Extending Meta Data of Learning Management Systems for Extended Blended Learning and Multi-Dimensional Personalisation

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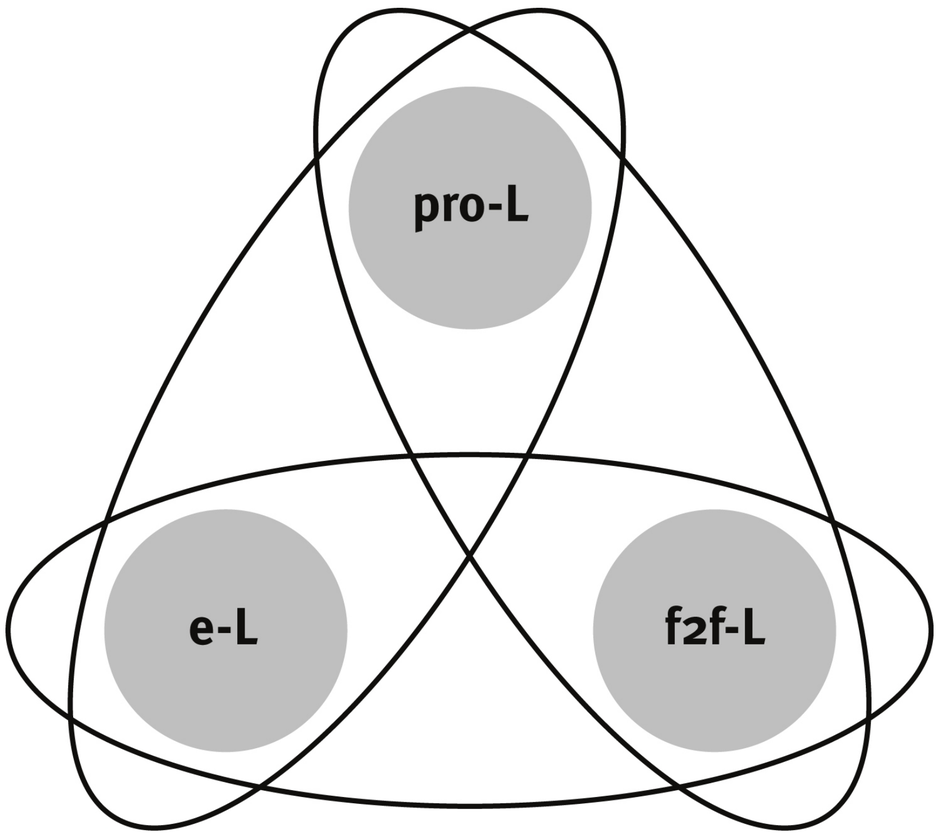
Extended Blended Learning (EBL)

- **e-learning (e-L)** – e-learning content – delivered via an online platform. These units are usually managed with an Learning Management System (LMS) which also manages the available Meta data about each unit.

- **face-to-face learning (f2f-L)** – the traditional style of teaching to 1 to N learners. The characteristic can be in the form of a seminar, class room lecture or lab. The main point is that people will have to attend a session at a certain time at a certain place.

- **project based learning (pro-L)** – similar to f2f-L one of the issues is that this type of learning requires the learner to do something or to be somewhere at a certain place. It does not require all the participants to be at the same place as projects can be run in an international context.



The three teaching forms are combined to support learners with the appropriate learning method to support the best learning experience for the student. Depending on the learner type, preferences and situation the right way of teaching will be applied.

Multi - Dimensional Personalisation

In order to recommend the learner a learning path which not only suites his:

- learning style
- his interests
- the requirements
- the appropriate way of teaching

The Multi-Dimensional-Personalization (MDP) approach could be used.

Multi-Dimensional-Personalization (MDP) would use the following information about the learner:

- his interests, i.e., the course, module or programme he is enrolled
- Learner type
- preferred EBL style of delivery of the learner
- the physical location of the learner
- the schedule of the learner

By doing so the EBL recommendation can be spun from the online world to the offline world.

Learning Management Systems

A modern LMS (Learning Management System) used in an Extended Blended Learning context must be able to manage all different kinds of learning modules and has to allow a mix between them to be able to offer tailored courses for each learner.

This leads to the need that LMS's must be able to cope with courses and learning modules span across the online and offline world.

In order to allow this the meta data has to be able to map not only online e-learning units but also face-to-face learning and project based learning units.

Most e-Learning standards are targeting mainly "pure" e-Learning systems. This means they are not really targeting f2f-L or pro-L scenarios.

Some of the Meta data used in these standards could already be used to describe f2f-L or pro-L learning units but in their Meta data definition some important fields are missing.

The main standards used in e-Learning and for Learning Management Systems (LMS) are **SCORM** (Sharable Content Object Reference Model; SCORM, 2004), IMS (IMS, 2001), ARIADNE (Ariadne Webseite, 2005) and LOM (IEEE Learning Object Metadata, IEEE 1484.12.1-2002).

Extending Meta Data

To map f2f-L and pro-L learning with the Meta data certain extensions to **SCORM** have to be defined. The main difference between an e-L unit and an f2f-L / pro-L unit is that an e-L unit can happen anywhere at anytime as long as the learner has access to the system which provides the unit.

F2f-L and pro-L have requirements in common which are usually not reflected by the standards. As they happen mainly in the offline world there is an issue about the time when such a unit happens. Naturally theses units happen at a certain place (a class room, a lab or a project or seminar room). These units usually have a repeating time slot where they happen (the lecture, the lab or project meetings).

The advantage of the approach is to allow the LMS to manage different ways of delivery methods of learning units (e-L, pro-L and f2f-L) instead of only e-L units. This would allow to apply Multi-Dimensional Personalisation for EBL.

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