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EA'S BOX
Learning Analytics
Toolbox

BACKGROUND

Learning analytics and 'big data' are recent buzz words in educational research. In principle, the idea is to find theoretical frameworks, models, procedures, and smart tools to record, aggregate, analyse, and visualize large scale educational data. The main goal is to make educational assessment and appraisal more goal-oriented, proactive, and beneficial for individual students. In short, learning analytics is intended to enable 'real' evidence-based formative assessment. Usually, the benefits are seen in the potential to improve learning performance and achievement levels, enable a more effective use of teaching time, improve instructional design, and reduce school drop-out rates through early risk identification. Methods used are extremely broad: social network analyses, activity and error tracking, keeping of e-portfolios, semantic analyses, or log file analyses.

OBJECTIVES

LEA's BOX is dedicated to developing a learning analytics toolbox that will enable educators to perform competence-centred, multi-source learning analytics. The foundations of the features are psycho-pedagogical models, intelligent model-based reasoning services, innovative visualisation techniques. The functionality will be tailored to the very concrete requirements of teachers and learners.

Therefore, the project will build upon the existing work in the field of learning analytics and educational data mining and will enrich it by two distinct advancements:

- ➔ Reasoning services on the basis of valid psycho-pedagogical knowledge representation frameworks such as Competence-based Knowledge Space Theory (CbKST) and Formal Concept Analysis (FCA).
- ➔ Novel approaches to visualising activity/performance/achievement data by utilising methods such as structural Hasse diagrams as well as advancing Open Learner Modelling (OLM) techniques.

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Project Budget:
1.4 Million Euro

Project Website:
www.leas-box.eu



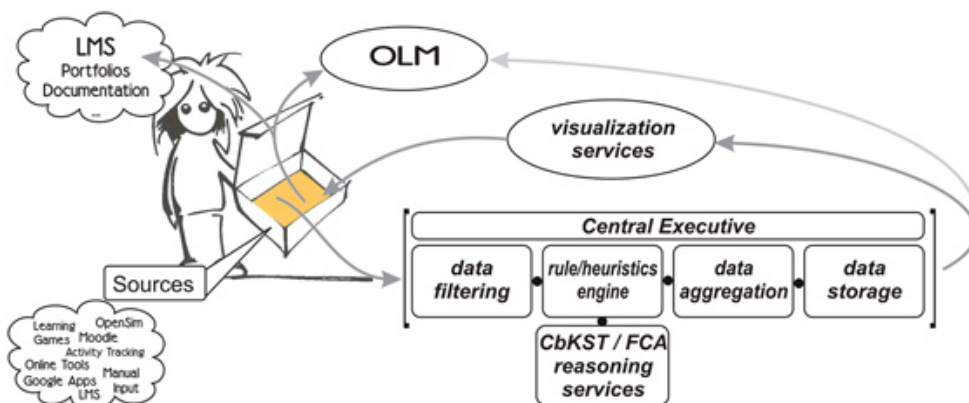


DEVELOPMENTS

The project's main tasks are to ...



- ➔ provide links to existing components and interfaces to a broad range of educational data sources. Teachers will thereby be able to connect the various tools and methods that they are already using in their daily practice in one central location.
- ➔ integrate a set of available tools and web services to provide an initial set of functions for teachers. These analytics components will support activity tracking, domain modelling, and visualisation of educational data. The components will primarily originate from the consortium's portfolio of existing developments, tools, and products.
- ➔ host newly developed LA/EDM services, empowering educators to conduct competence-based analysis of rich data sets; modular components will be developed to filter, streamline, and aggregate data from various sources, to analyse and interpret these data, and to store them safely.



- ➔ provide teachers and learners with components for visualising and reporting the results of the analysis in an intuitive fashion. The special research focus of the project is to develop network and lattice-based techniques, such as Hasse diagrams, adapt them to the level of understanding and the expectations of end-users, and apply them for user-model negotiation.
- ➔ provide interfaces and links to export/report data and to transfer them to external tools, such as the OLM platform, e-portfolios, or learning management systems.

The outcomes of the project will be applied and validated in direct cooperation with a broad basis of partner schools in the Czech Republic, Turkey, and Austria.

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