Learning Management Systems: The Need for Critical Analyses

Eevi E. Beck
Education Research Institute
University of Oslo
Box 1092 Blindern, N-0317 Oslo, Norway
+47 2285 4259
eevi@ped.uio.no

Abstract
Learning management systems (LMSs) are receiving much attention in Nordic education. While they undoubtedly provide opportunities for educational innovations and can efficiently facilitate distance education, the enthusiasm can mask problematic consequences or preconditions which in effect sift out who may become included and who cannot. This paper points to a range of such difficulties and argues the need for voicing critical perspectives.

Keywords
Education, learning management systems, LMS, accessibility, educational methods, control, standardisation

Introduction
A project of critical computing should look carefully at the various interests involved and benefits to different groups of any computing technology, in particular those on the rise. In education, ICTs are viewed with much optimism and much energy goes into its implementation in schools [14]. In Nordic education, the class of systems known as learning management systems (LMSs) are currently attracting much attention and funding and are subject to particularly high expectations. LMS usage is on the increase in European education [8]. The purpose of the current paper is to propose that critical analyses of LMSs are needed. Practical examples to illustrate the need are drawn from early experiences with LMS use.

Learning management systems (LMSs)
LMSs are web-based platforms for managing various aspects of teaching and learning. Some or all of e-mail and instant messaging, discussion forums, chat, file upload and download, file sharing, role based access rights (“student,” “teacher,” “main teacher/owner”) are integrated in closed (log-in) spaces with a single interface. Teacher functions may additionally include customising the interface (including removing elements from view and other limits on student access), statistics on student activity and more.

Some LMSs are developed in-house, others externally and provided as a service to a number of institutions within or across national boundaries. In the Nordic countries more than in the rest of Europe LMSs are large-scale implementations which interface with administrative systems [8], thus taking on organisational dimensions.

The backbone of the potential for educational innovations is the smooth integration in an LMS of technically relatively straightforward functionality. An example is flexible file handling – e.g. documents may be written within the system or outside and uploaded, they can be written individually or together, and teachers may decide where students can upload (write) to. Informal and formal submission of documents may be supported and ways of commenting on these. Resulting usages range from one-way communication (teacher distributes material or student submits written work to the teacher) to educationally more novel approaches (discussions distributed over time and place, students providing written, public feedback on each others’ work, etc). These opportunities have caused excitement among educationalists in the Nordic countries.

LMSs are currently hailed as answers to the need for not only familiarity with ICTs but the new emphasis in education in Norway on collaborative and student active ways of knowing. The view is contested (e.g. the debate in [10]) but numbers of schools and institutions of Higher Education (HE) using LMSs are rapidly increasing in Norway and there are reports of soaring user numbers.

The paper is centred on three main topics: changing routes for central control with LMSs; LMS support for critical views; LMS contributions to marginalisation vs. access to education. To illustrate problems in these areas examples are presented from experiences with the LMS Classfronter (Cf), which currently dominates the market in Norway and which is expanding into other countries.

LMS in changing landscapes of control
Ambiguity of de/centralisation with LMSs
In use LMSs gain their value through facilitating place/time decentralisation of teaching and learning processes. Yet, they are provided through subscription to a central server for large numbers of users and are subject to substantial centralisation. LMSs are justified only to the extent that they integrate a range of functions and provide efficient management of access permissions at various levels to
different parts of the system (e.g. a Student gets to see less than a Teacher, and in Cf additional access rights may be set at folder level). For efficiency, student data are imported into the LMS without manual intervention. The service must be provided with a high degree of reliability across a range of platforms. In other words, a substantial infrastructure is required to make an LMS a functioning tool. The technical infrastructure comprises on the server-side reliability of service in low and high log-on times, and development capabilities. Users too, however, need to make investment in technical equipment. This may be adequately provided by the institution, as would be the case for many universities and university colleges, or it may not be, as we have experienced in schools with limited numbers of PCs and limited bandwidth to the (external) server. The substantial costs combined with the large-scale reliance on central servers seem to reinforce centralisation effects.

The problem of funding for expensive LMS licences and teacher training (and updates) seem to be under-estimated. Changing ingrained practices of teaching, however, also carries costs including (invisible) articulation work [1, 14].

**Power relations between users and developers**

Participatory Design (PD) importantly asks who benefits? Currently, many have interests in making LMS use a success. An analysis would need to include a host of interests including those of students, teachers, educational institutions, policy makers, software companies: Many students (and for young students: their parents) want young people to “know” ICTs. Teachers at HE institutions find useful for distributing information to students and some make full use of the possibilities of student centred teaching and learning. Schools and other educational institutions as well as education-related government departments face pressures from the public, from funding authorities, and/or from politicians of increased use of expensive ICTs (and expensive teacher skills updating) while being squeezed economically. Politicians and others must be seen to introduce more ICTs into education. Software vendors are finding a substantial market.

A key approach to balancing the power relations between developers and users has been to give users substantial say in the development of systems. The company behind Cf was a spin-off from in-house development at the Univ. of Oslo and during the first years presumably there was a close interaction between the company and their single major customer. As their customer base has grown and they are expanding internationally, relations with user communities are changing (in 2005, major customers are represented on a committee which meets a few times a year). In a parallel to issues raised in [5], a salient question is how the success of the product is affecting power balances between developer and user communities.

Power lines thus seem to shift with the large-scale adoption of LMSs but users are not necessarily empowered with respect to system designers.

**LMS AND CRITICAL EDUCATION**

In 1970, Paulo Freire argued against a view that the teacher has the knowledge and should fill students with it [3] (a “delivery” model of teaching). Many consider such views still to flourish among teachers at all levels. Apparently in response to this, perspectives from social constructivism are becoming influential among educational researchers, practitioners and government in Norway. Such views emphasise the key role for learning of interaction among learners and between teacher and learners. Being platforms for communication LMSs fit such a view well. Interests in LMSs probably include the emphasis on inter-student communication, on safe/protected communication using internet technology, and the emphasis on continuing and ‘flexible’ education. Expectations that introducing an LMS would change teaching do not seem to hold, however. Anecdotal evidence is accumulating that in HE, LMSs may perfectly well be used for a “delivery” style of teaching, as it conveniently makes more effective the distribution of lecture material from teacher to student and the submission of assignments from student to teacher. Freire’s vision included, however, that in education as in society, only critical reflection on the current situation of oppression and its causes gives true liberation (ibid.). While LMS functionality certainly could facilitate critical reflection [1], the infrastructural requirements of an LMS presuppose moneys, technical support, and training of teachers and students. The possibility seems distant that LMS funders would let their investment become a significant platform for thought which is critical to the education system they maintain.

While LMSs are new to educationalists, existing research areas have developed insights which could help provide direction to a critical inquiry. Collaboration processes are complex and technologies affect these substantially. System design must pay close attention to the specifics of the collaboration to be supported. E.g. Cf has limited support for co-authoring and could benefit from insights from Computer Supported Collaborative Work (CSCW). Interestingly for CSCW, however, Cf supports joint submission of exam work (a file can be formally submitted by more than one student).

**Cementation of narrow views of knowledge**

*The “room” metaphor*

Some LMSs are built around building metaphors, using labels like ‘corridors’ and ‘rooms’ to organise areas of activity. While this may have eased understanding when LMSs were new, presently LMSs are often conceived of as helping learning go beyond traditional classroom teaching. Cf, for which the room metaphor has become something of a hallmark, draws many sour comments for this: It is odd that a platform for “breaking out of” the classroom relies on a classroom metaphor. From a critical perspective this can be analysed in terms of gliding intentions and changing champion communities for the system (see [5]).
Hierarchical views on teacher-student relations.

One of the selling points of LMSs is their support for administration of classes and groups of students. Teachers automatically have a privileged status over students, with access to files from all students and customisation rights. In Cf, individual students’ activity are logged in detail and displayed to teachers. This has caused some controversy in Norway, where the University of Oslo received criticism from the Data Protection Agency for collecting and displaying information about students without their consent. The solution – a statement which informs students from the login page – satisfies the requirements of the law but leaves students little choice whether to accept it. While some argue that this is an indispensable tool for teachers to be aware of student activity, no logging is done of teacher activity though students might similarly benefit from knowing how active a teacher is. There is in the current version of Cf no possibility for a teacher to switch off student logging, though she may remove the link from the menu.

In the case of Cf the hierarchy is so ingrained that although the design assumes that the teacher view of the room can be quite different from that of her students, no facility has (yet) been provided for the teacher even to view the room as a student. This is making it more difficult to help teachers gain an understanding of the consequences of their customisation options, and is making customising rooms a more complex task. (A work-around of creating a dummy student may impact student administrative registers.)

Reliance on verbal communication for learning

A basic and largely unexamined premise of LMSs is that knowledge can be imparted through text based and other documents relatively independently of the situations of production and use. The same premise underpins teaching at all levels of education, and the LMSs of today fit in. Yet, even in HE where the primacy of disembodied knowledges arguably is institutionalised, some knowledges are acknowledged to be experiential, cf. field trips in Geology and Biology and placements in medical training and in education. Such practice periods provide quite different learning experiences from the student’s usual situation on campus (e.g. using an instrument, touching a material, communicating with colleagues, encountering complexity). Donna Haraway argues that all knowledges are situated [4]. This poses deep questions for HE, e.g. the appropriateness of relying heavily on verbalisation for gaining and testing understanding. Consequences for LMS-based (i.e. largely text based) teaching and learning need to be investigated.

Interestingly, trials are taking place in HE of using LMSs for supporting communication with students during off-campus practice. Early experiences are mixed and include substantial under-use. Reasons seem to include underestimation of the demands on the student during practice and a parallel overestimation of the abilities of students to use LMS educationally without prior experience. A further question is whether sufficient attention has been paid to how students might interface experiential learning with written modes of expression.

Stability and large-scale integration

Cf was first conceived and developed for HE use. HEs often teach large classes. While Cf appears to successfully support some aspects of large class teaching it does not currently provide sufficient support for the management of large and (to the system) non-standard classes. One coordinator of a course with approx. 400 students who are organised into 15 seminar groups, reported having to set up 15 similar settings one by one. A design assumption in the Univ. of Oslo implementation of Cf is that classes (rooms) last for one term/semester, and that the group remains more or less stable during this time. In her course, students must complete two terms but may take them in any order. At New Year, then, problems arose when some were meant to leave and others join a course which had not formally been ended by an exam. Flexibility, then, was hampered by the integration with the central student register. Specifically, Cf enforced views embedded in the register (‘a course ends with an exam,’ ‘a student ends a course when the course ends’) which became mutually inconsistent for this course when all students were treated as a group, not individually.

The assumption of the specific technical-organisational design behind this problem was that the class is a stable entity which can be delimited with a single start time, a stable list of students (with exceptions), and a joint end.

The integration with the central student register causes quite a different problem at the start of the courses. Students have a deadline for registering and paying their Student Union fee some time into term (as registration has traditionally been tied to exams at the end) and are only then formally registered as attending a specific class. Only then do they get access. The delay is a particular problem for short/intensive and Continuing Education courses. Teachers with substantial numbers of continuing education students are reporting frustration from being tied more closely in with the central bureaucracy while not being provided for by the integration: They must rely on overworked local admin staff to manually register external students for their course, thus losing valuable time for online work at the start. In other respects, external students and their teachers often welcome the opportunities which LMS-based teaching and learning can provide.

Somewhat paradoxically it seems, then, that while LMS usage in many ways contributes to expanding the range of teaching and learning situations, in other ways it may contribute to cementation of narrow views of knowledge.

ACCESS TO EDUCATION

Recent years have seen increasing attention to exclusion and marginalisation processes which bar students from education. Analyses of marginalisation in ‘information society’ indicate that for groups which already are on the margins, mediation may be necessary [2]. In Nordic education, schools have traditionally had an explicit aim to integrate all pupils. This has not always been practiced and in Higher Education (HE) substantial challenges exist.
Infrastructural requirements at home

For students to reap the benefits of flexibility of time and distance they must have sufficiently powerful access from other places than campus. Statistics for pc and internet access show that in Norway in 2005, these continue to vary with income and education level [12]. It seems, then, that though for students in higher education those statistics do not give an unequivocal picture, one certainly cannot assume that student access from home is equally available to all regardless of background.

Bodily agility

One of the earlier dreams and hopes for the availability of distance and “flexible” courses at all levels were that people with disabilities would be able to attend from their homes. In England and Scotland laws have been passed which give rights to students not to be discriminated against on the grounds of disability. A similar law is being prepared in Norway [7]. Such laws require of institutions that they are proactive in providing access. This appears to pose substantial challenges to HE institutions and LMS-based teaching may help resolve some of the problems. Yet LMS usage requires specific kinds of body agility (e.g. speed of reading and writing). Further, Cf erects barriers by not currently conforming to web standards [13] which the poorly sighted rely on for navigation. Somewhat ironically solutions at the moment seem to rely on not using the LMS.

As with standardisation, some of the problems could have been predicted and technical solutions found. LMSs do not, however, automatically reduce barriers to education access.

DISCUSSION

The various threads presented above may to some seem like necessary “birth pangs.” Yet they work together in two simultaneous moves: a) a hierarchical view of teaching and of learning, while in some respects loosened is in other respects being cemented (both between teacher and student in the teaching situation, and between the central administration and teacher or student). b) Responsibility for changes and for the overall effect is dispersed due to large-scale integration and distributed decision making. Consequences of design decisions such as large-scale integration with administrative registers are difficult to see and mistakes are difficult to rectify (both primarily technical omissions and primarily organisational ones).

Of particular interest to critical analyses of LMSs is the reappearance in education of issues familiar from CSCW and Information Systems research. Robertson [9] discusses common assumptions about (dis)embodiment in computer-mediated collaboration which together with situated perspectives on learning [6] and on knowledges [4] may provide insight into conditions under which students can learn by using LMSs. Critical explorations of effects of large-scale implementations (e.g. [11]) may further illuminate ways in which increased convenience for many erects barriers for those who fall outside the applied conventions and registers. Our research continues through studies of Cf use around field trips and practice periods.

CONCLUSION

Critical analysis is needed of many aspects of computers in education. While LMS usage provides opportunities for educational innovations and can efficiently facilitate distance education, the enthusiasm can mask problematic aspects. Preconditions for successful LMS use which determine who may become included and who cannot should be explored through critical analyses.

REFERENCES
