Leveraging LMSs to Enhance Campus-Based Student Engagement

Learning management systems influence student engagement and learning outcomes in ways that we do not properly understand—and should

By **Hamish Coates**

We need to better understand the influence of learning management systems (LMSs) on student engagement in order to use these powerful technologies to improve campus-based education. Over the past 10 years, online learning management has been adopted by many campus-based institutions, becoming almost ubiquitous in many parts of the world. These systems have profound yet uncertain implications for university education. They have the capacity to influence the management of academic programs, teaching practices, and the way students engage with key aspects of their university experience. This article suggests an approach for monitoring how the systems may influence students' engagement with their study and how they might be used to improve campus-based education.

The widespread and rapid adoption of LMSs exemplifies the inroads online learning systems have made into campus-based education. Recent estimates suggest that in many countries, about three quarters of institutions have an LMS. This rapid uptake is somewhat surprising, given the caution with which many universities have embraced pedagogical innovation and the capacity of LMSs to influence the core university business of teaching and learning.

LMSs have the capacity to influence how students engage with their study and to change collaboration, communication, and access to learning materials. LMSs enrich student learning by offering access to a greater range of interactive resources, making course contents more cognitively accessible, providing automated and adaptive forms of assessment, and developing students' technology literacy. Asynchronous online tools allow students to interact with learning materials, their peers, and the entire university in ways not bound by time or place.

Despite significant adoption of online learning systems and growing recognition of the importance of student engagement, our understanding of the influence of LMSs on student engagement remains in its infancy. Prior student engagement research devoted relatively little attention to online learning. Online learning research, for its part, has focused on pedagogical, technical, and managerial issues. When considered, students often appear to be treated as technology users rather than as learn-

ers engaged in constructing knowledge. There might well be much we do not know, therefore, about how students engage online with activities likely to promote learning and development. Given the penetration of online learning systems into higher education, it seems that this area of university education needs exploration.

Monitoring Online and General Engagement

A recent Australian project measured campus-based students' engagement with online and general aspects of their study.[1] Students were sampled in institutions and programs with a track record of investing in online LMSs. The selected students had been using a range of different LMSs in the year preceding the survey and were all full-time, campus-based, early-year undergraduate students. Data was collected by administering the Student Engagement Questionnaire (SEQ) to a stratified, three-stage, cluster sample of 1,051 students in multiple fields of study at four universities.

The SEQ measures seven theoretically based and empirically validated qualities of online engagement:
- Online Engagement
- Online Active Learning
- Online Social Interaction
- Online Collaboration
- Online Teaching
- Online Academic Relevance
- Online Contact with Staff

Nine further SEQ scales measure more general aspects of the student experience:
- Constructive Teaching
- Collaborative Work
- Teacher Approachability
- Supportive Learning Environment
- Student and Staff Interaction
- Active Learning
- Academic Challenge
- Complementary Activities
- Beyond Class Collaboration

Along with direct interpretation of scale scores, the SEQ can diagnose students as having an intense, passive, independent, or collaborative style of engagement.

The survey results suggested that

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students see themselves as investing much energy in the key educational activities defined. With the exception of their contact with staff, students tended to report lower levels of online than general engagement. Students also reported higher levels of engagement in the academic than the social aspects of university life.

Correlations between the online and general scales were fairly low. This suggests that despite much theorizing and considerable injection of resources by universities, contemporary students do not see themselves as engaging in technologically distributed campus-based learning. Rather, they appear to see their learning unfolding in two parallel worlds, one virtual and the other real.

Similarly, there were only weak relationships between students' online and general engagement styles. Again, rather than a "virtualized" campus-based learning experience, it appears that students are combining their virtual and face-to-face learning in a range of ways. In itself, this affirms the importance of using engagement measures to understand the distribution of student engagement in a particular population.

Leveraging LMSs to Enhance Campus-Based Education

Measures of student engagement inform many aspects of university education. One of the most direct and pressing applications, however, is in terms of understanding how online LMSs might be used to enhance overall student engagement. Online LMSs can play powerful roles in teaching and learning and represent a major investment by higher education. Engagement

measures say much about how LMSs can be used to enhance the campus-based student experience.

Faculty and administrators can use indices of student engagement to assess and evaluate students' use of online LMSs. Without such information, it is difficult to determine the role and value of online learning in the campus-based student experience. Given this, it is surprising that little effort has been invested in exploring ways of capturing and interpreting such significant data. While LMSs provide varying degrees of audit data, audit figures support only crude behavioral analysis of students' movement within the systems. Knowledge of engagement styles based on SEQ data, in contrast, can inform a much more sophisticated understanding of the significance and role of online systems in contemporary undergraduate education.

Looking beyond the systems, staff can use the typological model to identify the distribution of engagement styles within a population. Institutions seeking to be responsive to changing circumstances and contexts should not take student engagement for granted. Demographic and contextual profiling can be used to locate students and groups reporting various styles of engagement. The model of engagement styles can be used to map relationships between students' online and general engagement. The results presented above expose a complex rather than direct relationship between the modalities. A substantial number of students reported different styles of engagement across the modalities. Such complexity underlines the importance of using accurate and reliable empirical measures to diagnose patterns of student engagement.

Diagnostic information about online and general engagement should play a formative role in developing teaching programs and approaches. Faculty might take a specific pedagogical approach, for instance, if students report independent online and collaborative general engagement styles. For such students, it may be counterproductive to provide collaborative learning experiences online or to prevent them

from working collaboratively in class. Alternatively, faculty might seek to challenge students by requiring online forms of collaboration. With knowledge of student characteristics, faculty can develop pedagogical interventions to target students reporting passive styles of engagement. Faculty might use online systems to enhance the relevance of the curriculum, beyond-class collaboration, communication with staff, or student support. Analysis of existing engagement patterns provides a basis for forming pedagogical structures and dialogues that promote student learning.

Faculty and support staff could develop a prescriptive guide for how students might use an LMS to enhance their university engagement. In many instances, although LMSs have been introduced into academic programs, students seem to have received little or no instruction on how to use these sophisticated learning technologies. Such a guide might increase the likelihood that students would use the LMS to enhance the quality rather than just the convenience of their learning. Students could be informed about how to strategically integrate online learning into campus-based study to enhance beyond-class conversations with other students, manage assessments, identify performance expectations, contextualize their experience in terms of broader debates, and tailor resources to their needs. Ideally, such student guides would be developed within rich educational frameworks, have solid links with documented patterns of student activity, and account for an institutions' context and resources.

At the institutional level, comparison of students' online and general engagement styles can expose how online learning systems could be used to enhance the campus-based experience. This might involve determining how best to use the LMS to leverage students' time outside class to enhance learning. It might involve supporting more distributed forms of learning through, for instance, creating "learning commons" around the campus. Such environments provide opportunities for students to study in collaborative spaces with their peers, participate in complementary

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activities, seek the supports that help them learn, blend online opportunities for engagement into their campus experience, and talk about their learning with other students. Ongoing analysis of student engagement patterns can offer strategic guidance for planning how online systems should augment campus-based study.

With increasing penetration of LMSs into campus-based learning, it is important to monitor the substitution of online learning for more conventional forms of campus-based education. Both the distributed learning ratios and low relationships between the online and general engagement styles suggest that many learners do not see certain core educational experiences as interchangeable. As a measure of the extent to which students feel that they and staff have engaged in activities and conditions likely to generate productive learning, engagement data indexes the extent to which online engagement might sustain productive and quality learning given a lack of comparative general experiences. Without reference to the distribution of engagement styles in a particular context, substituting online in place of general learning experiences might have implications for the quality and productivity of student learning. While efficiencies may arise from certain forms of substitution, it is important to consider educational as well as economic values.

Maximizing Educational Returns on LMSs

Contemporary online LMSs support virtual forms of learning that have the capacity to influence and even replace established practices of campus-based

education. So far, too little attention has been given to this important and emerging aspect of higher education. In many respects, staff and institutions do not appear to have considered how LMSs affect the way their students learn. Instead, there seems to have been a tacit reliance on serendipity to produce patterns of use constructive for learning. This is surprising, given the resources invested in these potentially powerful learning technologies and the increasing recognition that the dynamics of student engagement are often central to the quality of university education.

We need to develop an understanding of campus-based online learning as online systems become further embedded in university education. The SEQ provides a means of gathering measures of online and general campus-based engagement. Interpretation of such measures can expose different levels, distributions, and styles of engagement. Insight generated from such analyses can be leveraged to manage and improve the quality and efficiency of university education.

One of the real values of online LMSs is the extent to which they add value to how students' engage with their study. It seems that, regardless of their traditions or missions, almost every institution has invested in an LMS as a means of leveraging the Internet to enhance some kind of competitive advantage. The challenge institutions now face is not technological or financial, but educational. Institutions need to identify how to maximize the return on their investments by using LMSs to manage the quality of university education. *e*

Endnote
1. Coates conducts research at the Centre for the Study of Higher Education at the University of Melbourne, Australia. For more information about the project described in this article, e-mail Coates at hamishc@unimelb.edu.au or visit his Web site at <http://www.cshe.unimelb.edu.au/Coates.html>.

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