Bridging the Gap between Advanced Distributed Teaching and the Use of Learning Management Systems in the University Context

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Abstract
The selection of appropriate learning management system (LMS) is critical for supporting advanced distributed teaching. A survey was targeted for understanding the features that the LMS offer for university teachers and to found if the advanced features of the LMS were utilized. The findings imply that there is a gap between the LMS tools for advanced distributed teaching and their use in the university context. The teachers using LMS were also found to be heterogeneous by their computer skills and LMS uses.

1. Introduction
Learning management systems (LMS, e.g. [3][4]) consist pedagogical devices, human interactions, learning contents and assessment [1] supporting and advancing traditional learning [5] e.g. in higher education [2]. LMS must address the needs of the users: the students and the teachers. Teachers can use the LMS for distributing courses and interact with more amounts of students compared to the traditional class room.

This research was targeted to find out the whys and the ways the teachers utilized the most popular LMS at the University of Jyväskylä. The LMS was evaluated by its usability and by its affect on the teaching methods used. The LMS was evaluated by using a two-level categorization about the LMS features and a questionnaire developed from the one used for LMS evaluation by Passerini [7].

2. Tool for the LMS evaluation
Among characterizations of LMS features e.g. [6][7] Passerini classified LMS features into four main classes and their subclasses: course design, course management, collaboration and administration. This classification was found beneficial as it turned out to be almost identical by the features to be evaluated when compared to our first draft of the questionnaire. However, her questionnaire for evaluating a LMS considered a broad range of features for evaluating the system features that are common to any kind of information system (IS). Therefore in this study the LMS was observed and evaluated from two viewpoints: the common usability and functionality, and the specific functionality, such as support for collaboration and communications, which may be utilized to support teaching. Our categories hence consisted two categories of system features: basic functionality and support for teaching (Table 1). The original [7] questionnaire was enhanced by appending and adding questions, e.g. a novel group of questions considering the impact of the use LMS for the teaching methods. The final questionnaire was implemented through a web-survey in which teachers (N=37) using the LMS (Optima [8]) from several faculties answered.

<table>
<thead>
<tr>
<th>Basic functionality</th>
<th>Support for teaching</th>
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<td>Common IS features e.g. administrative features, factors for IS usability (content organization, adjustment tools, interface, navigation, standards used, etc.).</td>
<td>Course design and management, as well as the collaboration and communication tools available for teacher-student interactions, such as blackboard and chat.</td>
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Table 1. LMS evaluation categories

3. The Results of the Evaluation
The survey results were analyzed with well-known statistical software. Most of the respondents had a solid experience on teaching multiple courses during a number of years. It was observed that respondents couldn’t make a clear division between the functionality and interface of the Web browser and the LMS. The finding implies that the LMS basic functionality should be assessed by technical people, like system administrators. Findings also imply that basic
functionality for LMS or other Web-based system remains basically the same. Also survey questions about the LMS implementation and about using LMS separately were not fruitful, since the teachers did not seem to consider the implementation phase as being different from the actual use.

The answers given to the structured questions in the survey pointed that the teachers were quite happy with the LMS functionality. However, the open questions brought up many ideas for possible system improvement and provided more-depth understanding of the teachers’ considerations and whereabouts, which provide an avenue for further analysis e.g. problems with terminology and “iconology” on the evaluated LMS.

70% of the teachers found LMS useful as an “e-dissemination tool” [9]; use of LMS decreases the distribution time and effort. When LMS was used, the time required for carrying out routine tasks, informing students and gathering feedback about the course was lower, but teachers answered that the time for preparing and managing the courses or guiding students was not decreased. Yet only 22% of the teachers agreed that the use of the LMS had decreased the time needed for teaching. Therefore, the LMS had provided most support for e-delivery and for routine course-related tasks such as communicating, but not for teaching. However use of LMS had affected the teaching methods used. 65% of the teachers agreed that the use of LMS supports the teaching methods they utilize on their courses, and nearly 50% that the LMS has an impact on the teaching methods used. 11% agreed that there were no changes to the work profiles after LMS use.

Respondents’ computer skills and requirements were very heterogeneous. 70% of the teachers used mostly Word-documents as material type in their courses. The rate delivered via the LMS was slightly smaller. The next most-used formats were Power Point slides followed by PDF- and HTML-files. Yet 59% of the teachers agreed that the multimedia learning material is needed to support teaching. Albeit the communication tools like chat, blackboard, and the questionnaire tools were available on the LMS they were rarely utilized. Some teachers brought up that LMS should be more adaptable to the teacher’s skills – they had found it handy before, but as their skills and the use of the LMS had grown, more advanced tools for managing multiple courses at once, more adaptability on the interface and on the utilization of the tools would be required. Technologically skilled teachers brought up that a common web page and a set of free Web tools might replace the LMS as such, given that they had appropriate user privileges for managing the web sites.

4. Conclusions

LMS was largely used as a useful content distribution system. There seems to be a gap between the reality and the many advanced teaching tools, such as questionnaire tools and multimedia material, which were considered as possible means for enhancing teaching, but not utilized. To bridge this gap LMS system should be build to be more adaptive and modular. Modularity would support better the range of teachers with heterogeneous computer skills and user needs [6]. Because users are not experts on evaluating the system implementation or the basic system features, the requirements for a novel LMS should be jointly evaluated by LMS experts and teachers. The LMS has an affect on teaching but there are possibilities of choosing an appropriate one.

5. References


