Enabling Global Access to Appropriate Skills Training

20200810 Workshop

Today’s agenda

1. Project presentation
2. Hands-on exercise
3. Discussion & next steps

Project presentation

a. Project goal

b. Work plan

c. Relevant literature

d. Main takeaways

e. Concept and features

f. Platform choice

g. Prototype validation

h. Next steps

Project goal

General Objective

Contribute to enable profesional psychomotor training for professionals and individuals in developing countries, through a know-how catalog of procedural knowledge and skills.

Specific Objectives

- Enable the generation of knowledge to develop specific surgical skills.

- Develop templates for learning modules tailored for different audiences and based on a set of required skills.

- Enable knowledge transfer processes guided by the learning modules, and with tools for community feedback.

- Develop community building and user support.

Work plan

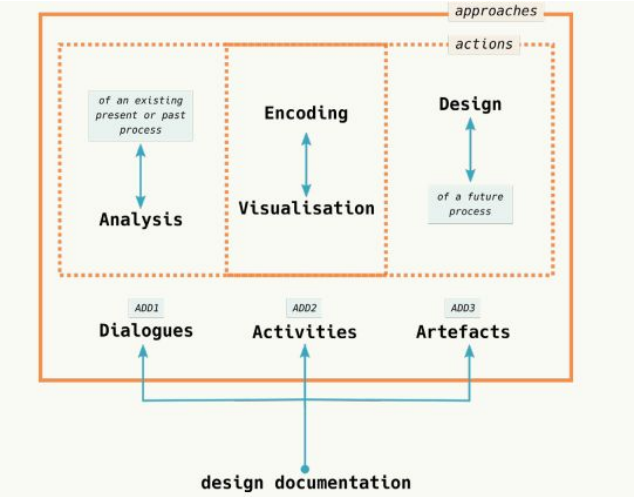
1. Literature Review
2. Initial Ontology Design
3. Prototype Development and documentation
4. **First Feedback Session**
5. Prototype Iteration
6. Second Feedback Session
7. Prototype Iteration
8. Documentation
9. Audiovisual material
10. Product Presentation Session

Relevant literature

- Menichinelli, M. (2018). A shared data format for describing collaborative design processes. Cumulus Conference Proceedings Paris 2018 – To Get There: Designing Together, Cumulus Conference Proceedings Series 03/2018 Paris, 190–215.
- Roussin, C. J., & Weinstock, P. (2017). SimZones: an organizational innovation for simulation programs and centers. Academic Medicine, 92(8), 1114-1120.
- Chung, H., & Kim, J. (2016). An ontological approach for semantic modeling of curriculum and syllabus in higher education. International Journal of Information and Education Technology, 6(5), 365.
- M. H. Hedayati and L. Mart (2016). "Ontology-driven modeling for the culturally-sensitive curriculum development: A case study in the context of vocational ICT education in Afghanistan," 3rd International Conference on Computing for Sustainable Global Development (INDIACom), New Delhi, 2016, pp. 928-932.
- Oprea, M. (2013). A general framework for educational ontologies development. International Journal of Computer Science Research and Application, 3(2), 12-22.
- Jarrar, M. (2005). Towards Methodological Principles for Ontology Engineering. (PhD, Vrije Universiteit Brussel - Faculty of Science).
- Svenonius, E. (2000). The Intellectual Foundation of Information Organization (1st edition). Cambridge, Mass.: MIT Press

Main takeaways

- Ontology design principles
  - **Reusability:** Maximizing their uses across different applications
  - **Application-independence:** Building to enable future applications.
- Workflow: considering different design approaches (uses by different actors, not just learners).



Proposed concept

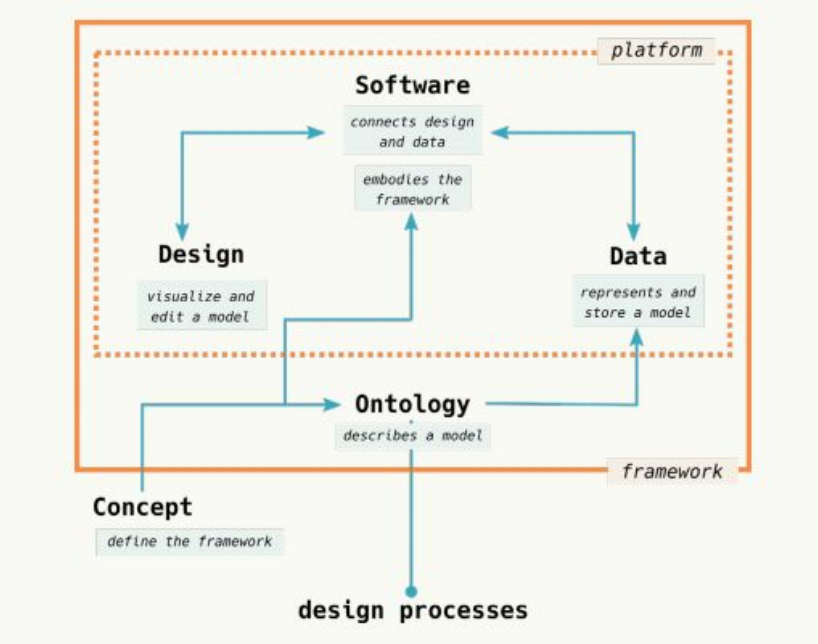
Deliver educational content based on a modular, scalable, collaborative ontology that allows:

- Semantic-based content representation
    - **Search improvements:** semantic features better than string or navigational search.
    - **Dynamic content generation:** writing in a single page improves the content of related pages.
    - **Interoperability:** Knowledge could be shared and reused in future applications.
- Live and **extensible** semantic content
- **Collaborative** knowledge building of video lessons, skills and materials.
- Collection and **exporting** of modules.
- Community feedback and **interaction**.
- Query facilities: **extract data** from the knowledge graph.

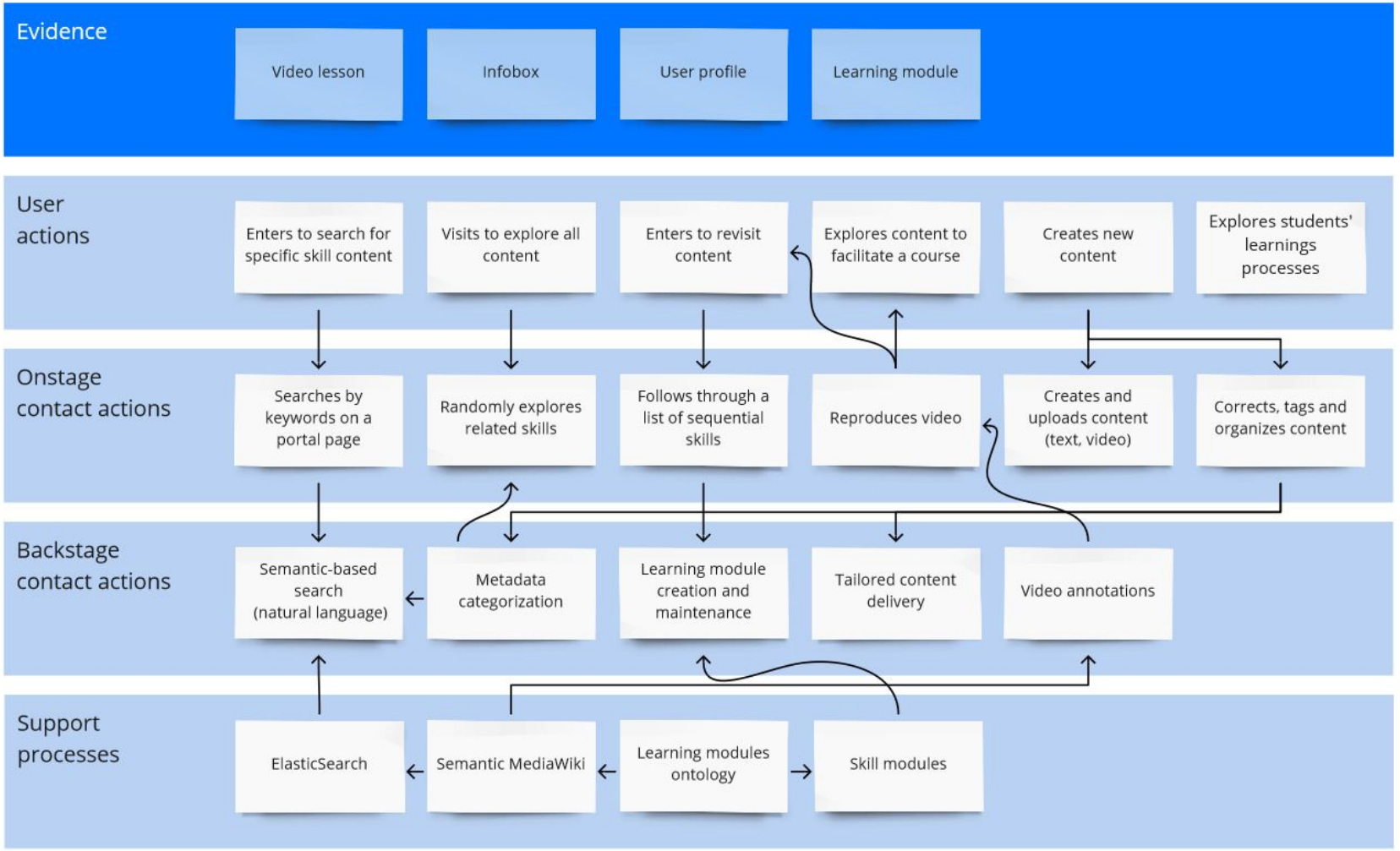
Why Semantic MediaWiki

- **Full support of proposed features for the project.**
- Collaborative workflow
- Flexible in applications and maintenance
- Open-source software with stable releases
- History management: ability to see what has been done, version control.
- Familiarity with interface thanks to popularity of Wikipedia.
- Community and commercial support available.

Metadesign approach through MediaWiki



Menichinelli, M. (2018). A shared data format for describing collaborative design processes. Cumulus Conference Proceedings Paris 2018 – To Get There: Designing Together, Cumulus Conference Proceedings Series 03/2018 Paris, 190–215.


Evidence
Video lesson
Infobox
User profile
Learning module
User actions
Enters to search for specific skill content
Visits to explore all content
Enters to revisit content
Explores content to facilitate a course
Creates new content
Explores students' learnings processes
Onstage contact actions
Searches by keywords on a portal page
Randomly explores related skills
Follows through a list of sequential skills
Reproduces video
Creates and uploads content (text, video)
Corrects, tags and organizes content
Backstage contact actions
Semantic-based search (natural language)
Metadata categorization
Learning module creation and maintenance
Tailored content delivery
Video annotations
Support processes
ElasticSearch
Semantic MediaWiki
Learning modules ontology
Skill modules

Hands-on session

Access session

User: mit
Pass: 5432!Qwer

Prototype validation

The goal of the hands-on session (30') is to validate our first prototype.

Activities

- **Navigate** through the skills
- **Find** a skill lesson
- **Annotate** a video lesson
- **Link** a video lesson with another skill
- **Upload** a video lesson

Facilitated discussion

Access platform

Next steps

The goal of the facilitated discussion (40') is to validate next steps

Topics to discuss

- ➔ How do different users interact with this platform?
- ➔ Which are the most useful search and navigability criteria for finding the lessons we need?
- ➔ How can we improve the data model of video annotation?

Thank you!

Emilio Velis - Appropedia Foundation

Project management

Diego Torres - LIFIA

Ontology design

Julieta Arancio - CENIT

Usability of data models

Felipe Schenone

Technical lead