



Learning Spaces

***Learning Management System  
(LMS)-Centred Design Courses***

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# Development of Learning Management System (LMS)-Centred Design Courses

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## **Abstract**

Learning Management Systems (LMS) are pervasive in our universities today, yet their use is often restricted to providing an archive for learning material, rather than being a place of student engagement. Collaborative learning is possible with LMS, but courses have to be actively designed to afford collaboration. Taking a step further, LMS do not support project-based learning very well, as they lack the characteristics of a project management platform. Yet it still might make sense to use an LMS for creative collaboration in projects, as it usually is the one platform that all students know and already have access to.

## ***LMS as a collaboration platform***

The reference platform for the following arguments and recommendations is <https://moodle.org/>, because it is open source and finds wide use in academic institutions throughout the world. However, most LMS share similar characteristics, so the methods introduced here should be applicable to any state-of-the-art LMS.

### **Why using an LMS as a collaboration platform?**

LMS use a hierarchical role model that makes a clear distinction between teachers and students. Teachers can give students some freedom in creating new conversations or uploading content, but all structural elements have to be pre-defined by the teacher. Students always act individually on the platform, there are no system-wide features to address students as a group. This makes it difficult to implement a non-hierarchical team collaboration structure as we argue for in Stockleben et al. (2017). The whole system is designed to support weekly courses and assignments.





However, there still might be good reasons to implement a project-based learning course on an LMS:

- New students just got used to the LMS and you do not want to introduce new tools at this time.
- You need a tool that all students have constantly access to and they are used to checking daily.
- You do not want to rely on proprietary commercial tools for financial or data privacy reasons.
- You do want to have all courses in one place.
- You want creative collaboration only as a part of the a course (i.e. no pure project-based learning)

### **Strengths of LMS with regard to creative collaboration**

It is not all that bad. LMS have certain unique qualities and elements that are advantageous for creative online collaboration.

- A multitude of different plugins supports all kind of communication tools: Wiki, forum, chat, glossaries.
- Some display the online status of collaborators, i.e. whether others are currently online and ready for interaction.
- They offer a clear structure with static and dynamic elements, i.e. it is easy to find a fixed place for guidelines, resources and other resources the whole team should be aware of. This is often a shortcoming of project management platforms that they are so much focused on communication that the possibility of sharing static resources in a central place is neglected.
- They offer open interfaces to other tools, e.g. calendar synchronization and email notifications.
- They comprise different forms of communication channels and are good for asynchronous, archived communication. They introduce transparency in the process and allow team members to catch up.
- If you have a course with more than one project team, the LMS course page can work as communication hub between the project teams, while internally the teams might use arbitrary platforms of their own preference.





- In general, LMS usually work better with project teams that rely heavily on asynchronous collaboration.

### **Weaknesses of LMS with regard to creative collaboration**

However, in daily work the shortcomings of using an LMS as a platform for project-based learning are evident:

- LMS comprise myriads of tools and are even extendable through open interfaces, yet usually those tools are inferior to a dedicated implementation of the respective tool. E.g. mediawiki.org offers far more features and comfort than any wiki-plugin available for learning management systems.
- Certain advanced tools are simply not available at all, e.g. online pinboards or reliable apps for synchronous text editing.
- Document sharing is optimized from the teacher point of view in order to facilitate sorting and re-using educational resources. Students cannot really share documents to the group or the public. Usually one has to rely on forums, where files are attached to forum posts. There is no automatic folder sync such as with modern cloud storages.
- Only the teacher can change the overall course structure. He/she determines in which part of the course participants may communicate or share material. Creative processes need to be adapted continuously to the needs of the particular project and the team should be able to create their bespoke online collaboration environment. Both is impossible when relying on the teacher to edit and configure the space.
- In general, LMS are weak in real time and near real time communication. The more time the team actually spends on the project per week, the more the project would profit from a dedicated project-based collaboration tool.

The weaknesses can be alleviated by using the LMS as a base platform that is complemented with auxiliary platforms. It is important to define clearly which platform serves which purposes in order to avoid the impression of platform clutter. At the same time, one should make sure that the LMS is not turned into a simply link storage, linking to a mash-up





platform (unless it is a deliberate intention).

It is important to find a basic structure for the course page to fit the needs of project-based learning. The following structure may serve as a blueprint for collaborative courses where the whole course forms one large team:

1. Open Team Forum for asynchronous communication. Make sure you agree on using only the forum, no emails, otherwise the forum is quickly in the danger of being rendered useless.
2. Links to the auxiliary platforms and services the project uses, along with a clear description of purpose (e.g. cloud storage for file sharing)
3. Project charter and other collaboration guidelines, if the team has already agreed upon them
4. Overview of team contact information, e.g. skype names for online meetings, mobile phone numbers, along with information on usual availability and role in the project.
5. Overview documents on project briefing as a reference.
6. Summarized reports on project phases, most recent phase first
7. Reports and Recordings of live online sessions, if any.
8. Any teaching resources the teacher provides during the course.
9. Feedback-Section (Survey, Forum)

In the case that the LMS serves as a tool for inter-team communication between multiple project teams in a course, this structure may be cut accordingly (2,3,4 and 6 might be shorter or left out).

## ***Complementary tools and platforms***

The following platforms and services complement an LMS well, provided that their purpose is outlined clearly on the course page on the LMS:

- Cloud storage — document sharing on LMS is a pain and a cloud storage alleviates that problem. However, it should be possible to easily link and give access to files on the cloud storage to all team members.
- Webmeeting platforms, such as Adobe Connect, WebEx or Big-





Bluebutton. They serve a clear purpose of synchronous group communication and collaboration.

- Online pinboard services such as realtimeboard.com or padlet.com. Having an infinite virtual visual desktop allows for more direct sharing and commenting of visual sketches than up- and downloading PDF files in forums for commenting.
- Real Time collaboration on texts and spreadsheets (and possibly other formats), as most LMS lack powerful realtime collaboration features.

The following platforms and services can create problems if you try to use them in parallel to an LMS for project based learning:

- Social media platforms, because they can cause a conflict on where asynchronous group communication shall happen: In forums within the LMS or on the social media platform. Usually students would turn to the social media platform, drawing away attention from other content and tools on the LMS.
- Project management tools, depending on their specificity. A generic platform such as basecamp.com would clash, as it serves similar communication and linking purposes as the main platform. A lean kanban board service on the other hand might work under certain circumstances.
- Work Chat platforms such as slack.com or hipchat - as they compete with the LMS for being the main communication platform of the project.
- Wikis — although the built-in wikis are usually not very feature-rich, the advantage of curating them on the main collaboration platform keeps them better in focus.

## ***Useful methods***

Apart from the methods described in the methods section of the OnCreate website, there are some small hints and methods to follow if you run a collaborative course on an LMS.

- At the beginning of the course, it is up to the teacher to introduce





standards of responsiveness on the platform. The quicker you answer in the beginning, the more responsive the students will be also later. Once project collaboration has started, however, the students will find and keep a pace that suits the team.

- Do not underestimate the value of using forums. They allow threaded asynchronous communication and give everybody the chance to recap the communication flow.
- Automated multiple choice tests to check reading assignments offer great opportunities to improve reflection and give additional context information. Yet it is important to craft these well and foresee different feedback for false, partly correct and correct answers. Each answer should contain a further bit of information about the matter.
- Agree upon which calendar shall be used, then consequently use the group calendar, but do not expect everybody is aware of meetings just because you entered them into the calendar.
- Visual feedback in the forum works best with commented PDF attachments or with screencasts containing commented walk-throughs through concepts or prototypes. However, be sure to read the whole document first before starting to comment, otherwise you will often comment on things that are explained a few pages later.

## Literature

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