

Synopsis of best didactic practices in EU & PC

The goal of the WP1.3 package is to make a review of the best didactic practices in EU and PC, and to provide recommendations on the methods and practices to be applied in the courses developed within the InMotion project.

Firstly, we have made a bibliographic review on state-of-the-art learning methodologies and educational resources.

We analyzed the following four learning methodologies:

- problem-based learning (PBL),
- project-based learning (PjBL),
- project-oriented learning (POL), and
- blended learning (BL)

providing in each case a description of the methodology, examples of application, and a critical discussion on dis/advantages.

In addition, we analyzed the following three educational resources;

- MOOCS (Massive Open Online Courses),
- virtual labs and
- Portfolio

providing also a description, experiences of use and critical discussion.

On the basis of this preliminary study, we prepared a survey intended to collect information on the application of these methodologies and resources in the Universities of the participants in this project.

The survey is structured into two parts. In the first part, the participants are asked to list the courses partially or fully related to CMSE (Computer Modeling and Simulation in Engineering) that are taught following the

- problem-based learning (PBL),
- project-based learning (PjBL),
- project-oriented learning (POL),
- team-based learning (TBL), and
- blended learning (BL)

methodologies at Bachelor, Master or PhD degree in their Universities, and to provide a description of how the methodology is applied.

In the second part, the participants are asked about the following educational resources:

- augmented reality,
- e-books and digital libraries,
- learning management systems (LMS),
- games,

- interactive video lectures,
- learning analytics,
- virtual laboratories,
- remote laboratories,
- MOOCS and
- portfolio.

For each educational resource, the following three questions are posed:

- 1) Is the educational resource technically available in your University?
- 2) Are you currently using it?
- 3) Do you find it useful for CMSE courses?

On the basis of the analysis of the collected information, we can draw the following conclusions.

- The PBL, POL and BL methodologies are widely and successfully applied by the participants' Universities in courses partially or fully related to CMSE.
- The educational resources most widely applied on these courses are e-books and digital libraries, learning management systems and learning analytics.
- The learning methodologies that the participants consider the most useful are e-books and digital libraries, learning management systems, interactive video lectures, virtual laboratories, MOOCS, portfolio and learning analytics.

As a result of this analysis, the learning methodologies that we recommend to use in the courses developed within the inMotion project are

- PBL (Problem-Based Learning),
- POL (Project-Oriented Learning) and
- BL (Blended Learning).

The recommended educational resources are

- e-books and digital libraries,
- learning management systems,
- interactive video lectures,
- virtual laboratories,
- MOOCS,
- portfolio and
- learning analytics.