



INTEGRATING LEARNING ANALYTICS AND SEMANTICS IN PROBLEM BASED LEARNING

Erasmus+ Forward-Looking Cooperation Projects

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PROJECT TEAM

- University of Macedonia, Greece - Coordinating partner
- Open University of the Netherlands
- Aalborg University Copenhagen, Denmark
- University of Alcalá, Spain
- BOC Asset Management GmbH, Austria

MOTIVATION

- The current ever-changing world requires competent workforce with skills to quickly adapt to rapid changes
- The Problem Based Learning (PBL) strategy addresses this challenge. However, PBL in its present mode exploit innovative ways to unleash new capabilities.
- On the other hand, innovative approaches, like Learning Analytics (LA), can be confusing and overwhelming since they are still under-explored and lack structure.

OVERALL AIM

- Enhance **Problem Based Learning (PBL)** with **Learning Analytics (LA)** and **Learning Semantics (LS)** in order to produce a new educational paradigm and pilot it to produce relevant policy recommendations

PROJECT GOALS

Construct a new educational approach that combines PBL with LA respecting legal and ethical considerations (termed PBL_LA). This approach will take into consideration the whole LA lifecycle:

- design a **semantic model** for PBL_LA for the annotation of learning resources
- adapt **open source tools** to support PBL_LA and develop an intuitive semantic annotation tool
- create relevant, **semantically annotated educational materials** and perform **trials** to draw evidence-based conclusions
- produce relevant **policy recommendations** that can raise the quality in education and training
- create an **organic ecosystem** of organizations, researchers, learners, etc. with an interest in PBL_LA

LEARNING ANALYTICS IN PBL

- **Data gathering** by identifying educational data that is generated in **each and all steps of PBL**
- Information processing by analyzing processes and techniques that transform **educational data to meaningful, multi-modal information**
- Knowledge application by identifying all **intervention mechanisms** that could be put into practice based on all LA feedback during **course design** and **course execution**

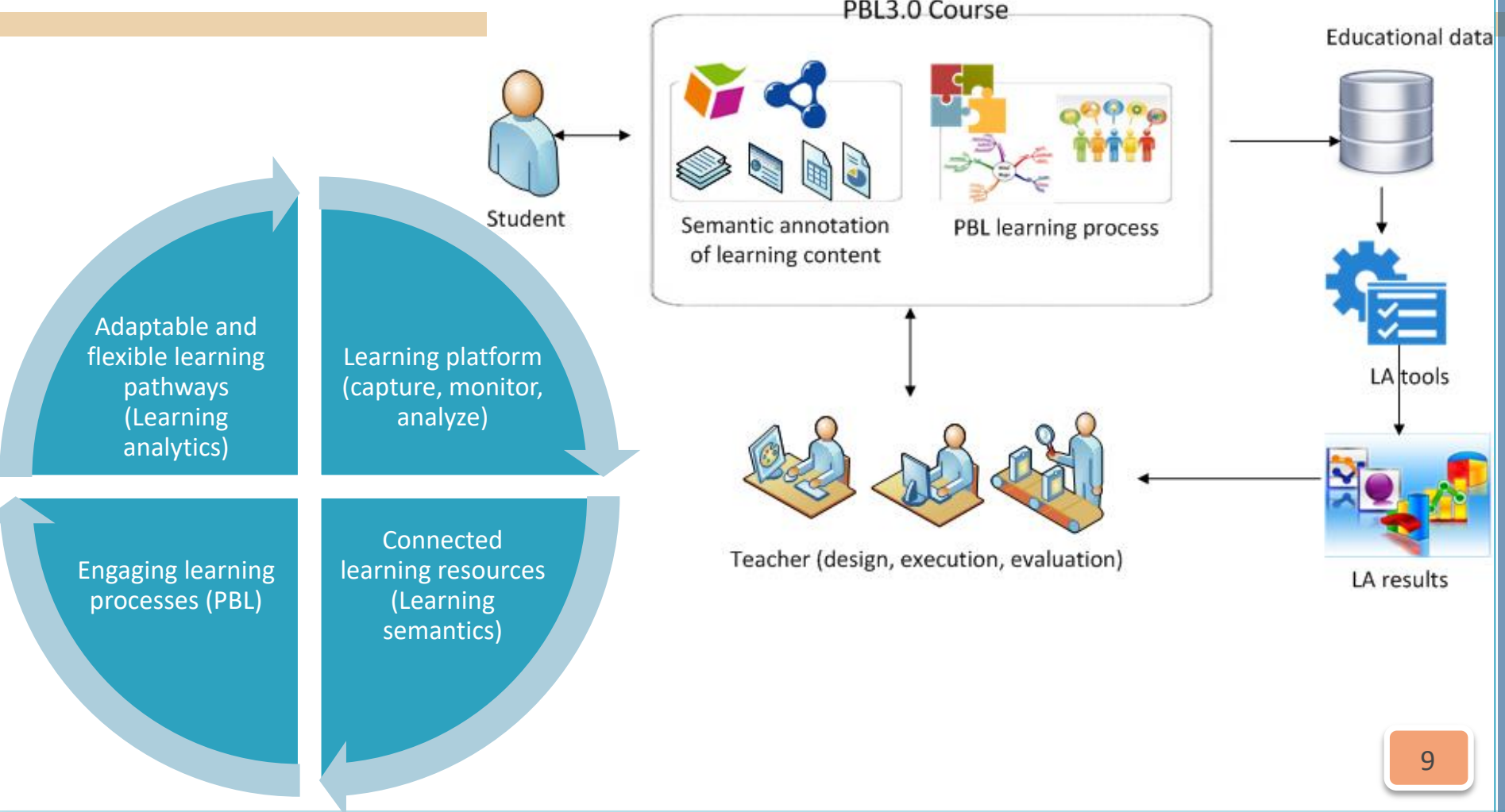
LEARNING SEMANTICS IN PBL

- Design a **semantic model** for PBL_LA which will indicate all the necessary elements (e.g. learning objectives, learning topic, skills, learning outcomes, type of materials etc)
- A **semantic annotation tool** based on this model in order to enable learning resources annotation by all learning content providers
- Foster content **discoverability** and **linkage** of learning resources with the **Web of Data**

PROJECT APPROACH

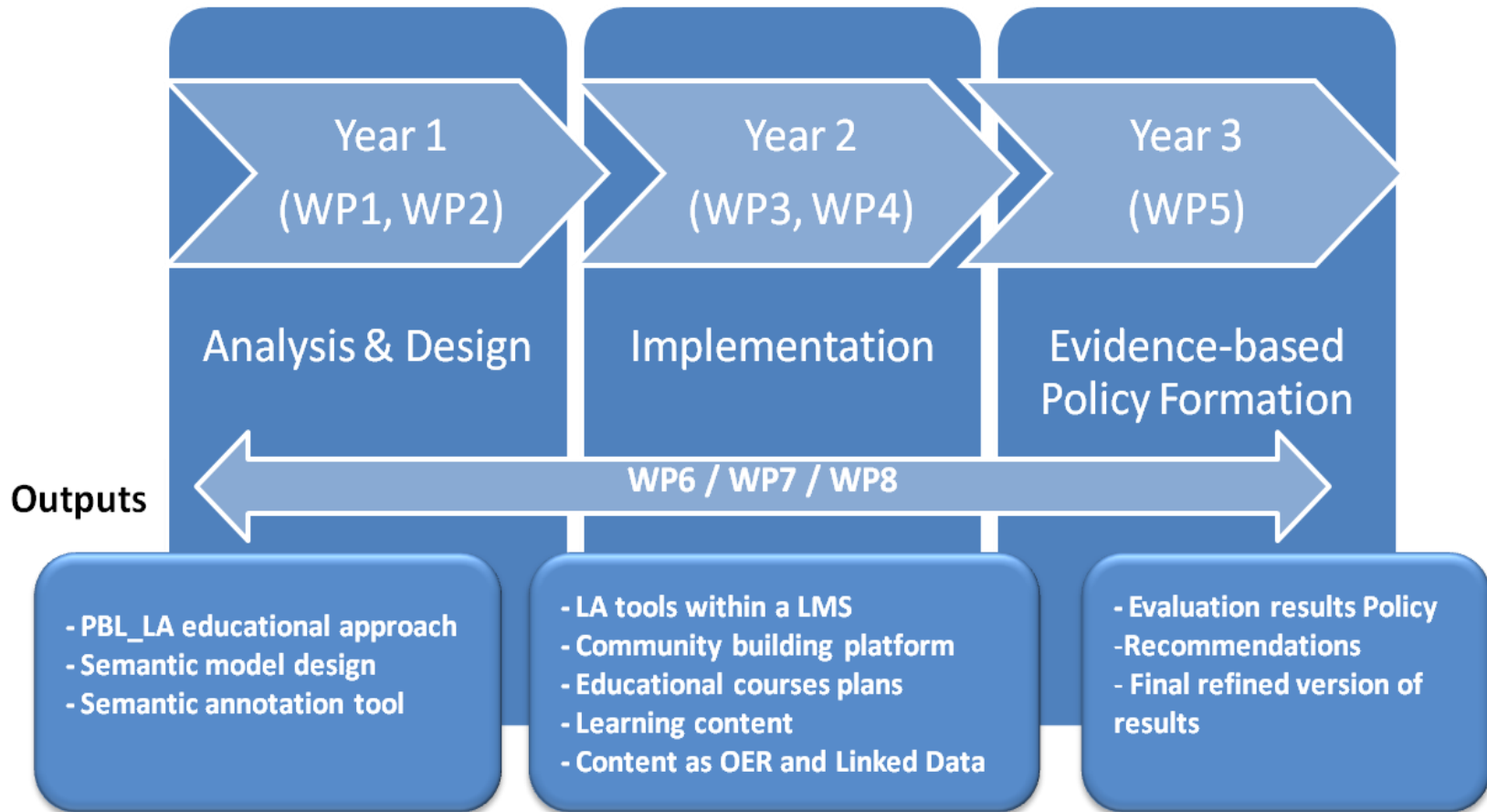
- A new paradigm that will bring about PBL3.0 and will merge PBL with Web 3.0
- Test all the innovative solutions identified and designed in various educational and training settings and derive valuable conclusions on their validity and ability to be mainstreamed
- Propose new innovative pedagogical and technological approaches that will tackle existing issues in education and training and raise their quality

PBL3.0 VISION



PROJECT DESIGN

PBL3.0 Phases



PROJECT IMPACT

- Educators and trainers will be able to use novel pedagogical approaches
- Learners will be equipped with competitive skills
- Learning resources will be semantically annotated and opened for re-use
- Policy actions will be available for adoption by universities and organizations that carry out trainings
- A culture of collaboration will be developed to foster innovation in the new PBL3.0 paradigm

PROJECT LONG-TERM IMPACT

Systemic impact

Environments and Structures

Individuals

Enacting Policy

Strategic planning and communication with stakeholders to encourage the adaptation of the results and the policy actions recommended

Developing shared vision

Empower stakeholders to collectively develop environmental features that encourage new teaching practices

Disseminating Pedagogy and Curriculum

Raising awareness to educators and trainers on employing PBL3.0 results, and curriculum development

Developing skilled stakeholders

Support individuals to put the results into practice and design/ execute courses

CONTACT

- Project website: <http://pbl3-project.eu>
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THANK YOU!

- Questions?