



Lecturer engagement in the use of interactive tools in learning management systems. A Swedish case study.

Michael Christie

Education Department,
Stockholm University, Sweden

Ramon Jurado Garrote

Centre for learning and teaching,
University College of Borås, Sweden

Abstract: In this paper the authors argue that although Higher Education researchers have been largely responsible for the creation of the Internet, university lecturers have been far less innovative and active in their use of this form of Information Communication Technology (ICT). To support our case we use our own research to show the manner and extent to which a Learning Management System (LMS) is used by a sample of teachers from an Engineering Department in Sweden. We also analyze the use of interactive LMS tools by lecturers who undertake staff development courses. The teachers in our two samples make very little use of online asynchronous discussions (OADs) either as teachers or as students. We use logic and the literature to explain this phenomenon and make some recommendations for improving the scholarly, innovative and pedagogical use of LMS in both staff development and mainstream university courses.

Keywords: Learning Management Systems; blended learning; evidence-based practice.

Higher Education and the Internet

In chapter two of a recent book called *Viral Loop. The power of pass-it-on* (2010) Adam Penenberg inadvertently shows the extent to which university researchers affected the development of the Internet. Paul Baran, who worked for the Rand Corporation, is credited with conceiving the idea of an Internet when he suggested it in 1959 as a robust communication network for US military commanders. However it was university researchers, students and graduates, who created a functioning, searchable Internet. In the early 1970s Vin Cerf (a Stanford university researcher) and Bob Kahn from UCLA designed the transfer control protocol (TCP) and the Internet protocol (IP) that facilitate online file transfers. They baptized this new information communication system 'The internet' and in 1992 founded the Internet Society. Tim Berners-Lee, a physicist, created another series of protocols that made it even easier for academics to exchange research papers with colleagues around the world. Marc Andreessen, a computer science student, together with Eric Bina created the

first effective web browser (Mosaic) in 1993. Andreessen's mission was to make the Internet more useful for a wider public, since, for its first twenty years, it was mainly the domain of university researchers. University researchers continue to be both active and creative in their use of the Internet and ICT. In this paper we argue that university teachers have been less engaged, especially in their use of LMS, and in particular, the interactive tools within LMS such as online asynchronous discussion (OAD) forums.

The use (or lack of use) of interactive tools in LMS

The first case study was carried out in 2005 and published by Garrote in 2006. Garrote investigated the extent to which lecturers in his department made use of different tools in a LMS called WebCT. He was responsible for both the technical maintenance of the system and for providing pedagogical advice on the use of the system. Although introducing the system had been expensive, management felt its use might be one way to arrest a worrying drop in new enrollments and the failure of many students to complete their studies. A similar drop was noted in the United States and the use of ICT was seen as one possible way to avert the problem (Klobas & McGill, 2010; Paulsen, 2003; Weaver et al., 2008; Hopperton, 1998). Irwin and Berge (2006) argued, for instance, that well-run online forums could help create communities of learners where individuals could meet for both scholarly and social purposes.

In his 2005 investigation of LMS use at the University of Borås (UB) Garrote developed a spreadsheet which enabled him to examine 107 courses that were given at the school of Engineering. What Garrote and other researchers have found is that interactive tools, such as asynchronous LMS are under used compared with tools for distributing documents. Teachers for the most part use LMS to upload course programs, required reading and PowerPoints of their lectures (Bongalos et al., 2006; Garrote & Pettersson, 2007; Phillips, 2006). One might expect that as lecturers became more familiar with a LMS and how it was used they might be inspired to begin to use it in a more interactive and creative way. It seems, however, that the pattern noted in 2005 deteriorated over the next 5 years and that LMS use, instead of improving in terms of quantity and quality was used less interactively in 2010 than in 2005 – often by the same teachers (Garrote, Pettersson and Christie, 2011, under review).

The results of the case study undertaken at the University of Borås in 2005 and the longitudinal comparison carried out in 2010-11 exemplify findings from other research. A number of researchers show that high hopes were held for the pedagogical use of LMS in both compulsory and non-compulsory schooling (Blin & Munro, 2008; Bush & Mott, 2009; Findik et al., 2010; Ubell, 2000; Wilson, 2004; Brill & Galloway, 2007; Browne et al., 2006; Czerniewicz & Brown, 2009; Marshall, 2004) but that in the university world, at least, these hopes are still to be realized. Today, many lecturers continue to use a LMS as a means to distribute documents. The failure to use LMS more pedagogically is hard to explain, as is the resistance of many lecturers to embrace new ways of reaching and engaging students via digital media. According to some researchers more staff training is required in order to change this lack of insight and unwillingness to change one's practice (Blin & Munro, 2008; Selwyn, 2007).

Our second case study looks at what happens when teachers themselves are in the position of students. Do they engage in OADs when encouraged to do so? This case study is based on an analysis of OADs in a course for supervisors of PhD students that was run twice a year for researchers at Chalmers University of Technology. The first author has given 10 such courses between spring 2006 and autumn 2010. In total 320 supervisors have taken the course. They attend four full days of course work in addition to doing take-home tasks, for example interviewing an experienced supervisor and posting a transcript of the interview on an OAD. They are asked to read and comment on one another's interviews prior to discussing them in small group work at the course itself. They are also asked to post, on another discussion forum, a proposal concerning an aspect of their supervision that they wish to improve on. The idea is that they will carry out some sort of simple research – by using the internet for example, or by surveying colleagues in the course or in their own departments. The final report, which is discussed in small groups on the last day, must also be posted on the 'Improving my supervision' OAD in the last week of the course so that colleagues can provide and receive feedback on all the projects.

The courses are given in English to non-native speakers. Course delegates include both Swedes and other nationalities. A third OAD is made available on the course site and is aimed at mutual support for the writing of conference abstracts. This last OAD is offered as a service by the course facilitator who is a native English speaker. Those who post abstracts are guaranteed feedback from the course facilitator but everyone is encouraged to read the abstracts and contribute by offering editing and other advice – in other words this OAD is a type of peer review forum (Lefoe et al., 2009). Posting an abstract on this OAD is not a required part of the

course. Course participants are aware of the course design before they apply and are specifically told about the face-to-face discussions and OADs in the letter of welcome that is sent out informing them of their acceptance into the course. In other words, commenting on each others' texts in the OADs and joining in an online discussion about them, is strongly encouraged but does not affect whether or not one passes the course.

An analysis of activity in these OADs from 2006 to 2011 reveals a common pattern. Apart from one or two cases where delegates are forced to drop out of the course or postpone completing it until a later date, all participants upload their interviews as well as their proposal and final report for their mini projects. Comments and discussion of interviews and projects varies from year to year but on average there is no more than two persons per course (2 in 32 or just over 6 %) who actually engage in the proposed online discussion. The chance of this happening is far greater for the 'Interview' OAD which must be posted before the course begins, than for the 'Improving my supervision' OAD.

Explaining the lack of use of LMS by university teachers

Our case studies and current literature in the area indicate a number of reasons why university lecturers (even when engaged as students in a staff development course) do not use OADs. When teachers in higher education are asked to identify barriers to the use of educational technology lack of time and lack of support are the most common answers (Al-Senaidi et al., 2009). The lecturers' perceived shortness of time and lack of support is directly linked to the perceived ease of use. The most plausible explanation for the difference in using these two functions is that teachers perceive the consequences of distributing documents to be far less time consuming and intellectually demanding than setting up a discussion forum that may need to be monitored or assessed (Lonn & Teasley, 2009). To commit oneself to a well-run discussion forum not only depends on one's perception about how much time it will take, but also on how one perceives the usefulness of such a teaching and learning method. If lecturers believe that a non-monitored discussion will result in students pooling their ignorance they are unlikely to use it. If they think that monitoring a discussion will not result in enough teaching and learning benefits to warrant the invested time, they will also be wary of using such a tool. On the other hand if they think that online asynchronous discussions (OADs), whether monitored or not, could contribute to the learning of subject-specific and generic competencies, then there is a greater chance that they will be willing to invest time in setting up and maintaining an OAD. Lecturers whose approach is mainly teacher-centered and whose principal concern is how a tool may facilitate his or her work within a set frame of teaching practices and institutional traditions, will be less likely to use OADs. Those who consciously or intuitively practice a more student-centered and active learning approach, on the other hand, are more likely to commit the time and effort to set up and monitor OADs. The latter approach will take more time initially but may have, according to the literature, substantial long-term benefits for the students by creating a community of practice and promoting collaborative learning (Ladyshevsky & Gardner, 2008).

Whether a lecturer uses a discussion forum or not usually depends on the lecturer's perception of the OAD's contribution to a specific course. If the OAD is considered to be sufficiently useful there is more chance the lecturer will commit time and effort to running it well. Murphy argues that 'the higher-level processes related to collaboration in an online asynchronous discussion (OAD) may need to be more explicitly and effectively promoted in order to counteract a tendency on the part of participants to remain at the level of individual rather than group or collaborative effort' (Murphy, 2004. abstract). Although more research is needed, it seems that time and effort spent on introducing and supervising an OAD can ease the lecturers' workload in other areas. For example the use of OAD may decrease the demand on time needed for counseling students, since they are able to exchange information and ideas about the course as part of the OAD experience.

Since so much depends on how teachers perceive the usefulness of OADs, convincing arguments that demonstrate their benefits for the development of both specific and generic competencies, are important. In most educational institutions both lecturers and students are under pressure to produce results. In an environment where most teachers realize that good research is more likely to benefit their career than good teaching, putting effort into developing a well functioning OAD may be undervalued. Similarly, if students are strategically focused on activities that will result in the best grades, time spent on an OAD that does not give a grade or improve their assessment chances may be seen as irrelevant. As Lonn & Teasley (2009 p. 92) point out 'As long as students fail to see the relevance of interactive tools for their learning or for instructors' teaching, they are likely to continue to view IT as merely a quick and accessible means to retrieve course documents and get messages from instructors'. The use of LMS to distribute documents or send out notices to students are functions that replicate the more onerous tasks of copying lecture notes or emailing lists of students. Using them is often saves time and paper. The use of OADs is another matter. In traditional courses in engineering education, for

example, there is very little interaction between lecturer and student. It is the teaching assistant (often a PhD) who works with smaller groups of students in the tutorial room or laboratory. Lecturers who are unused to dealing with group discussion in the real world are not necessarily the best at dealing with them in a virtual world. Lecturers need both technical and pedagogical support if they are to make better use of OADs. For both teachers and students in Higher Education the way forward in the more active and productive use of LMS and OADs is to weave continuous assessment into the use of such tools. This is important not only in the areas of subject specific knowledge, skills and attitudes but also in the generic competencies that we aspire teach.

References

- Al-Busaidi, K.A. and Al-Shihi, H. (2010). Instructors' Acceptance of Learning Management Systems: A Theoretical Framework. Communications of the IBIMA.
- Al-Senaidi, S., Lin, L., & Poirot, J. (2009). Barriers to adopting technology for teaching and learning in Oman. *Computers & Education*, 53(3), 575-590. <https://doi.org/10.1016/j.compedu.2009.03.015>
- Baptista Nunes, M. & McPherson, M. (2003) Constructivism vs. Objectivism: Where is difference for designers of e-learning environments? *Third IEEE International Conference on Advanced Learning Technologies (ICALT'03)*, 496 ff. <https://doi.org/10.1109/ICALT.2003.1215217>
- Blin, F., & Munro, M. (2008). Why hasn't technology disrupted academics' teaching practices? Understanding resistance to change through the lens of activity theory. *Computers & Education*, 50(2), 475-490.
- Bongalos, Y. Q., Bulaon, D. D. R., de Celedonio, L. P., de Guzman, A. B., & Ogarte, C. J. F. (2006). University teachers' experiences in courseware development. *British Journal of Educational Technology*, 37, 695-704.
- Brill, J. M. & Galloway, C. (2007). Perils and promises: University instructors' integration of technology in classroom-based practices. *British Journal of Educational Technology*, 38(1), 95-105.
- Britain, S. & Liber, O. (1999). A framework for pedagogical evaluation of virtual learning environments (143 Reports: Research; 160 Tests/Questionnaires). United Kingdom; For full text: <http://www.jtap.ac.uk/reports/htm/jtap-041.html>.
- Browne, T., Jenkins, M., & Walker, R. (2006). A longitudinal perspective regarding the use of VLEs by higher education institutions in the United Kingdom. *Interactive Learning Environments*, 14(2), 177-192.
- Bush, M. D. & Mott, J. D. (2009). The transformation of learning with technology: Learner-centricity, content and tool malleability, and network effects. *Educational Technology*, 49(2), 3-20.
- Cronjé, J. (2006). Paradigms regained: Toward integrating objectivism and constructivism in instructional design and the learning sciences. *Educational Technology Research and Development*, 54(4), 387-416.
- Czerniewicz, L. & Brown, C. (2009). A study of the relationship between institutional policy, organizational culture and e-learning use in four South African universities. *Computers & Education*, 53(1), 121-131.
- Denscombe, M. (2000). *Forskningshandboken*. Lund: Studentlitteratur.
- Dutton, W. H., Cheong, P. & Park, N. (2004). The social shaping of a virtual learning environment. *Electronic Journal of e-Learning* 2(2), 1-12.
- Findik, D., Ozkan, S., & Ieee. (2010). Identifying success factors for wblms use by instructors of engineering departments. In *2010 Ieee frontiers in education conference*. New York: Ieee.
- Garrote, R. (2006). The use of learning management systems in engineering education: A Swedish case study In M. F. Christie (Ed.), *Shifting perspectives in engineering education* (pp. 213-226): Chalmers Strategic Effort on Learning and Teaching (C-SELT) Chalmers University of Technology.
- Garrote, R., & Pettersson, T. (2007). Lecturers' attitudes about the use of learning management systems in engineering education: A Swedish case study. *Australasian Journal of Educational Technology*, 23(3), 327-349. <https://doi.org/10.14742/ajet.1256>
- Hopperton, L. G. (1998). Computer conferencing and college education. *College Quarterly*, 5(2).
- Irwin, C., & Berge, Z. (2006). Socialization in the online classroom, *e-Journal of Instructional Science and Technology (e-JIST)* (Vol. 9).
- Klobas, J. E., & McGill, T. J. (2010). The role of involvement in learning management system success (080 Journal Articles; 143 Reports: Research).
- Ladyshewsky, R. K., & Gardner, P. (2008). Peer assisted learning and blogging: A strategy to promote reflective practice during clinical fieldwork. *Australasian Journal of Educational Technology*, 24(3), 241-257. <https://doi.org/10.14742/ajet.1207>
- Lefoe, G., Philip, R., O'Reilly, M. & Parrish, D. (2009). Sharing quality resources for teaching and learning: A peer review model for the ALTC Exchange in Australia. *Australasian Journal of Educational Technology*, 25(1), 45-59. <https://doi.org/10.14742/ajet.1180>
- Lonn, S., & Teasley, S. D. (2009). Saving time or innovating practice: Investigating perceptions and uses of learning management systems. *Computers & Education*, 53(3), 686-694.
- Mahdizadeh, H., Biemans, H., & Mulder, M. (2008). Determining factors of the use of e-learning environments

- by university teachers. *Computers & Education*, 51(1), 142-154.
- Marshall, S. J. (2004). Leading and managing the development of e-learning environments: An issue of comfort or discomfort? Paper presented at the *21st ASCILITE Conference*, Perth Australia 5-8 December 2004.
- Murphy, E. (2004). Recognizing and promoting collaboration in an online asynchronous discussion. *British Journal of Educational Technology*, 35:4 421-431. <https://doi.org/10.1111/j.0007-1013.2004.00401.x>
- Paulsen, M. F. (2003). Experiences with learning management systems in 113 European institutions, *Educational Technology & Society* 6(4), 134-148.
- Penenberg, A. (2010) *Viral Loop. The power of pass-it-on*.
- Phillips, R. (2006). Tools used in learning management systems: Analysis of WebCT usage logs. *Proceedings of the 23rd Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* (pp. 663–673). Sydney: Sydney University Press.
- Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.
- Selwyn, N. (2007). The use of computer technology in university teaching and learning: A critical perspective. *Journal of Computer Assisted Learning*, 23(2), p.83-94. <https://doi.org/10.1111/j.1365-2729.2006.00204.x>
- Ubell, R. (2000). Engineers turn to e-learning. *Ieee Spectrum*, 37(10), 59-63.
- Weaver, D., Spratt, C., & Nair, C. S. (2008). Academic and student use of a learning management system: Implications for quality. *Australasian Journal of Educational Technology*, 24(1), 30-41.
- Wilson, G. (2004). Online interaction impacts on learning: Teaching the teachers to teach online. *Australasian Journal of Educational Technology*, 20(1), 33-48. <https://doi.org/10.14742/ajet.1366>
- Yarusso, L. (1992). Constructivism vs. Objectivism. *Performance & Instruction*, 31(4), 7-9. <https://doi.org/10.1002/pfi.4170310404>

Please cite as: Christie, M. & Garotte, R. J. (2011). Singapore student teachers' intentions and practices in integrating technology in their teaching. In G. Williams, P. Statham, N. Brown & B. Cleland (Eds.), *Changing Demands, Changing Directions. Proceedings ascilite Hobart 2011*. (pp.234-238). <https://doi.org/10.14742/apubs.2011.1851>

Copyright © 2011 Michael Christie & Ramon Jurado Garotte.

The author(s) assign to ascilite and educational non-profit institutions, a non-exclusive licence to use this document for personal use and in courses of instruction, provided that the article is used in full and this copyright statement is reproduced. The author(s) also grant a non-exclusive licence to ascilite to publish this document on the ascilite web site and in other formats for the *Proceedings ascilite Hobart 2011*. Any other use is prohibited without the express permission of the author(s).