

The Impact of Learning Management Systems in Universities



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Introduction

Ladies and gentlemen, good morning!

Let me begin by saying how very delighted I am to be back in Trinidad & Tobago. I would like to thank the organizers of this conference for their kind invitation. I bring you the warmest of greetings from the Commonwealth of Learning. *Side by side, we stand.*

When I was first asked to consider speaking on “The impact of Learning Management Systems on Education,” I thought, wow, that’s a tall order, even for eLearning experts or software designers, neither of which I am I must hasten to add. However, I have a keen interest in the matter from the perspective of learners. They are your quintessential stakeholders. They are central to the higher education enterprise and I would like to explore how well a Learning Management System is serving them.

As you may know, COL is a strong supporter of and advocate for Open Education Resources. Some of our partner-institutions use the popular open source LMS, Moodle. I’ll be focusing more on what their experiences have been with this open source system.

In preparing my notes for this keynote address, I sought the opinion of several colleagues, in both traditional and dedicated open universities. In particular, I would like to thank Dr Leonie Steyn and Ms Alice Goodwin-Davey of the University of South Africa, Professor Madhulika Kaushik of Wawasan Open University in Malaysia, Professor Derek Keats of the University of Witwatersrand in South Africa and Dr Sunday Reju of the National Open University of Nigeria for their kindness and time in responding to my questions about either their learning management systems or LMSs in general. Prof Keats was particularly generous in granting me permission to use any of the slides that he had developed under Open Education Resources and available in SlideShare on the Web. I’m grateful for these considerations.

In this address, I will look at some of the issues and challenges in learning management systems (LMS). I

will also address some of the benefits, successes and failures in using LMS. Importantly, as the title of my keynote address suggests, I will also outline some of the key impacts that an LMS is having on learning in universities as well as the imperative of generating appropriate policies in adopting LMSs.

But, first, let's take a quick look at what has made all of this possible: the Internet.

The Internet: Where it All Began

When you think about constant and rapid change in our globalized world, you can't help but think about the Internet. On November 2nd this year, the Internet will be 40 years old. It was born in 1969. Since then, we have witnessed all manner of possibilities that the medium offers. A common feature that we have now come to take for granted is Internet email. It wasn't until 1993 that Internet email, as a global standard, was adopted on a large scale. Thanks to America Online and Delphi, the two large network service providers that linked their email systems to the Internet.

Folks, that was only 16 years ago. Yet it seems like ancient times when you consider that the so-called "net generation," the digital natives as they have come to be known, hardly use personal email anymore. With social network sites, blogging and tweeting now in vogue, the digital natives tend to use personal emailing in communicating with their opposite members – the so-called digital immigrants. Otherwise, they have little use for it. Text messaging does it for them. It is quick. It is mobile.

Talking about digital natives, I read a newspaper article last December entitled "Forget Memorizing" by Alexandra Freaan. It highlighted the arguments of Don Tapscott, author of *Wikinomics*, who champions the net generation and believes that traditional teaching needs to give way to personalized learning. For him, "...memorizing facts and figures is a waste of time." That drew this sub-headline from Freaan: "When was the Battle of Hastings? Who cares, just Google it, says Tapscott."

Who doesn't Google these days? Established only 11 years ago (Google was incorporated on September 4, 1998) and at first operating out of a garage in Menlo Park, California, Google has taken the Internet world by storm. If you aren't good at spelling, take heart. The word Google is the result of a misspelling of Googol. Googol is the number 1 followed by one hundred zeros. The rest is computational history. Thanks to Larry Page, a PhD student at Stanford University who worked on this phenomenon as a research project starting at the beginning of 1995.

OK, enough Internet trivia. Now let's turn to the subject at hand – LMS in universities. By and large, the "M" in LMS largely defines what LMS is. It does more for Management than it does for the learner. We may not quite realize it now but it could be argued that the LMS, as we know it, may be viewed as a 20th Century phenomenon that is on its way out. It is being overtaken by more dynamic systems that make personalized learning possible. Personal Learning Environments are becoming popular. As the next slide shows – call it the learning triangle if you may - when technologies and minds of the 21st Century remain largely stuck in 19th Century pedagogy, that's not a great formula for progress in learning. Prof Keats, who is now the Deputy Vice-Chancellor of Knowledge and Information Management at Wits, puts traditional education in the context of an industrial process. Think about the physical structure of traditional classrooms. They haven't changed that much since the 19th Century.

In any typical face-to-face University, you will find students seated in straight rows, circles or semi-circles – with a teacher in front of the class or seated somewhere imparting knowledge. Like a sponge, a student absorbs the knowledge and like a bank into which a deposit has been made, the student can retrieve bits of that knowledge to satisfy specific requirements, such as an examination task as in, for example, write a 3-page essay on the Battle of Hastings. It wouldn't be forward-looking to digitize and replicate this traditional approach to learning as that would be ignoring the technological context of the 21st Century. This leads me to how we view learning. Traditional approaches apart, there is the contending schools of social constructivism and connectivism.

Social Constructivism

Theories of how people learn, what they learn, why they learn and where they learn is beyond the scope of this address but because many universities are making the effort to go beyond traditional approaches to learning, employing new technologies in the process, it is worth taking a couple of minutes to look at the drivers behind the “new” approaches. One is the concept of social constructivism.

This concept embodies several assumptions. To truly understand what happens in society, we must accept the importance of what culture and context mean and what they offer. Our view of reality, of the construction of knowledge and of learning is based on this understanding (McMahon, 1997). Institutions adopting social constructivism as a model of instruction tend to focus on the assumptions concerning reality, knowledge and learning. Through human interaction, reality is created. Knowledge is a product of such human interaction that takes place in a given environment from which individuals derive meaning. And meaningful learning happens when people socially interact because learning is a social and active process. A social constructivist approach to learning facilitates self-governing, problem-solving and collaborative processes in learning (Dalsgaard, 2006).

Connectivism

Connectivism implies Internet connectivity and the use of Web-based resources. Using a variety of tools available on the Web, learners can establish connections and networks for, and in, their learning activities. As George Siemens defines it, “Connectivism is the integration of principles explored by chaos, network, and complexity and self-organization theories... Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing. Connectivism is driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical.

In other words, ‘know-how’ and ‘know-what’ are being supplemented with ‘know-where’ (the understanding of where to find the knowledge when it is needed), and meta-learning is becoming just as important as the learning itself.”

Two things I want you to note about connectivism: one is that connectivism is about information and/or knowledge currency. It assumes that the information and knowledge that you have is accurate and up to date. What was correct information two months ago, or yesterday for that matter, may no longer be correct today. Two, when learners start figuring out what they want to learn and how useful the information they encounter is, consider that a useful learning process in itself.

If you are a Curriculum and Instruction specialist, you are probably wondering what connectivism has got to do with instruction. Debatable. But I would grant you that, at the instructional level, theories of learning deal with how we learn. What we learn and why we learn it fall in the domain of curriculum design and application – a domain that speaks to connectivism.

I should think that universities that integrate traditional approaches and the avenues offered by new technologies would be better placed to offer their students a more challenging, robust and rewarding learning experience.

Learning Management Systems

An LMS (e.g., Moodle, OLAT or SAKAI) is a virtual learning environment that by and large emphasizes the management of courses and students rather than learning per se. A typical LMS has two major characteristics. In course management, it enables the management and delivery of learning. In organizing and managing students, it facilitates student admissions, registration, payment of fees and other administrative requirements.

Because LMS is partial to Management, its usefulness in pedagogy appears to be limited. While an LMS offers modules dealing with, for example, assignments, course content management, chats, forums, lesson plans, quizzes, tests, assignments, surveys, file sharing and resources, not all of these features will work for an institution. So a University needs to figure out its particular environment and how it wants to apply an LMS. Or even develop its own unique system derived from non-proprietary models, such as Moodle, which is developed under open source arrangements and could be downloaded, adapted and used at no cost to an institution. .

A connectivist might argue that what is needed is a PLE, a Personal Learning Environment, which is not a product that a vendor tries to sell to you. Rather, the PLE is an idea. A concept. With tools such as Facebook, MySpace, Twitter, Blogger, Slideshare, Weblogs, Social bookmarking, the Wiki and RSS feeds, to mention just a few, learners are able to create, own and manage their own learning agenda. And to engage others - either within a community or some other type of relationship - in their learning processes.

What is instructive and appealing about a PLE is that the social networks that I mentioned moments ago do not respect institutional boundaries in a proprietary kind of way. With these tools, learners can connect to a variety of resources (people, places, media, ideas) and systems – all within their personal space. While it can be argued that an LMS is Management or Institution-centred, the opposite is true for a PLE, which empowers the learner and is learner-centric.

Now let's look at some of the issues and challenges, benefits and successes, failures and pitfalls and impacts in using an LMS.

Issues and Challenges

I will address three key issues: equal access to learning for all, resistance to online teaching and pedagogy.

i) Equal access to learning for all

One of the key issues that a University faces and needs to address in its use of an LMS or in installing and running one is ensuring equal access to learning for all of its students. This is particularly germane to students with disabilities - disabilities that may range from low vision, colour blindness, hard of hearing, dyslexia and attention deficit disorder to short-term memory loss, central-field vision loss and hand tremour in much older learners. For many of us, in physical and cognitive terms, using a computer isn't that much of a problem but there must be a sizeable population of students with disabilities out there who are struggling to use the Web – to, for example, access course material and class activities online.

The problem with many LMSs is that they come with minimal flexibility to tinker with their core features. The elements that are variable can be modified by users but watch out for proprietary rights, which may restrict the ability of a user-institution to “mess around” with the vendor's product. One way to avoid this dilemma is to adopt open source systems. Such systems do allow user-institutions to tinker with the system as they see fit to suit their particular circumstances. A popular open source LMS is the Moodle.

However, in shopping for a system, it is important for an institution, in its negotiations with a vendor, to outline the full scope of its requirements, including access for students with disabilities, and see how well the vendor can accommodate the institution's needs. In many countries – for example, Australia, Canada, the UK and USA - accessibility compliance (with international accessibility standards) is required by law. Details of these standards can be found in the following web links:

<http://www.w3.org/WAI/> and

<http://www.devarticles.com/c/a/HTML/W3C-Web-Standards/>

An organization that is dedicated to accessibility for students with disabilities is Desire2Learn. It has constituted an accessibility interest group to engage LMS providers in making accessibility possible for learners with disabilities. You can find out more about D2L, as it is called, at <http://www.desire2learn.com/>

ii) Resistance to online teaching

A serious challenge facing some universities is the reluctance or unwillingness of some of their lecturers to assume the responsibilities associated with online learning. Several factors account for the varying levels of enthusiasm that lecturers have for online teaching or facilitation. Unlike a regular face-to-face classroom situation, teaching online is viewed as additional workload and very time consuming, especially for those teaching three or more courses during a semester. Lecturers who find themselves in this situation tend to make fewer postings and consequently interactivity becomes minimal and

discouraging for students. Some of the faculty may not be very computer literate and may shy away from using technology. Others may be comfortable using a computer but may have never before used an LMS to enhance their teaching.

We must not overlook the importance of infrastructure in using an LMS to its fullest potential. Some of our partner-institutions use their LMS as part of a blended learning mode in which print-based distance learning with online components is provided. The reason for this is obvious. Unavailability of broadband and bandwidth capabilities is a limiting factor in taking advantage of innovations such as video streaming and podcasts. And remember, many students in some jurisdictions do not have easy or reliable access to computers and/or the internet. As one of our partner-institutions with whom we have a close association puts it, “Bandwidth limitations and the quality of connection available at the receiving end result in limiting the type and extent of resources the course coordinator may want to place on the LMS. Limited bandwidth and high incidence of dial up connections at receiving ends, have curtailed the possibility of using animation, flash tools and A/v resources as content.” The partner-institution also identified the following challenges and I quote:

“Both tutors and course coordinators, the main providers of academic support and resources vary widely in their enthusiasm and involvement (and sometimes capacity) for the LMS. While essential fields have been defined where content is essentially required to be uploaded, the continual addition of supplementary material and online content, as well as learner support in terms of instructions, guidelines, revision exercises vary a lot between course coordinators. For a learner taking up to four courses in a given semester, this results in a highly variable learning experience across courses and affects the perception of service quality. This was partly traced to the fact that course coordinators did not have viewing access to the LMS pages for courses other than their own. Despite initial training, some tutors remain non-participative except for responding to direct queries by the learners. Monitoring by course coordinators helps.”

Here are some of the measures that our partner-institutions are taking to increase academic participation in their LMS:

- training at regular intervals is mandated for incoming faculty to equip them to exploit the full potential of the LMS;
- monthly demonstration forums to illustrate best practice among other academics;
- Help & Support web site on the LMS for academics to provide tutorials on various tools;
- A 24-hour help desk;
- monthly newsletters about updates, new tools, etc.;
- weekly drop-in service for troubleshooting, etc.;
- hands-on training for departments [and other units];
- ongoing and constant consultations for support and training;
- dedicated team of people from ICT and staff development departments who meet weekly to sort out problems, raise issues, etc.;
- Annual colloquium and showcase to award excellence in the use of the LMS. Winner receives support to attend an LMS-related international conference of interest to the institution;
- Management level Advisory Board with representatives from ICT, Management and Academic Faculties to discuss policy issues and give mandate to all of the above.

iii) The Issue of Pedagogy

You will recall the point I made earlier about 21st Century technologies and minds being stuck in 19th Century pedagogy. This is an issue that continues to exercise the LMS user community. Using ICT to provide easily retrievable information is one thing. Using ICT and collaborative tools available on the web to secure and enrich the learning experience is another matter. Bush and Mott (2009) lament the lack of foresight in embracing a new pedagogy that factors in technological innovations: "...we have consistently, almost single-mindedly, used technology to automate the past instead of employing our best thinking and efforts to create a new future." They are not alone. Feldstein and Masson echo the same perspective by contending that "...the current technical design philosophy of today's LMSs is substantially retarding progress toward the kind of flexible virtual classrooms that teachers need to provide quality education."

The question for universities is whether or not they must continue to emphasize the management of learners over the need to allow learners to make connections, using the various web-based tools now readily available, which may reside within and/or outside their institutions. LMS is seen as replicating and reinforcing our traditional classroom model of learning and as such is incapable of reconciling classroom instruction with personal tutoring or personalized learning. Universities would do well to bring together their ICT specialists, instructional designers, course coordinators, management, faculty and students to examine or re-examine the kind of pedagogy that aligns best with new developments in technology and the ways a 21st Century student can learn.

Benefits and Successes

Mega Open Universities enroll students in multiples of one hundred thousand. For example, one of the world's mega-universities, the Indira Gandhi National Open University in India has over one million students. Whether big or small, LMS has benefits for University administrations, faculty and students. The teaching and learning functions can be linked to other corporate functions such as human resources, records and a student information system. An LMS that is able to "speak" with all the other systems of a university has great benefits. In some of the institutions that we work with, LMSs have been very useful in:

- Developing and maintaining regular contact with tutors and learners, and interaction between tutors and learners;
- Providing course updates and additional readings;
- Offering clarifications and clearing queries posted by learners;
- Placing issues for discussion among the students and monitoring that discussion;
- Monitoring the online interaction between tutors and learners and making a comparative assessment of learner support provided by different tutors of the same course;
- Getting learner feedback on both course content and course delivery;
- The LMS facilitates a 24/7 information sharing portal among tutors as well as students and between tutors and students;
- Moodle, as a popular open source LMS, is working reasonably well as it allows for customization to meet individual university needs;

- Learners use LMSs to receive course support inputs, additional updates, attempting self-test quizzes, and interacting with course coordinators, tutors and peers via the public forums, tutorial forums, discussion boards and the study groups created by them;
- Learner participation on the LMS tends to enhance their performance in assessments.

Failures and Pitfalls

There is no doubt that LMSs have benefits for both institutions and learners but they are not without problems. As popular as Moodle is, not all of its features will be compatible with every institution's existing information systems.

Where this has been the case, institutions have had to invest in other customized solutions to support or complement their unique system. If you are a mathematics teacher or student, you'll find that Moodle is not very user-friendly when handling math symbols and graphics. As a result, learners may not be able to use appropriate symbols when posting queries.

For open universities that have students scattered around in different regions of a country, it is a major drawback when some students in these regions are either unable to access the available technology or are simply not familiar with it to be able to use it effectively. Universities that have found themselves in this situation have resorted to providing print-based material through postal services as backup. But then that depends on how reliable the postal service is.

The lesson to be drawn from such drawbacks is for universities to ensure that they have a complete profile of their students, including particularly their needs, before introducing a particular learning technology. Wide intra-institutional consultations involving administration, faculty and students would go a long way in assuaging, if not forestalling, such pitfalls.

When an institution introduces technology first and then worries about content later, it is putting the cart before the horse. This is where pedagogy becomes very important. Your subject or content specialists, instructional designers, content editors and ICT specialists need to work together to ensure that high quality content is produced in the first instance and adapt the incoming technology to deliver it. When that is in place, teaching is likely to improve and better learning is likely to take place.

Impact of LMS

We have already noted that Universities can enjoy benefits and successes from using LMSs. They can also experience failures and succumb to some of the pitfalls in technology use. But overall, what has been the impact of LMSs on learning in universities? What is clear is that, so far, their impact on pedagogy has been limited. The OECD sums it up as follows: "ICT has penetrated tertiary education, but has had more impact on administrative services (e.g. admissions, registration, fee payment, purchasing) than on the pedagogic fundamentals of the classroom" (OECD, 2005, p.15).

The Organization had indicated some four years earlier that there had been no significant returns on the approximately \$16 billion invested in eLearning by its member countries. Teachers' performances did not improve in any remarkable fashion nor had students' learning outcomes. It also noted that contrary to

high expectations, access to and quality of education provision had not been significantly enhanced. This is borne out by the experiences of some of our partner-institutions. LMS has made it possible and easier for their students to:

- Access all administrative functionalities that is available at the university;
- Submit assignments online and in return receive feedback. This is the most commonly used function of the LMS by learners in some institutions;
- Engage in student-to-student discussions with or without inputs from faculty.

For the partner-institutions, LMSs have enabled them to meet important corporate objectives, such as the following:

- Greater academic control of the learning process by course coordinators;
- The higher the involvement and participation of a course coordinator in providing content and academic support, the greater is learner participation and satisfaction;
- Availability of additional indicators to evaluate the performance of tutors, courses and academics through analysis of activity levels and learner comments;
- Improved learner performance;
- Higher levels of learner engagement and satisfaction with learning activities;
- Continuous access by learners to academic resources (people and content) through a well-connected and supported learning community;
- The more academics make the effort to include more activities using various tools from an LMS (e.g., blogs and resource sharing), the more students take advantage of the online teaching.

Importance of Policy

In an environment devoid of appropriate ICT and eLearning policies, Universities run the risk of implementing systems and content that may be incompatible and perhaps counter-productive. The process of articulating policy gives an institution the opportunity to thoroughly assess its needs and the kind of sustainable resources - in terms of people, money, expertise and infrastructure - that it will need to successfully install, adapt and use an LMS. Once policy - say an eLearning policy - has been crafted and is in place, it is critical that at least the essential elements of the policy are communicated and distributed widely throughout the University. If necessary, that should be done repeatedly to drive home the central importance that the University attaches to its policy. A vetting and monitoring mechanism should be in place to ensure that any consideration for developing or importing a Learning Management System receives a full stakeholder hearing. This way, ad hoc decisions on technology-driven solutions are avoided and strategically-driven solutions are explored and made possible.

Existing laws also compel compliance by Universities. Here I am thinking of the accessibility issue for students with disabilities. But if you have no specific Acts of Parliament to compel, guide or inform your action, you as an institution nonetheless have a moral responsibility to ensure, via deliberate policy, that all your students enjoy equal access. This is not impossible to achieve. In engaging your LMS vendor, make sure that your knowledge, your corporate vision, strategies and plans are reconcilable with the technical philosophy of the LMS provider. Vendors are there to sell a product. If they realize that their

product isn't selling because it doesn't fully meet the needs of consumers, they'll rethink their model and design approaches. In other words, they will begin to look at tweakability as a design priority. Desire2Learn appears to be one organization that is engaging LMS designers in this fashion on behalf of students with disabilities..

An LMS system doesn't have to be rejected out of hand. You will find that there are many elements of an LMS that would suit your circumstances quite well. Your strategic policy will tell you that – i.e., if you have a good, comprehensive policy in place. The question, however, is: can we tinker with this product? Can we tweak it so that it just fits this peculiar aspect of our operations? If you opt for a proprietary system, what kind of on-going support and service are you going to get? What will they allow you to do with the system? If the answers to these queries are positive, you've got a system. If not, keep looking!

Policies generate appropriate practical solutions. If your eLearning unit or quality assurance unit or institutional research people are mandated to collect data on the impact of an LMS on learning in your institution, over time you should be able to determine whether or not your LMS is making any difference in the lives of your students. Clear policies have made it possible for institutions to have ICT service personnel to support the LMS function and engage in programming. One of our partner-institutions even has a call centre with trained personnel in their LMS system to give help to students.

Conclusion

I would like to conclude this address with a few ifs and whats.

If you have students with disabilities in your institution, what is your policy regarding accessibility?

If you are uploading content into your LMS that is not being properly screened because your teachers seldom use the system - for whatever reason, resulting in lapses or slips in quality, what are you doing about it?

If the introduction of ICTs is helping you to manage your students and content, what are you doing to ensure that the students can easily manage their own learning?

If by digitizing your instructional provision you're reinforcing the pedagogy of an earlier Century, how can you turn that around?

What if you install an LMS and a good number of your faculty resist taking on the additional workload that working the system would involve? What's the problem? Inadequate compensation for the additional workload? Lack of familiarity with the system? Sheer lack of enthusiasm for technology-driven instruction? Do you have policies that address these questions?

On that note, I would like to thank you for being such a great audience.

Thank you!

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