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What's the Use of a VLE?

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Abstract

Virtual Learning Environments (VLEs) have become an integral part of the technological furniture of higher education over the past two decades. While some VLE adopters have argued that the enhancement of teaching and learning is a key driver underpinning their use, an increasing number have described typical VLE usage as a “notes-bank approach”. However, while it is widely accepted that they are used primarily as content repositories, the actual value that they add to the teaching and learning process, and ultimately to the student experience, has not been widely questioned. So, in an age of increasing budgetary constraints, combined with the prioritisation of investment in appropriate technologies for higher education, it seems appropriate to scrutinise how the VLE is used and what value it has added. In 2013, at the Dublin Institute of Technology (DIT), we initiated a study which sought to find out how our academic staff were using the VLE as part of their teaching practice. Additionally, given the proliferation of emerging eLearning tools outside of the VLE, we wanted to find out if academics were aware of such technologies and if, or how, they were using them. Finally in order to inform future practice and strategic planning, we wanted to gain an insight into factors inhibiting or preventing staff from engaging with eLearning technologies. The results are not altogether surprising, indicating high levels of VLE usage among academics, albeit with limited pedagogical innovation underpinning this usage. Findings also demonstrated high levels of interest in, and awareness of,

¹ We wish to thank our LTTC colleagues for their assistance in conducting this research, especially Dolores McManus and our former colleague Claudia Igrude.

other technologies for teaching and learning: however only a small minority had actually used many of these as part of their academic practice, with high levels of reservation about time and effort involved in utilising such technologies to the full. This paper presents and discusses the key findings of this research and indicates possible ways forward for higher education in the digital age.

Keywords: Higher Education, Learning and Teaching, Learning Technologies, Usage Patterns, VLE

Introduction

The *real* impact of the internet and its associated technologies on learning and teaching in higher education is still an evolving although much-speculated-upon quantity. The enthusiasm and promise of the late 1990s and early 2000s has been replaced by a more realistic vision of what can be achieved by technology alone. But many of the original ideas still prevail: for example, the rise and celebration of Massive Open Online Courses (MOOCs) echoes a vision of online education that prevailed a decade earlier.² On a more practical level, however, the use of technology in education has been equated in many circles with the widespread deployment of Virtual Learning Environments (VLEs) such as Blackboard and Moodle. Although not universally loved and regularly pilloried in online forums by academic staff and students alike, such technologies are central to the everyday practice of teaching and learning in third-level education worldwide: in 2014, Educause reported that 99% of the 200-plus US colleges surveyed

² See, for example, Columbia University's for-profit venture which aimed 'to do for learning what Amazon.com has done for books', 'Columbia University Explores How to Profit From Educational Offerings on the Internet', *New York Times*, 3 April 1999, <http://nyti.ms/1BgfdNZ>

by them use a VLE (Dahlstrom, Brooks & Bichsel, 2014, p.8).³ However, what has become clear over time is that when it comes to actual teaching, learning and assessment practices, very little has changed as a consequence of the introduction of such technologies. This observation is not new. In 2004, the Weathervane project, based at the University of Pennsylvania, published its *Thwarted Innovation* report, subtitled 'What happened to e-learning and why' (Zemsky & Massy, 2004). It observed that the actual changes were probably best symbolized by the widespread adoption of course management tools such as BlackBoard and WebCT, and that any expectation that such technologies would of themselves bring about change in teaching practices was unfounded. Just three years later in the UK, Martin Weller's proclamation of the death of the VLE was met with widespread acclaim (Weller, 2007). And yet, almost a decade on, the VLE appears to go from strength to strength.

This pattern is reflected in Irish higher education, where the overall digital landscape has evolved more slowly since the start of the twenty-first century. In publicly-funded institutions, progress has been cautious in the main, with individual colleges promoting an opt-in rather than a mandatory approach for staff who wish to use technology in their teaching practices. This is recognised, for example, in the *National Strategy for Higher Education to 2030* (the 'Hunt Report'), which points out that 'there are isolated examples of programmes and courses in Irish higher education that are available on a flexible and online basis, but these are the exception rather than the rule' (Hunt, 2011, p.52). Additionally, Strand 3 of the *National Digital Strategy for Ireland* (2013), acknowledges that eLearning is becoming an increasingly important part of teaching, learning and research. In the private sector, Hibernia College (which describes itself as 'Ireland's only government-accredited eLearning college') has been wending its way into

³ In the US, the preferred terminology is Learning Management System (LMS)

profitability and acceptance by the mainstream educational community since its foundation in 2000. More recently, the National Forum for the Enhancement of Teaching and Learning has produced *A Roadmap for Enhancement in a Digital World 2015-2017* (2015). In each case there is an acknowledgement that efforts to date, at institutional and national levels, have tended to be *ad hoc* and piecemeal and, in the main, these have centred on the deployment and mainstreaming of a VLE. In many cases, initial financial support for such innovation was derived from the government's Strategic Innovation Fund. The withdrawal of that funding in 2011-12 resulted in the removal of support for such technologies, suggesting that at management level the organisation and use of technology for teaching purposes is considered desirable but not essential, and can readily be cut back or even dispensed with. And while students demand that lecturers use technology to distribute course notes and other communications, anecdotally it would appear that they are equally willing to be led by their lecturers' preferences.

The Lecturer Perspective

So what is the lecturer's perspective? We sought to throw light on this question by surveying academic staff within the Dublin Institute of Technology (DIT), one of Ireland's largest higher education institutions, with approximately 22,000 students and employing around 1,500 academic staff. DIT comprises four colleges - Applied Arts & Tourism, Business, Engineering & Built Environment, Sciences & Health - which offer a range of multi-level part-time and full-time programmes, from craft training to post-doctoral research. In 2001, the institute sought to capitalise on new technologies in part to change the prevailing pedagogical paradigm to a more active learning model and also as a way to deliver more flexible and effective programmes. As part of its development strategy, DIT purchased a license for the VLE WebCT (since superseded by Blackboard, but both branded as 'Webcourses' at DIT) and employed a five-member team for

an initial three-year period to embed eLearning practice across the institute with a focus on mainstreaming the use of WebCT. When it became clear, following the initial project, that the VLE had become an integral part of student and lecturer expectation, the team and its services were maintained and in 2009 it was formally merged into the existing Learning & Teaching Centre to form the Learning, Teaching & Technology Centre (LTTC).

Since then the LTTC has continued to offer support to academic staff on all aspects of technology-enhanced learning: in addition to support for the VLE, services include consultative support and group workshops on how specific technologies can best be deployed to suit individual needs, and the provision of professional development opportunities for academic staff through accredited courses, both online and in blended modes. Since 2009, the team has run an average of 50-60 workshops each year, attended by more than 700 academic staff. The team has also been involved in the development of a wide range of eLearning initiatives including award-winning programmes using the virtual world Second Life, the development of Ireland's first MOOC and innovative projects including the use of mobile devices and game-based learning. Additionally the team runs conferences of local, national and international interest including the award-winning Dublin eLearning Summer School which it has convened annually since 2003. As part of its eLearning-support remit, the LTTC is the central support function for the institute's VLE and affiliated applications including (but not restricted to) assessment tools, webinars, SMS messaging, wikis, podcasting, assessment tools, as well as other DIT applications such as lecture capture. As such, the LTTC has been proactive in the introduction and support of established and emerging eLearning technologies and is highly regarded both at home and abroad: the model of eLearning support and development has been lauded and awarded for its integrated approach (e.g. UCISA award 2011; ALT award 2011).

In September 2012, Blackboard Learn 9.1, was introduced as the new DIT VLE. At that stage adoption of WebCT could be described as mature, with over 90% of academic staff using it with their students on a regular basis. The move was preceded by an intense awareness-raising and training campaign across the institute since January 2012, and support mechanisms were put in place to ensure a smooth transition. Following informal feedback from academic staff on the new VLE, both positive and negative, the LTTC was keen to monitor lecturers' experience of the change and their levels of awareness of the tools available to them. Conscious of previous studies which have highlighted how VLEs are predominantly used as content management/administrative tools by academics (Conole *et al.*, 2006, Risquez *et al.*, 2013), we wanted to get an insight into how DIT academics were using the VLE as part of their teaching practice. Additionally, given the proliferation of emerging eLearning technologies outside of the VLE, we wanted to find out if and how academics were using such tools. Finally in order to inform future practice and strategic planning, we wanted to gain an insight into factors or issues inhibiting or preventing staff from engaging with eLearning technologies. Thus the primary questions that we asked were: What are your experiences of the change in institutional VLE? How are you using the VLE? What other eLearning technologies are you using as part of your teaching practice? What factors are inhibiting you from engaging with eLearning technologies?

Research Process

The research was undertaken between February and April 2013 following the receipt of approval from DIT's Research Ethics Committee. All academic staff with VLE accounts were notified that a survey was taking place and over 200 staff were selected randomly to participate in the study. Conscious of high levels of online survey fatigue and of the positive effect of direct communication with our user base, we decided to contact the staff directly and to survey them

via phone call. Each call started exactly the same with each participant being reminded of the purpose of the survey and informed that their responses would be recorded during the call into an online database. While they were assured that all data gathered during the call was being anonymised and stored securely, they were also given the option to withdraw from the survey at any point up until their anonymised data was submitted to the database at the end of the phone call. And finally, before the survey started, their permission was sought to use this data within internal reports, for conferences presentations, and as part of other wider publications. The survey only commenced where this permission was given. Each survey call was followed up by a thank-you email, which included a request to complete an additional three-question anonymous online survey. This short open question survey was designed to gain further insight into the more sensitive factors preventing or inhibiting staff from engaging with eLearning technologies and practices, and their preferences for support/training in relevant areas: by conducting these final survey questions via an anonymous online form we hoped to get truly honest responses and therefore more reliable data.

Participants came from a wide variety of disciplinary backgrounds, representing most schools within the institution (see Table 1). While the majority (68%) had not engaged with any of the accredited programmes run by the LTTC, a significant majority (88%) had attended one or more eLearning workshops or one-to-one eLearning consultancy sessions offered by the LTTC.

Marketing	25	9%
Electrical Engineering Systems	18	7%
Accounting & Finance	17	6%
Computing	14	5%
Management	13	5%
Physics	13	5%
Biological Sciences	12	5%
Hospitality Mgmt. & Tourism	10	4%
Other	10	4%
Social Sciences & Legal Studies	9	3%
Spatial Planning	9	3%
Civil Engineering & Building Services	8	3%
Retailing & Services Management	8	3%
Electronic & Communications Eng	7	3%
Food Science & Env Health	6	2%
Chemistry	5	2%
Manufacturing & Design Eng	5	2%
Mechanical & Transport Eng	5	2%
Art Design & Printing	4	2%
Dublin Architecture	4	2%
Languages	4	2%
Real Estate & Construction Economics	4	2%
Culinary Arts & Food Technology	3	1%
Graduate Business School	3	1%
Construction	2	1%
Mathematical Sciences	2	1%
Media	2	1%
Conservatory Of Music & Drama	1	0%

Table 1 Disciplinary breakdown of 219 participants

VLE Usage Patterns

As it was important to establish that those being surveyed had experienced the new VLE, the first question asked was whether they had used Webcourses in the present academic year. Just under 10% of participants indicated that they had not experienced the new VLE (of these just five individuals also indicated that they did not intend to use the VLE): these participants were asked about their use of and awareness of other tools such as Social Networking, Twitter, Skype

(see below). Among those who had experienced the new VLE, 44 people (22%) regarded it as a disimprovement, while 76 (37%) thought it an improvement and 42 (21%) thought it was neither an improvement nor disimprovement (the remaining 20% said that they had not used the old version, were unsure or expressed no opinion). Reasons for dissatisfaction with Blackboard 9.1 included those which reflected user preference (e.g. *“The new Webcourses is not user friendly and I would prefer to see us going back to the old version”*; *“better interface but more difficult to navigate”*) to *“Performance (of user interface) of webcourses generally sluggish since upgrade”*, to comments about individual tools, especially the email and wiki functions which differed from those deployed in WebCT. Research from Educause and elsewhere has indicated that lecturers find the functionality within the VLE to be confusing and complicated and so such comments were not unexpected, particularly given the changes introduced by the new system. Overall however, the fact that a majority of users regarded the change as an improvement indicated that in the main the changeover could be regarded as successful. And so while anecdotal evidence might suggest that lecturers tend to dislike the institutional VLEs such as Blackboard (e.g. one online comment asserted confidently that *“most [staff] do not use webcourses anyway”*), the feedback received in this survey suggests that, even with other options available to them, existing VLE users are in the main happy to continue using the VLE. This of course is not to suggest that improvements are not needed, but indicates that lecturers will work with the tools provided as long as appropriate supports are put in place. However, as discussed below, the issue of time allowed within the workday to receive appropriate training emerged as a big factor for lecturers.

Once the status of the survey respondents had been established, we asked how they used Blackboard with their students by listing out the individual tools available within the VLE and

asking them to indicate whether or not they have used or were aware of each one. The results indicate high levels of awareness but matched by high levels of reservation about time and effort involved in utilising such technologies to the full (see Figure 1). Not surprisingly, over 90% of lecturers reported using the VLE for sharing documents with their students (e.g. Microsoft Word and Powerpoint, and PDFs). However, this sharing is done in a structured way, as 59% of lecturers indicated that they use the “Learning modules” feature of Blackboard in organising their materials. The second most used features those were used for communicating with students, the email and announcement tools (70%). Over half of the respondents indicated that their shared content included web links and YouTube or other video, and slightly below half used the plagiarism detection tool (SafeAssign) and the survey tool to receive feedback. Just over 40% used the assignment Dropbox and Gradebook features. Just one-third of lecturers used the calendar, a quarter indicated that they deployed online quizzes, and just under one-fifth used online discussions. Wikis were used by 12% of lecturers with their students; private journals or blogs by 6%; webinars by 5% and the online chat function by just 2%.

Tool usage in Blackboard/Webcourses, surveyed Spring 2013

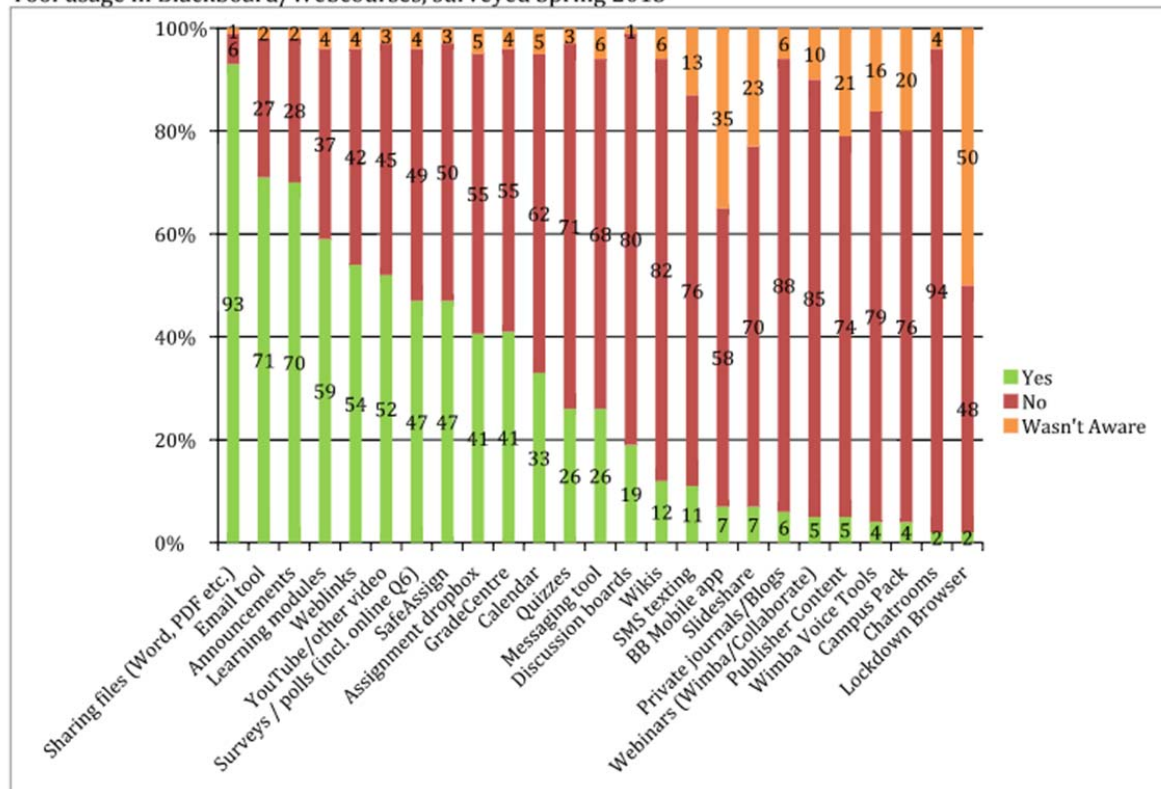


Figure 1 Tool usage in Blackboard 9.1 among DIT Lecturers

Even if they did not use them, most lecturers indicated an awareness of the listed Blackboard tools: most unknown at that time were the lockdown browser (since discontinued), mobile app (since then much more widely used), and Slideshare function. Similarly lecturers indicated that they were happy with the levels of support provided for them in using the VLE. In the main, however, it is clear from the emergent patterns that VLE usage is best categorised as supplemental to traditional, didactic teaching methods as evidenced by the relatively low usage of tools which foster and promote interactivity. These patterns correspond closely with results gleaned from a longitudinal study conducted among students across several Irish third-level institutions (Risque *et al.*, 2013, p.103). That study reported that students in the main

experienced the VLE “*as a content distribution platform, rather than being used for more complex activities like online discussions or quizzes*” and concluded that “*It seems, therefore, that the VLE is used when it solves problems lecturers already have, and less as a framework to do new things*”. This pattern is not unique to Ireland; a 2014 study from Educause, based on data received from in excess of 17,000 academic staff and over 75,000 students in the US, concluded that although “*Faculty and students value the LMS [VLE] as an enhancement to their teaching and learning experiences... relatively few use the advanced features and even fewer use these systems to their fullest capacity*” (Dahlstrom et al., 2014, p.4).

Other Technologies

One respondent to the survey described the VLE is “*a kind of ghetto*”. Instead of adding more and more features to it (blogs, wikis, chat rooms, etc), we should be using the “*real-world*” equivalents. Could it be that lecturers are not especially enamoured by the VLE and its functionality, and that other technologies might be better to foster a changing pedagogy? Such sentiments chime well with Martin Weller’s 2007 suggestion that the VLE is dead, and is being replaced by other tools that are more user friendly. However, our evidence suggests that this is a minority aspiration. The telephone survey included a section about tools available to lecturers via the DIT applications suite but also extended to social networking and other tools available online: which ones are they aware of and/or how do lecturers use non-VLE tools in their teaching? Figure 2 gives an overview of the responses.

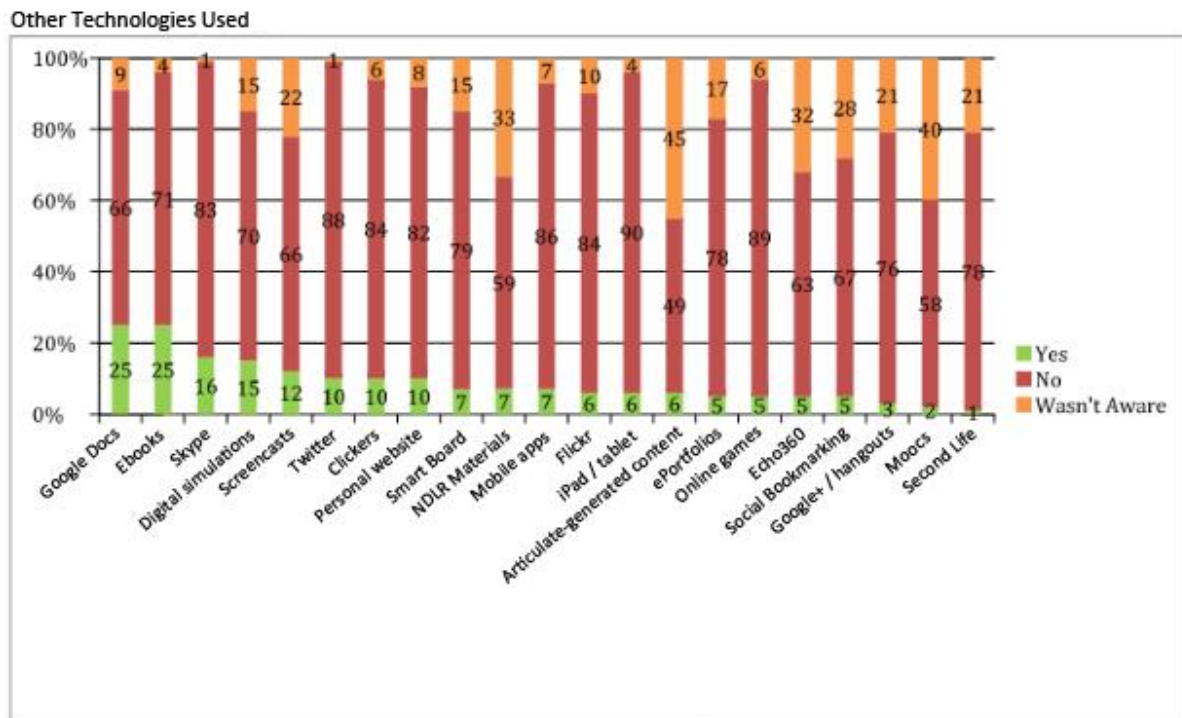


Figure 2 Other Technologies Used

While a quarter of those surveyed used Google Docs (since replaced by Google Apps), and a similar number said that they used eBooks in their teaching, 10% or fewer used a personal website or tools such as Twitter or Audience Response Systems (Clickers). Mobile apps and open educational resources were used by just 7%, while ePortfolios, online games, lecture capture and social bookmarking stood at just 5%. In the case of each of these tools, the LTTC had spent considerable time facilitating workshops and promoting these for teaching and learning, reflected in the high levels of awareness expressed by lecturing staff (e.g. in excess of 90% were aware of Google Docs, mobile apps, clickers and online games, and 99% were aware of Twitter and Skype). Interestingly, while 96% were aware of eBooks, lower levels of awareness were expressed of sources of *free* content, with two-thirds of respondent aware of

open-access materials via the National Digital Learning Resources (NDLR), MOOCS (60%), and the possibilities offered by generated by Articulate-generated content (55%). Such levels are higher than those found in the 2014 Babson Survey which reported that between two-thirds and three-quarters of US academic staff were unaware of open educational resources (Allen & Seaman 2014). So if such levels of awareness exist, why are academic staff not using these tools? Could it be that they do not have the knowhow or confidence to use these tools? To explore this possibility, we asked them to rate their overall skill in using academic technologies, and just 13% described their skill level as poor (of the remainder, 56% were adequate, 25% proficient and 5% advanced). So it appears that lecturers are aware of most of the new and evolving technologies and believe themselves (however accurately) to possess adequate skills to use these technologies, but for the most part choose not to actually use these in their teaching practice. Asked about levels of support they would like, many replied with answers such as “*occasional advice and assistance*” and similarly “*phone and email support*”, with a strong emphasis on receiving help in a timely manner (“*a need-to-know basis*”) via personal, one-to-one support, available at times and locations to suit the requirements of the individual lecturer. Unfortunately, such levels of service are becoming less and less possible given the diminishing levels of funding for support which has resulted in a growing emphasis on online help videos and searchable FAQs.

one and just-in-time were popular requests), and also expressed fears about reducing class contact hours, the extent to which technology distracts students, and the consequent lack of commitment on the part of students. Only one lecturer noted the “*fear of making oneself redundant*” as a consideration.

What became clear during the surveys and research process is that many lecturers feel intimidated by the sheer volume of functionality available within the VLE - in many cases the phone surveys finished with the lecturers expressing their sense of feeling that their efforts in using technology were very miniscule given the potential of the tools at their disposal. However in almost every case, the issue of lacking time to discover and learn how to use such tools was paramount: as one lecturer noted “*I do not use many of the technologies spoken about during our conversation; reflecting on this, it is because I am not comfortable with technology and feel that I would have to invest a lot of time in the area and I guess that I have other priorities*”.

There was also an acute desire for recognition from within the institute for the time taken and effort involved in doing so, with one lecturer stating:

“[There is a] lack of a structure/system within DIT for the allocation of teaching allowance towards such activity.... There is (therefore) little incentive for lecturers to engage more in eLearning initiatives, as it is a lot easier to walk into a lecture room with a Powerpoint presentation, a few handouts and a laptop/projector”.

And another:

“There is no point using webinar and other distance learning tools unless lecturers get timetable reductions for doing so. Why should the lecturer prepare face-to-face lectures involving potentially 20 hours per week, and then engage in distance learning beyond this. It's impossible. If we do not need to be in classrooms and can deliver online, then we should be told this, and online teaching should be deducted from our teaching hours requirement....the hours

we put into online teaching should be included on our timetables. Otherwise, lecturer adoption of these technologies will be limited.”

Lecturers who have opted to use the VLE are suggesting that, in order to use it most effectively, an explicit, structured approach at programme or institutional is required. This involves a move away from the individual opt-in approach that has characterised such deployments to date and a move towards a system of planning and incentivisation at programme, school and institutional level. Establishing a culture of use by making the technology available to lecturers along with the support to show them how to use it can be seen as an initial and necessary step. However, as teaching practices change in consequence, there is a need for our institutions to respond accordingly, recognising not only the time required to develop and change teaching materials but also to allow for change of practices, including the move away from a traditional timetabled system of contact to the more fluid world of online learning. As pointed out on more than one occasion during the interview process, lack of recognition can result in the possibility of diminishing standards and a consequent disengagement with technology by concerned lecturers. Again, this was articulated in the following emailed response:

“There is no appreciation within the system for the time allocated to the increased preparation time for online materials and assessments and the increased electronic availability of staff required in administering such materials in a distance-education manner.... The total time allocation proposed to me for this activity covers only the practical workshop day that is involved in delivering the module, with no time allowance for online delivery of the theoretical aspects of the module... I am sure that staff elsewhere may be under similar pressures and this may lead either to a resistance to using WebCourses altogether, or what is delivered being of a poorer quality than it could be, had staff been given the allowances to prepare the material”.

In short, what became evident in the course of our research is that lecturers are, in the main, happy to engage with technology, and specifically with the VLE; however, in the absence of

specific incentives or a larger vision for technology at programme, school or institutional levels, they will continue to do so on their own terms and in a manner that suits their specific teaching requirements. This suggests that progress will be achieved when the focus of debate moves from the specific technologies and on to the broader institutional structures around teaching and learning. And this requires bigger, braver thinking than has been evident to date within our system. In 2015, the National Forum for the Enhancement of Teaching and Learning published its roadmap for building digital capacity in Irish higher education. The roadmap articulates a vision which prioritises strategic thinking at institutional level about all things digital. This will necessitate leadership and creativity at senior level, moving pedagogical thinking from digital as an option to digital as strategic part of all that we do. Such a move may encourage new thinking about the tools we use, not least when it comes to our VLEs and their future successors.

Conclusion

What is evident is that individual lecturer engagement with technology on an opt-in basis as has prevailed across the Irish third-level sector has resulted in an uneven landscape. At DIT, the original momentum for the introduction of a VLE at institutional level was linked to a wish to change the learning paradigm and move from a transmission model of education towards one that fostered more active learning among students. The establishment of the learning technology team and the subsequent merger into the LTTC suggested a vision of learning and teaching that regards technology as part of its core, a phenomenon that has been largely established and accepted. However, the evidence from the actual use on the ground suggests that the model of teaching and learning, as elsewhere, has not changed much in the intervening decade. And if change on a larger scale is desirable, how can this be achieved?

On one level, perhaps there has been too much faith in the power of technology alone to change the prevailing paradigm. Industries such as music, advertising and print media have been disrupted beyond all recognition by technology, and have been forced to respond accordingly: is it not inevitable that the same thing will happen to education? Such argument would appear to be overstated in the Irish context. While online providers such as Hibernia College are becoming established within the Irish higher-education sector, current enrolment trends suggest that it will be some time before they overtake established public colleges in terms of student preference and public recognition. Moreover, our own anecdotal evidence suggests that a majority of students, if given the choice, will opt for face-to-face teaching. In this context, DIT research has shown a direct link between student attendance in class and progression rates. The use of technology in the classroom appears to have served to reinforce such models, and so the challenge remains to alter the prevailing pedagogical models from transmission and preparation for assessments to one of more active participation and learning among students. Technology can do this, but it needs vision and leadership to take us beyond individual lecturer opt-in or preferences for technology. We hope that the coming years will see the adoption of such visionary approaches.

References

- Allen, I.E., & Seaman, J. (2014). *Opening the Curriculum: Open Educational Resources in U.S. Higher Education*. Babson Survey Research Group. Retrieved: 12, June 2015 from <http://www.onlinelearningsurvey.com/oer.html>
- Conole, G., de Laat, M., Dillon, T., & Darby, J. (2006). *JISC LXP Student experiences of technologies. Final report*. Bristol, London: JISC. Retrieved: 3, June 2015 from <http://www.webarchive.org.uk/wayback/archive/20140615041434/http://www.jisc.ac.uk/media/documents/programmes/elearningpedagogy/lxpprojectfinalreportdec06.pdf>
- Dahlstrom, E., Brooks, D.C., & Bichsel, J. (2014). *The Current Ecosystem of Learning Management Systems in Higher Education: Student, Faculty, and IT Perspectives*, Educause Center for Analysis and Research. Retrieved: 12, June 2015 from <https://net.educause.edu/ir/library/pdf/ers1414.pdf>
- Government of Ireland (2013). National Digital Strategy for Ireland. Retrieved: 12, June 2015 from <http://www.dcenr.gov.ie/NR/rdonlyres/54AF1E6E-1A0D-413F-8CEB-2442C03E09BD/0/NationalDigitalStrategyforIreland.pdf>
- Hunt, C. (2011). *National Strategy for Higher Education to 2030*. Retrieved: 12, June 2015 from http://www.heai.ie/sites/default/files/national_strategy_for_higher_education_2030.pdf
- National Forum for the Enhancement of Teaching & Learning in Higher Education (2015). *A Roadmap for Enhancement in a Digital World 2015–2017*. Retrieved: 12, June 2015 from <http://www.teachingandlearning.ie/a-roadmap-for-enhancement-in-a-digital-world-2015-2017/>
- Risquez, A., McAvinia, C., Raftery, D., O’Riordan, F., Harding, N., Cosgrave, R., Logan-Phelan, T., & Farrelly, T. (2013). An Investigation of Students’ Experiences of using Virtual Learning Environments: implications for academic professional development. In C. O’Farrell & A. Farrelly (Eds.), *Emerging Issues III in Higher Education: from capacity building to sustainability*. Dublin: EDIN. Retrieved: 12, June 2015 from <http://www.edin.ie/pubs/ei3-chapters/ei3-ch8.pdf>
- Risquez, A., McAvinia, C., Raftery, D., Costello, E., O’Riordan, F., Palmer, M., Harding, N., Cosgrave, R., Logan-Phelan, T., & Farrelly, T. (2013). *Engaging students through the VLE findings from the VLE Usage Survey 2008-2013*. LIN Conference, Dublin, October. Retrieved: 3, June 2015 from <http://www.lin.ie/wp-content/uploads/2013/11/VLE-2008-2013.pdf>
- Weller, M. (2007). The VLE/LMS is dead. *The Ed Techie*, Retrieved: 12, June 2015 from http://nogoodreason.typepad.co.uk/no_good_reason/2007/11/the-vlelms-is-d.html
- Zemsky, R., & Massy, W.F. (2004). *Thwarted Innovation: What happened to e-learning and why*. USA: The Learning Alliance at the University of Pennsylvania. Retrieved: 12, June 2015

from

http://www.immagic.com/eLibrary/ARCHIVES/GENERAL/UPENN_US/P040600Z.pdf