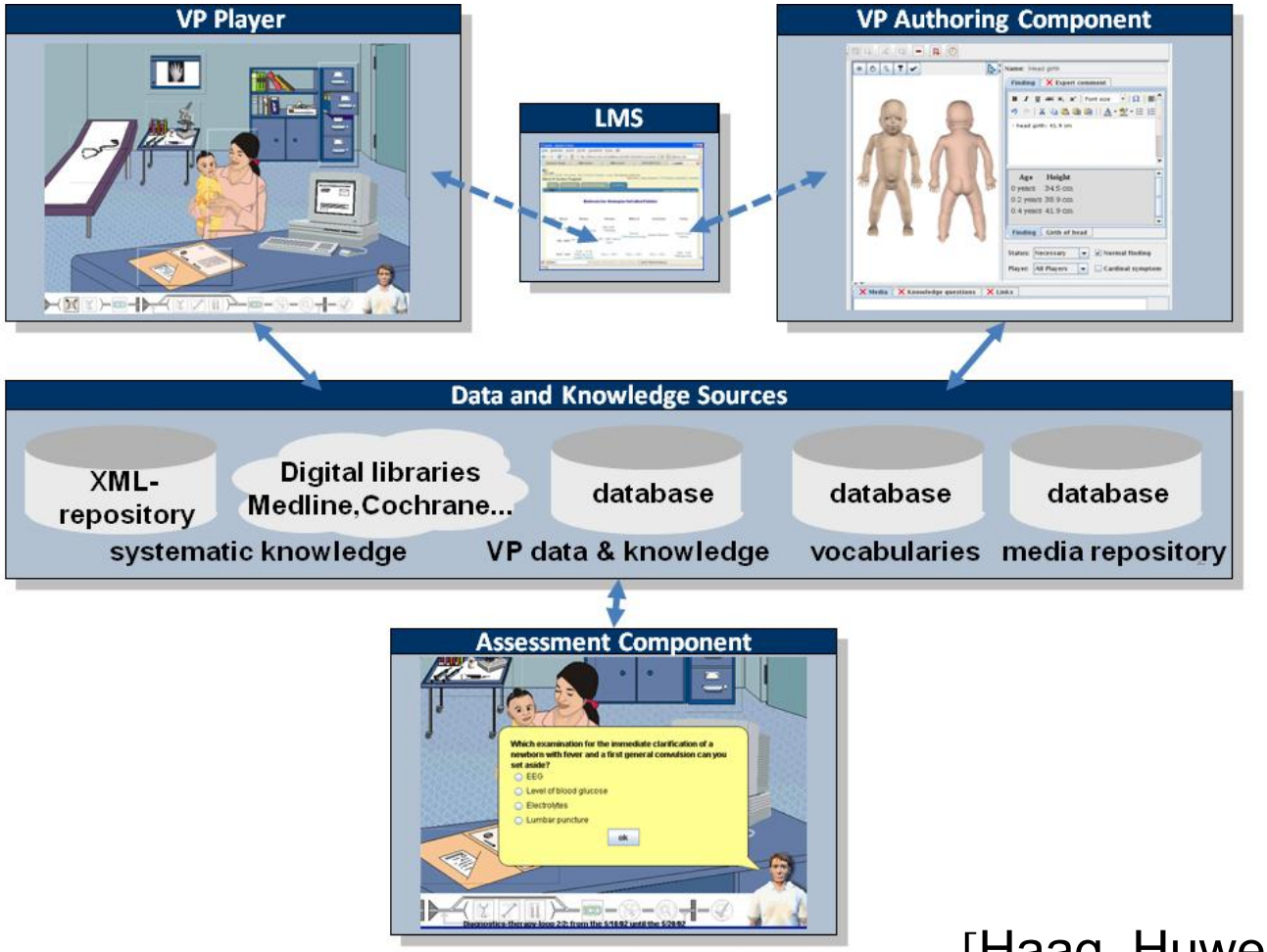
- Some diseases are seasonal
- patients with severe diseases cannot serve as educational subjects for a large number of medical students
- the average stay time of patients in hospitals has decreased over the last years.

Acceptance of Virtual Patients

- High acceptance among students and medical teachers
- Judged as an effective learning method
- Practical approach has been assessed very positively
- Requested for all clinical subjects
- One Virtual Patient per week desired

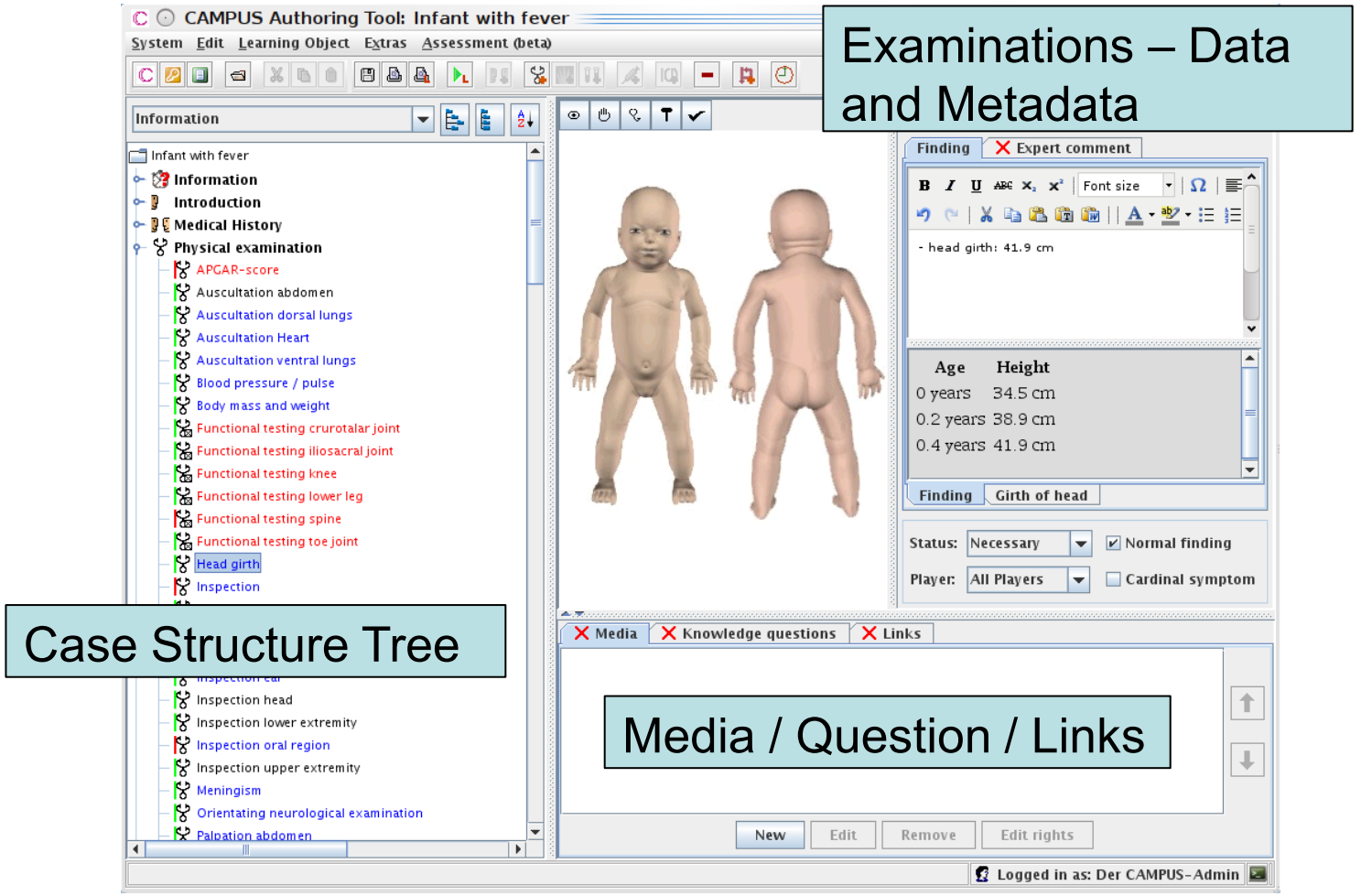
[Huwendiek et al. 2006a, Huwendiek et al 2006b]

The CAMPUS Virtual Patient System

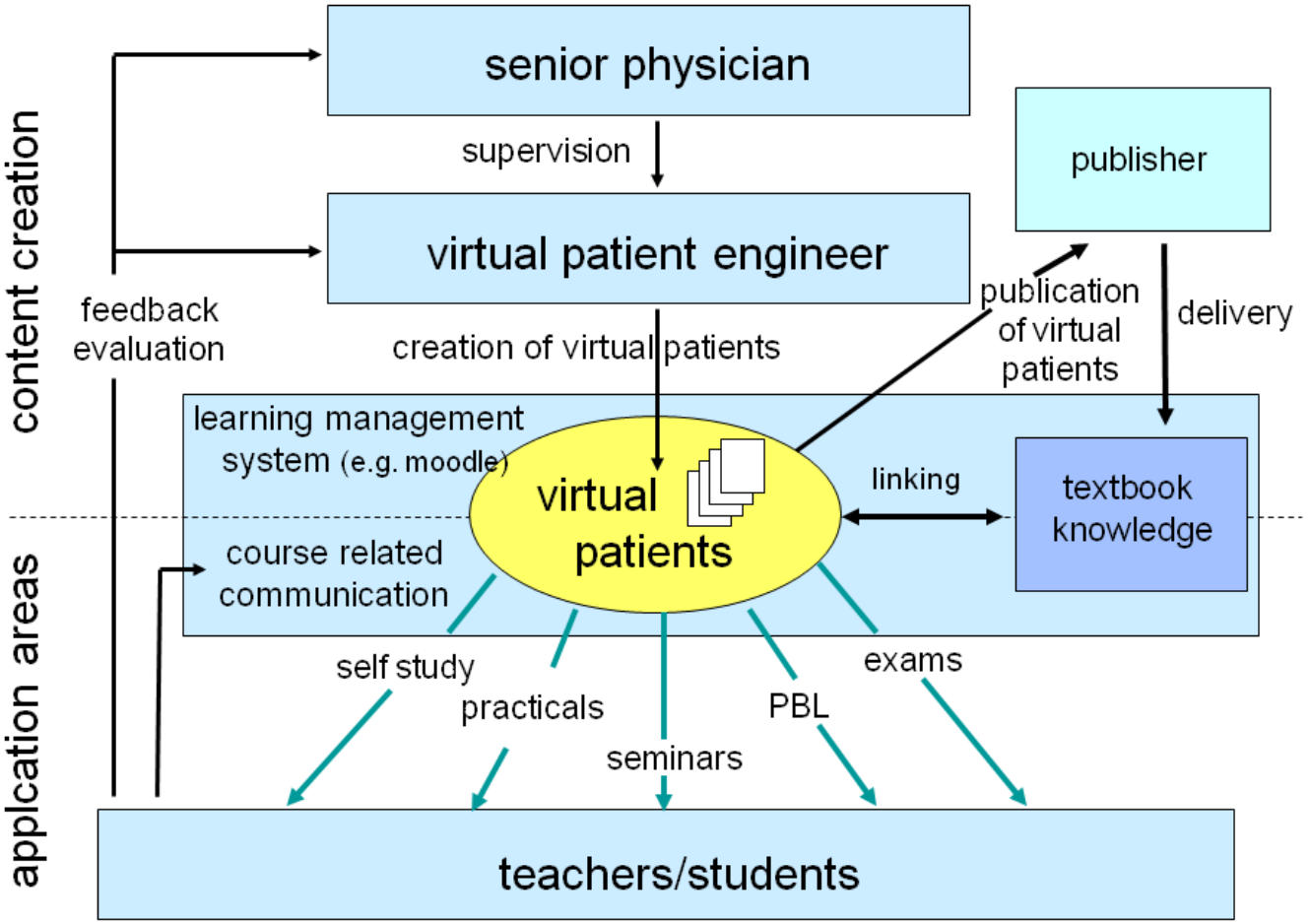


[Haag, Huwendiek 2010]

CAMPUS Authoring Component



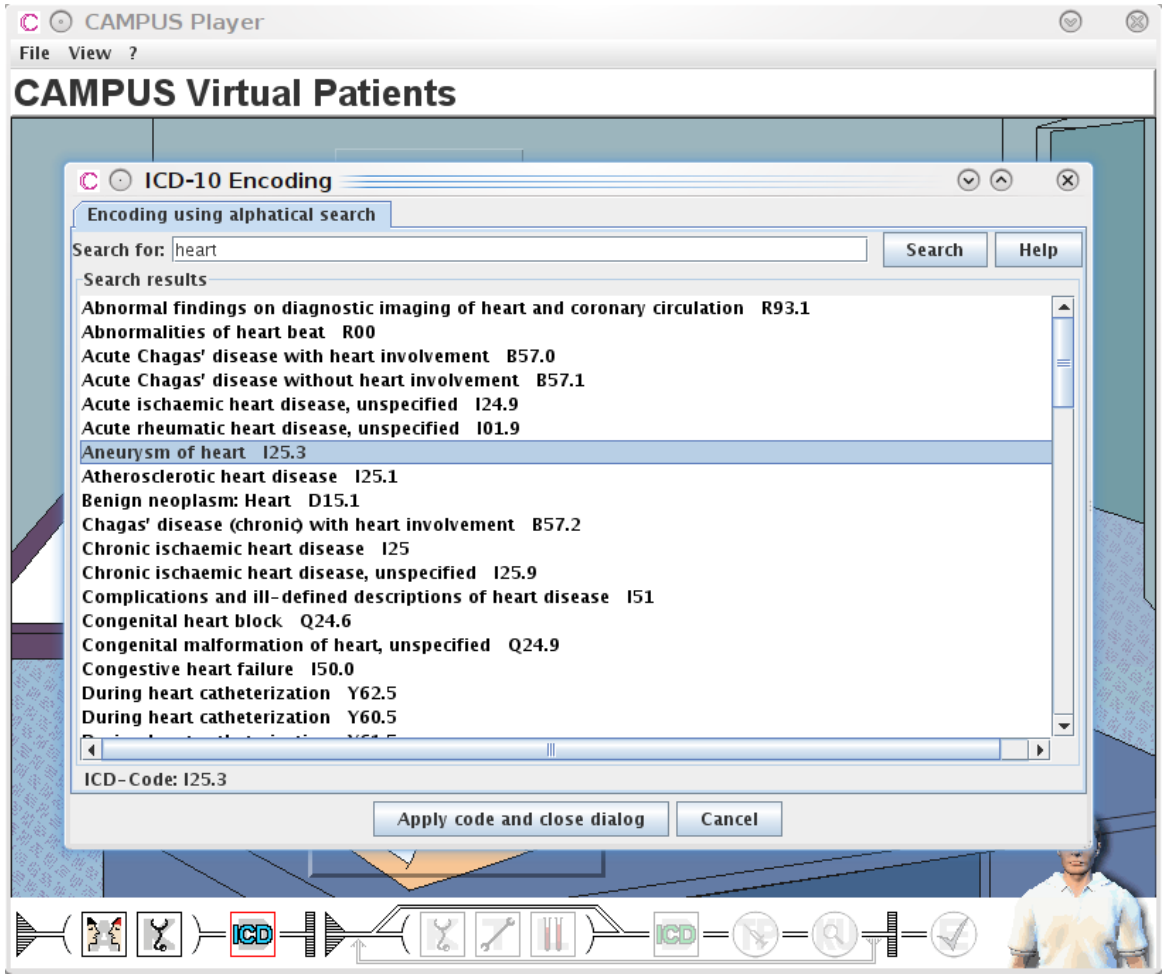
Authoring



[Haag, Fischer 2010]

CAMPUS Classic Player

Simulative approach: Diagnoses



Constructive alignment [Biggs]:

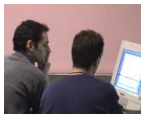
Coordination of learning objectives, teaching and learning activities and assessment tasks

Intended Learning Objectives

Differential diagnostic skills:

- Successful diagnosis and treatment of Virtual Patients
- Active usage of medical knowledge

Teaching and Learning Activities



Virtual Patients (VPs):

- Interactive usage of VP (decision making)
- Supervision of VP from admission to discharge

Usage (Blended Learning):

1. Tutor supervised practical
2. Follow-up to seminars
3. Preparation for bedside teaching
4. Self study

Assessment Tasks

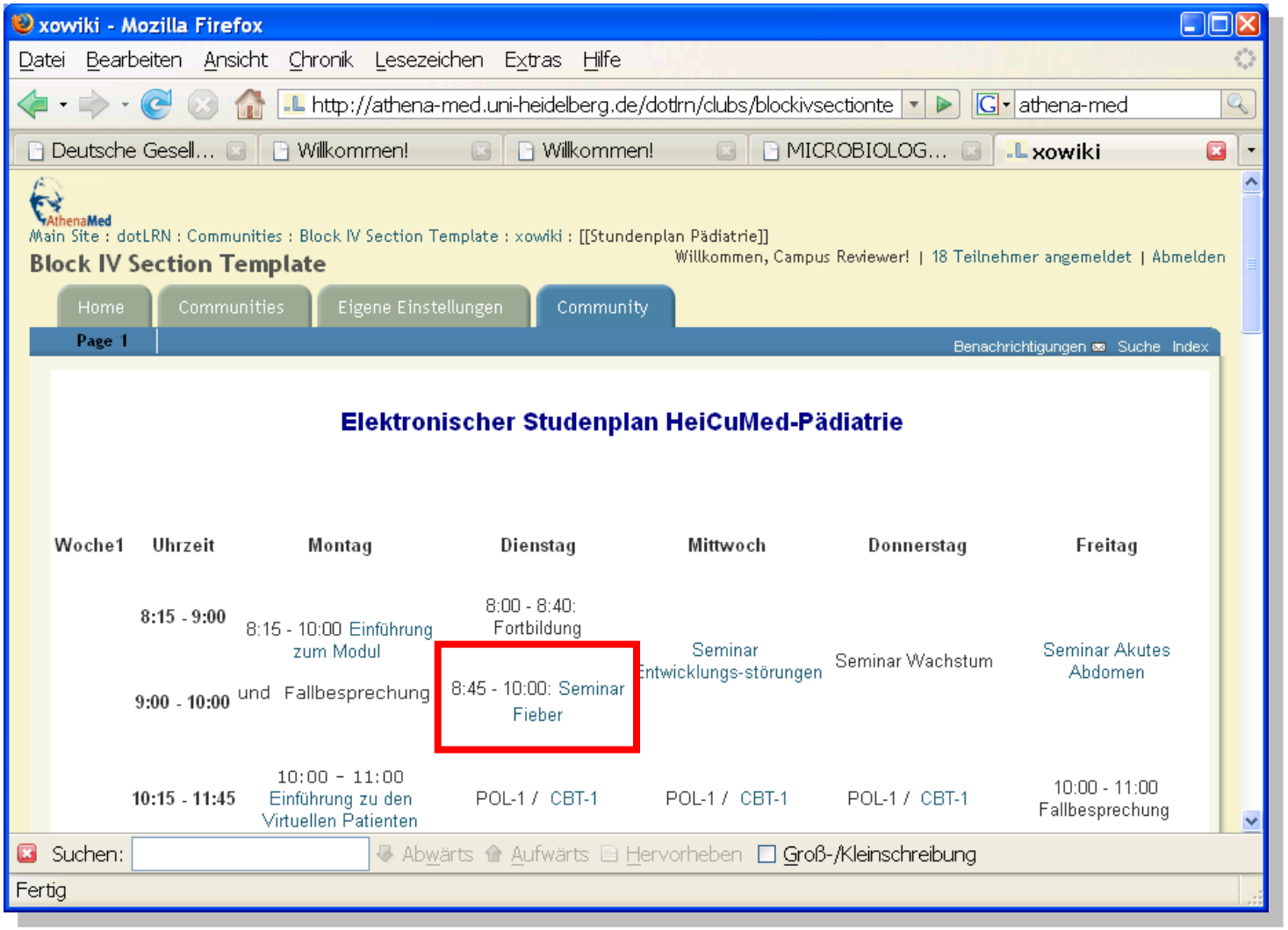
Virtual Patient in the examination:

- Assessment of decision-making authority with key-feature exams
- Especially assessment of clinically relevant key decisions

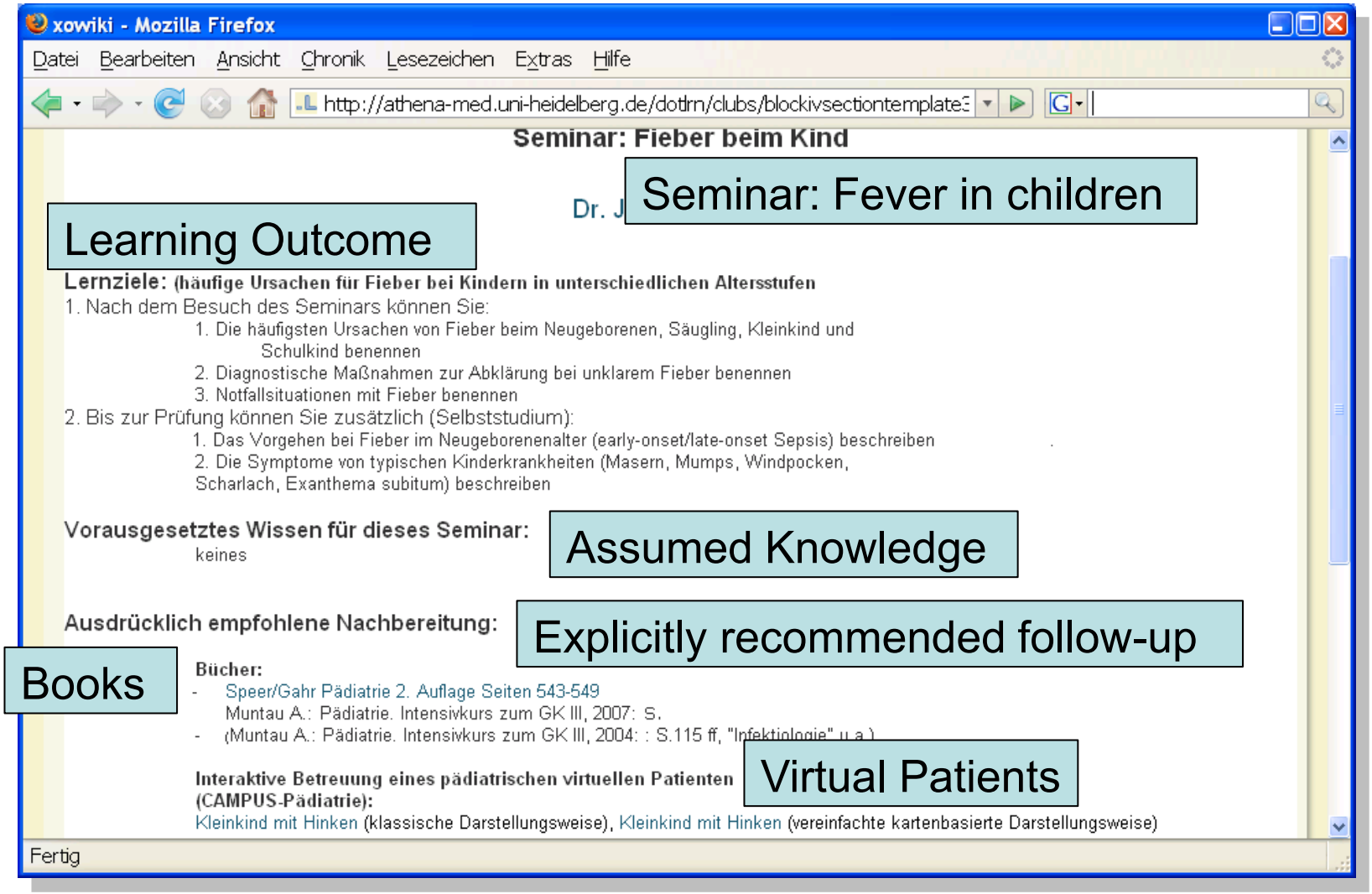
Integration in the learning management system AthenaMed:

Integration of intended learning objectives and VPs in AthenaMed. Provision of communication tools.

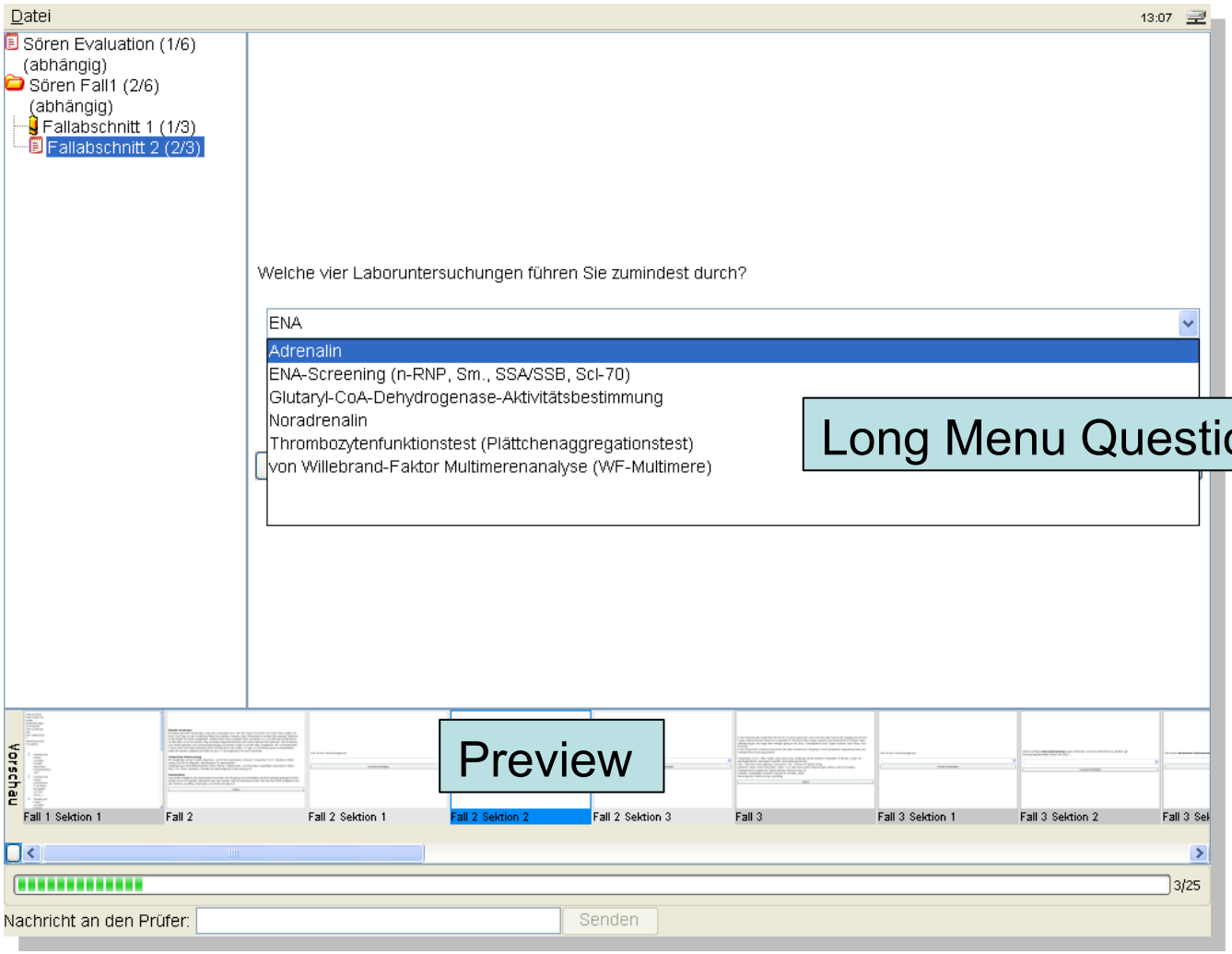
Exemplary Integration: Timetable of the pediatric module



Exemplary Integration: Seminar



Secure CAMPUS VP Assessment System



Assessment with Virtual Patients: Practical Implementation

Summative assessment with Virtual Patients

- Acceptance among students (n=192)
  - Likert scale: 1=”disagree” to 5=”strongly agree”
- Average
  - Useful way to assess: 3.6
  - Is easy to practical use: 3.8
  - Assessment is close to reality: 3.6
  - Assessment supports the practical training: 3.5

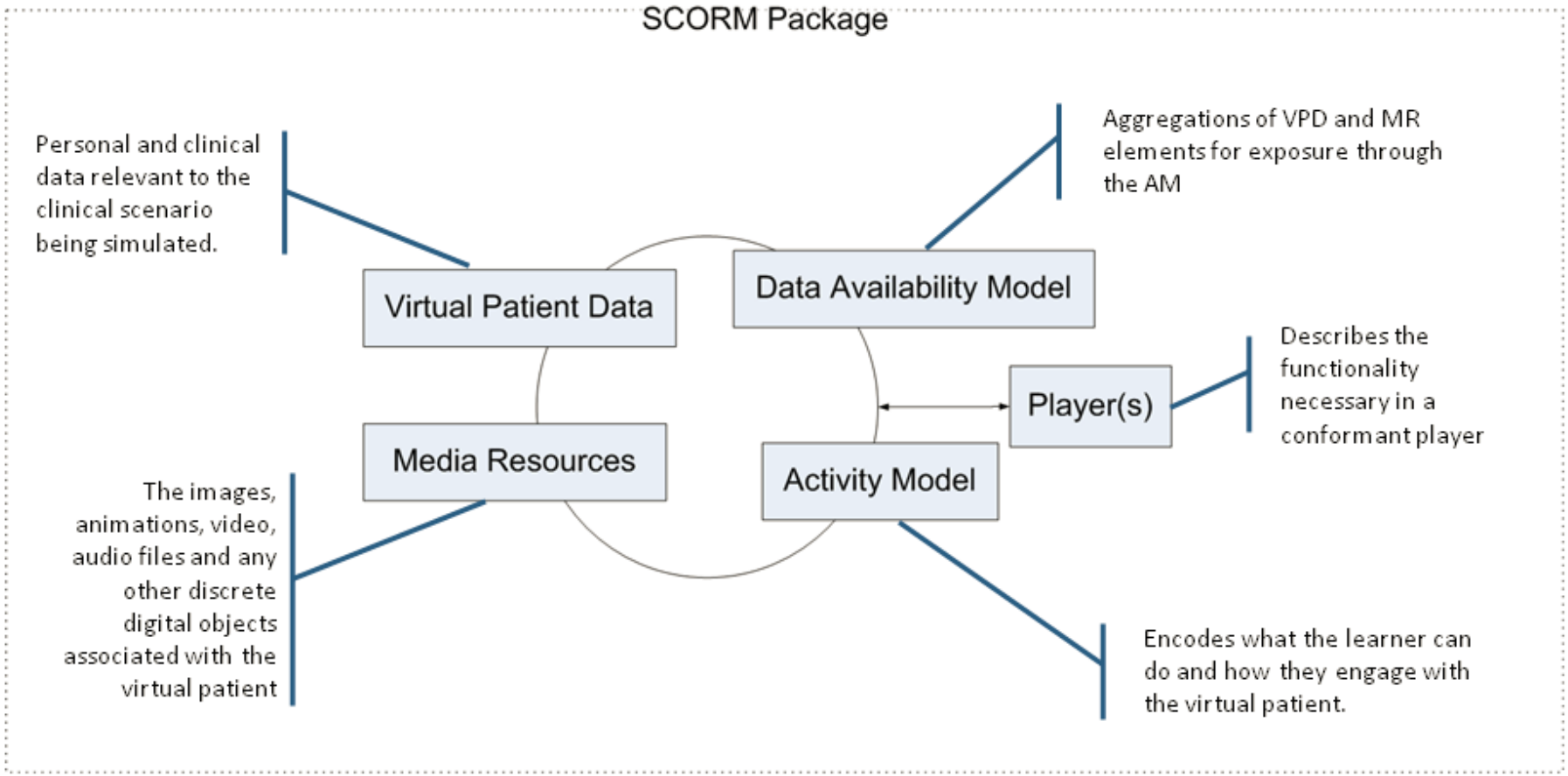
Virtual Patients for Research

- How must Virtual Patients be designed to optimally facilitate learning?
- How can we adapt Virtual Patient design for different learning objectives?
- How can we integrate Virtual Patients into the curriculum so that they have the best possible impact on students learning?

Medbiquitous Virtual Patients Working Group

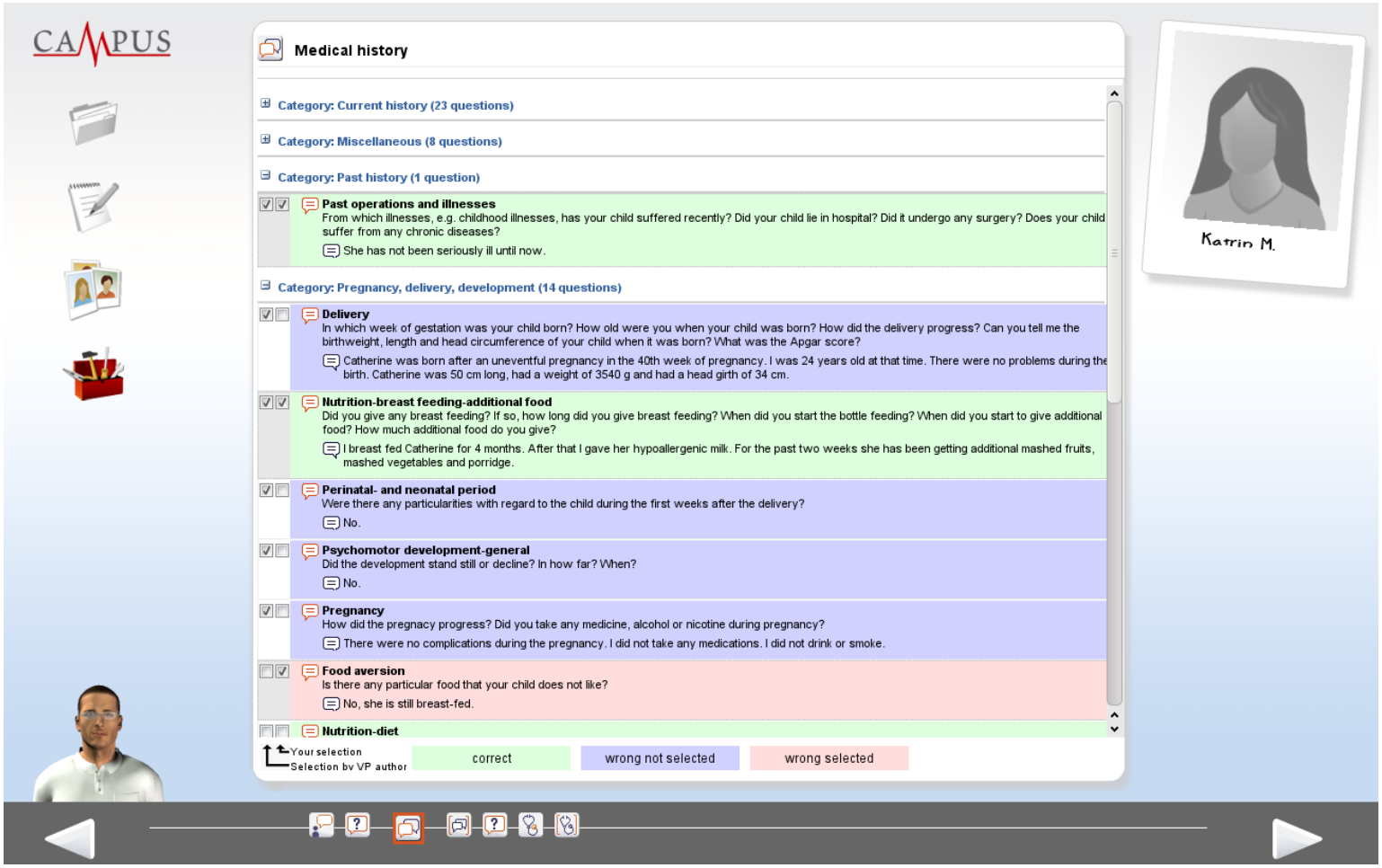
- Mission: „…to develop XML standards and Web services requirements to enable interoperability, accessibility and reusability of Web-based virtual patient learning content.”

Medbiquitous Virtual Patient (MVP) Components

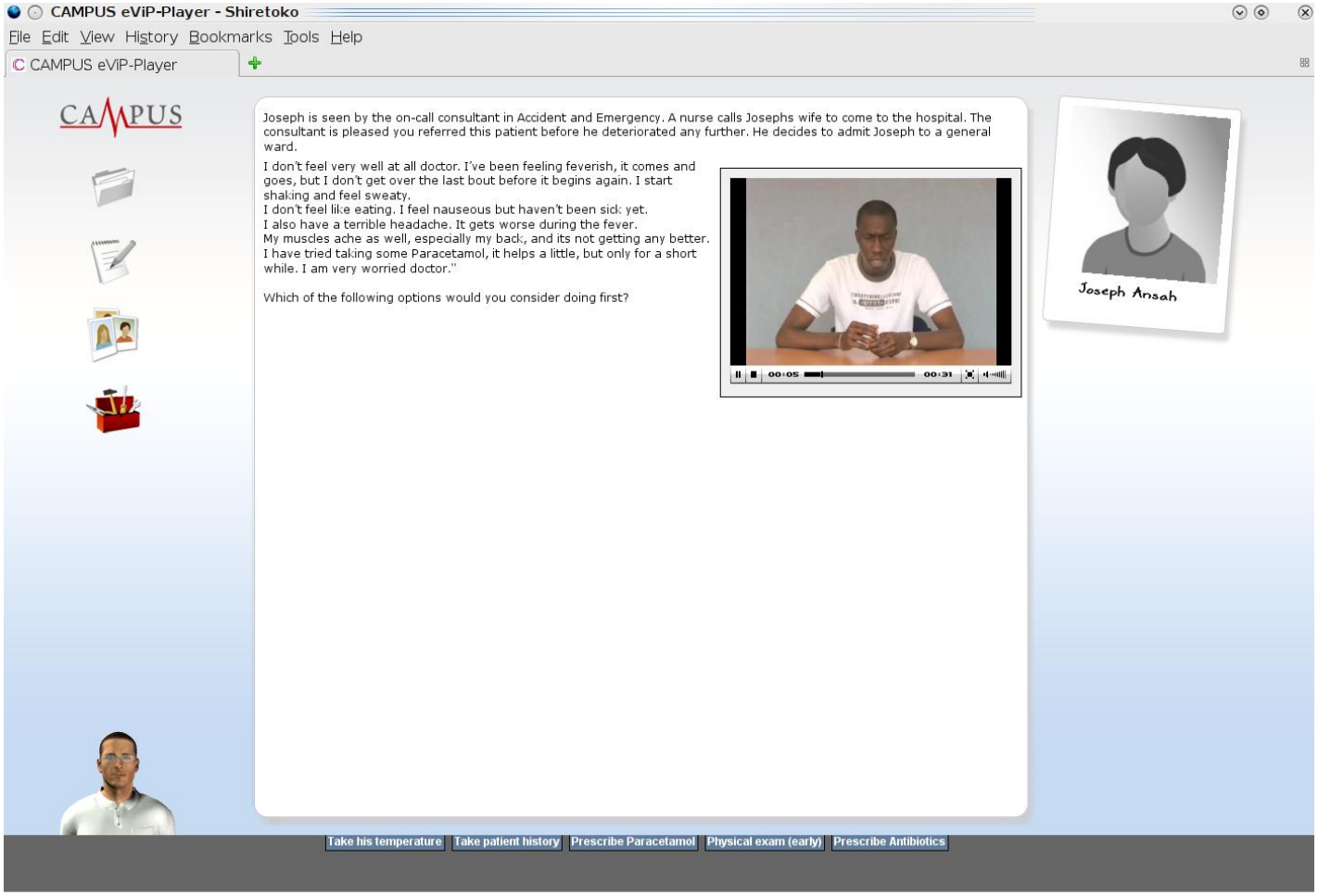


[Virtual Patient Working Group 2010]

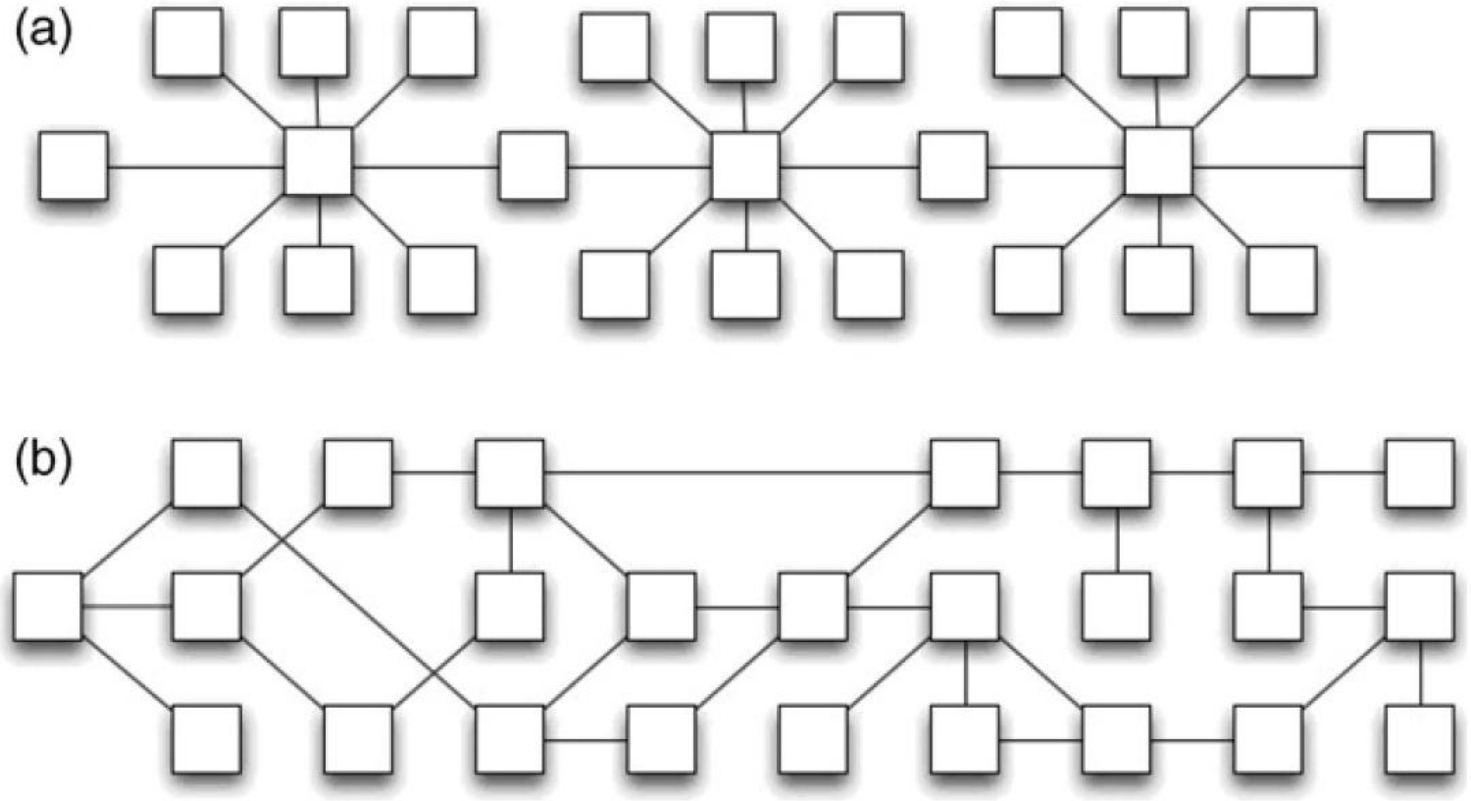
CAMPUS Card-Player: Native VP



Card Player: OpenLabyrinth VP

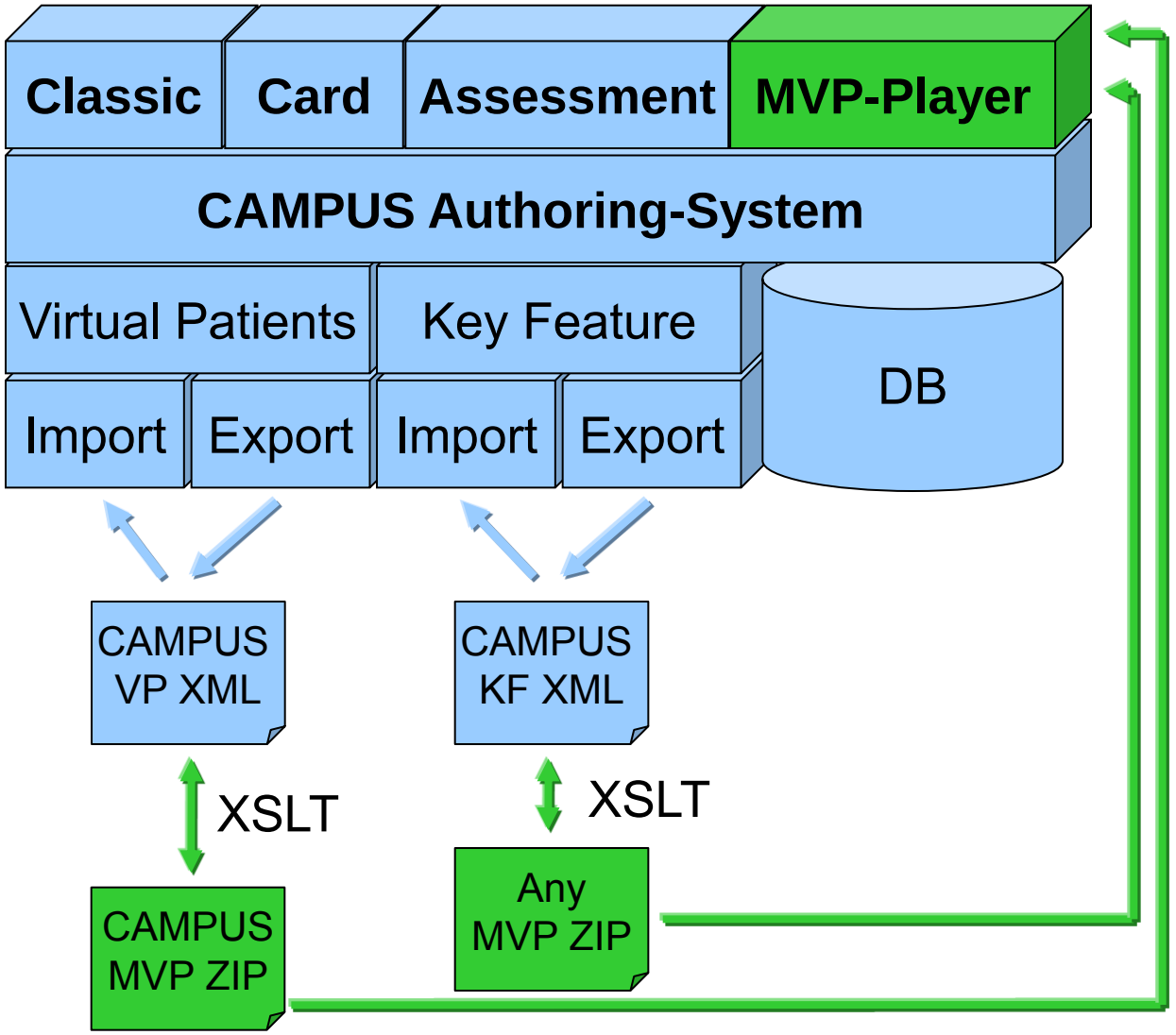


Path type variations of VPs



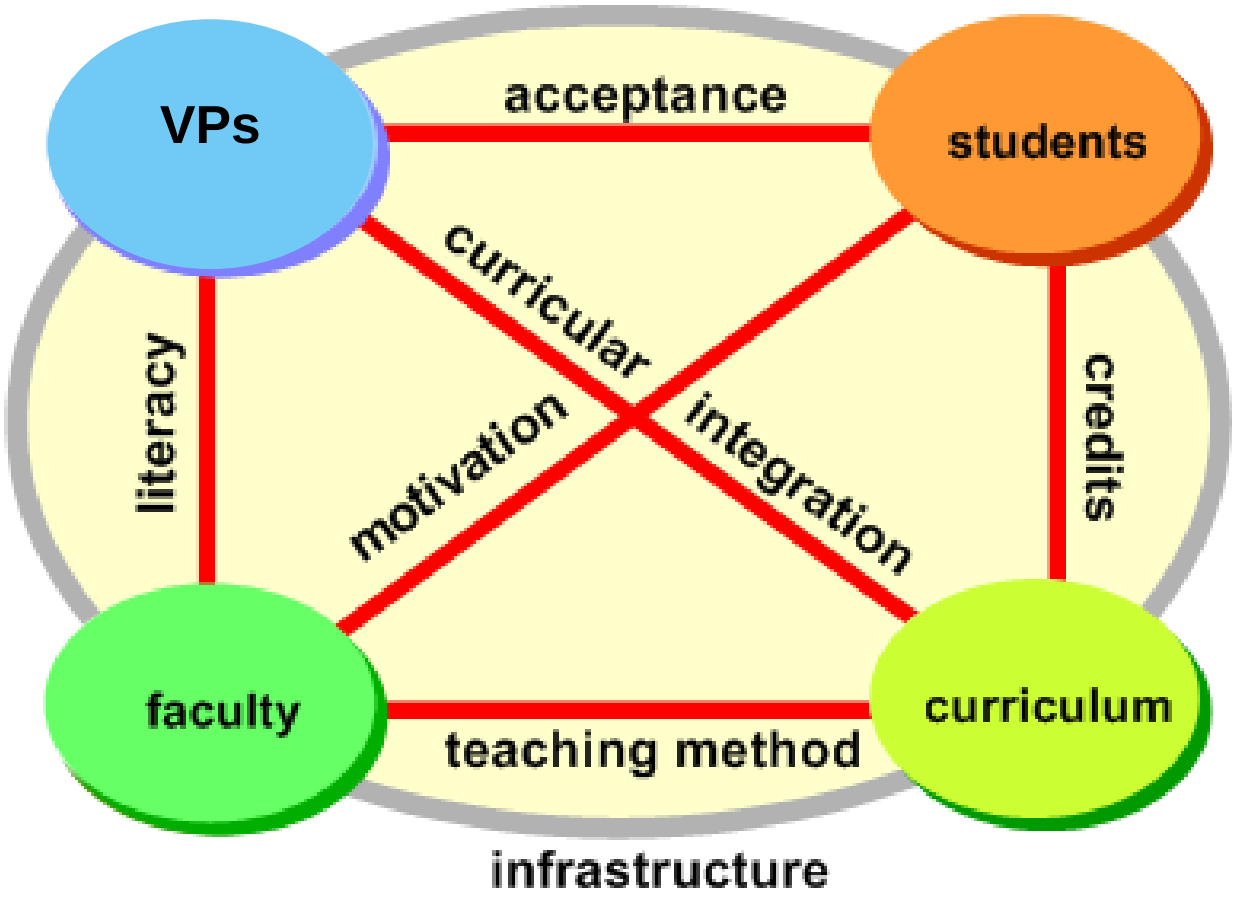
[Huwendiek et al 2009]

MVP support in CAMPUS



International cooperation

Summary


VPs
acceptance
students
curricular
literacy
motivation
integration
credits
faculty
teaching method
curriculum
infrastructure

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