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Title	Uptake and usage of Virtual Learning Environments in the Irish tertiary sector: findings from a multi-institutional student usage survey
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Publication date	2009
Original Citation	Cosgrave, R.J., McAvinia, C., Rísquez, A., Logan-Phelan, T., 2009. Uptake and usage of Virtual Learning Environments in the Irish tertiary sector: findings from a multi-institutional student usage survey. In Jennifer Murphy and Bettie Higgs (eds). Challenging Assumptions: integrating research and teaching and learning in higher education. Proceedings of the NAIRTL second annual conference. Waterford Institute of Technology, 13-14 November, 2008. Cork: NAIRTL.
Type of publication	Conference item
Link to publisher's version	http://www.nairtl.ie/index.php?pageID=113
Rights	https://creativecommons.org/licenses/by/4.0/
Download date	2026-11-08 01:42:06
Item downloaded from	https://hdl.handle.net/10468/58

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Uptake and Usage of Virtual Learning Environments: Findings from a multi institutional student usage survey

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Abstract

In early 2008 six Irish tertiary institutions conducted an online survey of their students usage of Virtual Learning Environments in their respective institutions. The survey used a common set of questions. Five of these institutions have, on condition of anonymity, pooled their results for comparison and study and this paper presents the findings of this research.

The five institutions represent a diversity of organisational histories and VLE systems. The survey data identifies that some issues around VLE usage are common across all institutions, regardless of organisation or technical factors. Technical issues around which VLE is in use, while they might occupy the attention of purists, are seen to have little effect on the ground. Organisational factors, such the maturity of the implementation, are shown to have a more substantial effect on uptake, usage and utility of the systems.

The paper also discusses issues around the conduct of the survey, confidentiality and data sharing, and the potential for ongoing surveys to build into a longditudinal data set.

Introduction

The benefits to students in universities using e-Learning are well documented, and the issue of the integration of technology to the teaching process is an important part of future development in teaching and learning. Over the past two decades academics and institutes of higher education in Ireland have been diversifying their delivery of instruction through Internet media such as Virtual Learning Systems (VLEs), asynchronous distance learning, and online classrooms amongst a myriad of other burgeoning educational technologies. [1]

[1] Boylan, B. (2000) Living conditions, working conditions and industrial relations in the knowledge society. Dublin, European Foundation for the Improvement of Living and Working Conditions.

Learner-centred instructional techniques help learners connect new information to what they already know; to seek meaningful knowledge and evaluate their own thinking processes[2] , emphasising the importance of instruction design when using technology to improve the quality of learning. Virtual Learning Environments (VLEs) offer a variety of useful tools including discussions, blogs, chat, assessment and assignments tools which when combined with an appropriate instructional strategy can help to develop such higher-order thinking. All of the Irish national universities incorporate a Virtual Learning Environment (VLE) as one of the various technology solutions to enable e-learning within their institutions. Students attending Universities today are those born into the technology era, and the perception might be that most Irish students within these institutions have access to their courses on-line. But is this perception valid? While innovative users rapidly adopt the newest technical tools, where is the mainstream? How well used are VLEs?

This study set out to invite all students from Irish universities to participate in a common survey of VLE usage. The survey was initially designed for University of Cork (UCC) however, after an open invitation to many Irish tertiary institutions, 6 institutions ran the survey. Each university used their own method of distributing the survey but it was agreed that the survey would be sent to students outside of the institutional VLE to ensure that all registered students would have an opportunity to take part. Five institutions agreed to pool the data at row level, and a common set of rules was agreed amongst the five universities to ensure findings could not be used for marketing or advertising. First and foremost institutions would not be identifiable from the results and presentations and publications were to be approved by all members. Data protection issues were addressed by stripping all individual identifiers out before pooling the data and ensuring the students were aware of what the data was being used for.

The 5 institutions were relatively diverse, and had differing histories of VLE usage. The table below summarises some key variables.

Institution	Size	VLE Uptake	VLE maturity	Resourcing (VLE/eLearning Staff
A	Large	Mid	Mid*	High

Retrieved 30 September 2004, from http://www.eurofound.eu.int/publications/files/EF0123EN.pdf.

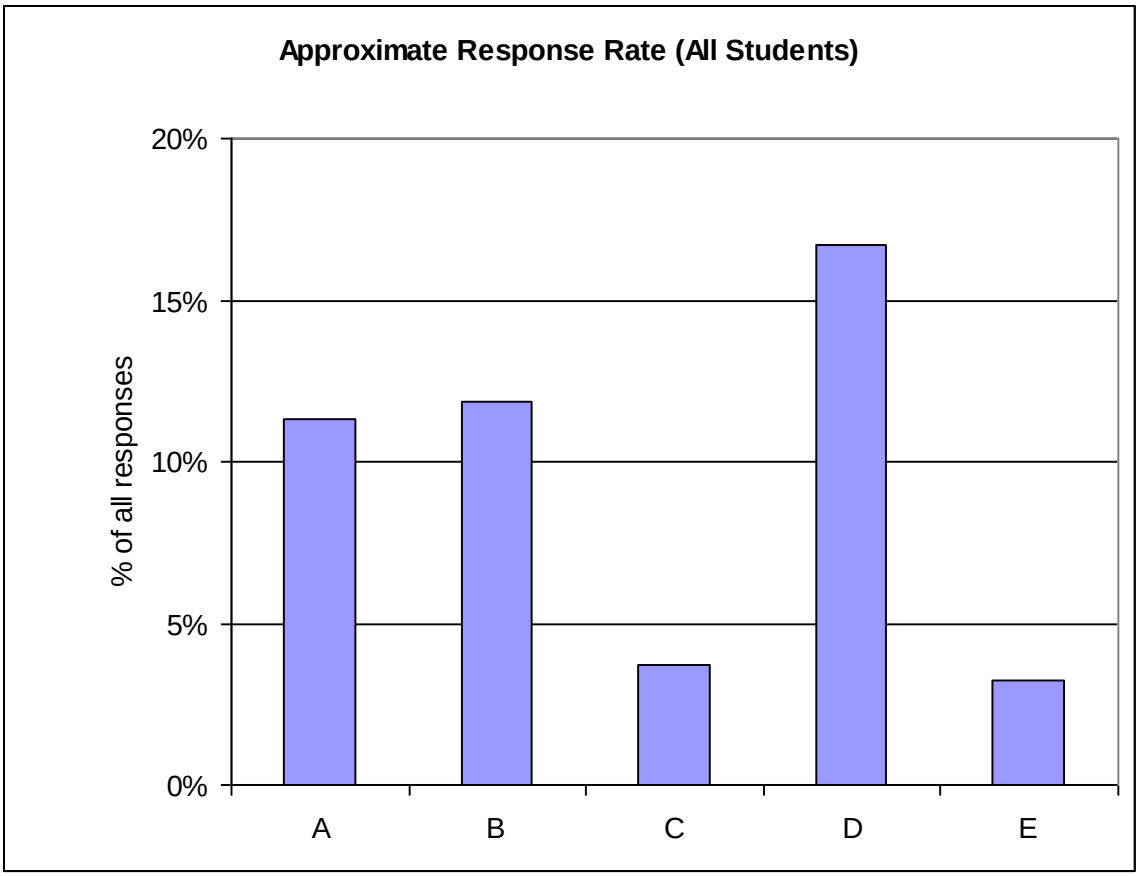
[2] Bonk, C., & Reynolds, T., Learner -centered web instruction for higher-order thinking, teamwork, and apprenticeship (1997), in B. H. Khan (Ed.), *Web-based Instruction* (pp. 167-178). Englewood Cliffs, NJ: Educational Technology Publications.

B	Large	High	Mature	Low
C	Large	Low	Recent *	Low
D	Small	Mid	Recent *	High
E	Large	Low	Mid	Low

* Maturity of current system. Previous systems on different platforms existed.

Limitations

The primary limitation to the survey data was the response rate. The figure below shows the response rate for the 5 institutions. This indicates that findings for all institutions may be subject to responder bias to a greater or lesser extent.

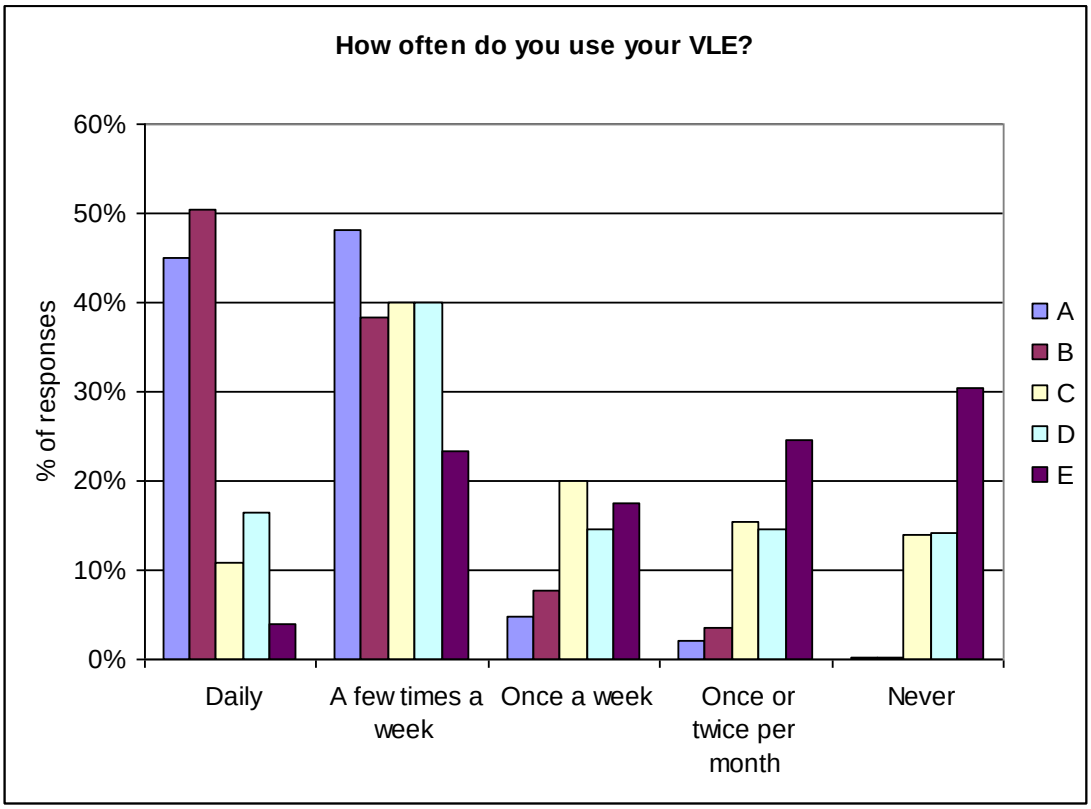


Additionally, while a common question set was used, there was some variance in implementation. Where this occurred, data was excluded, thus for some questions, for some institutions, there are data gaps.

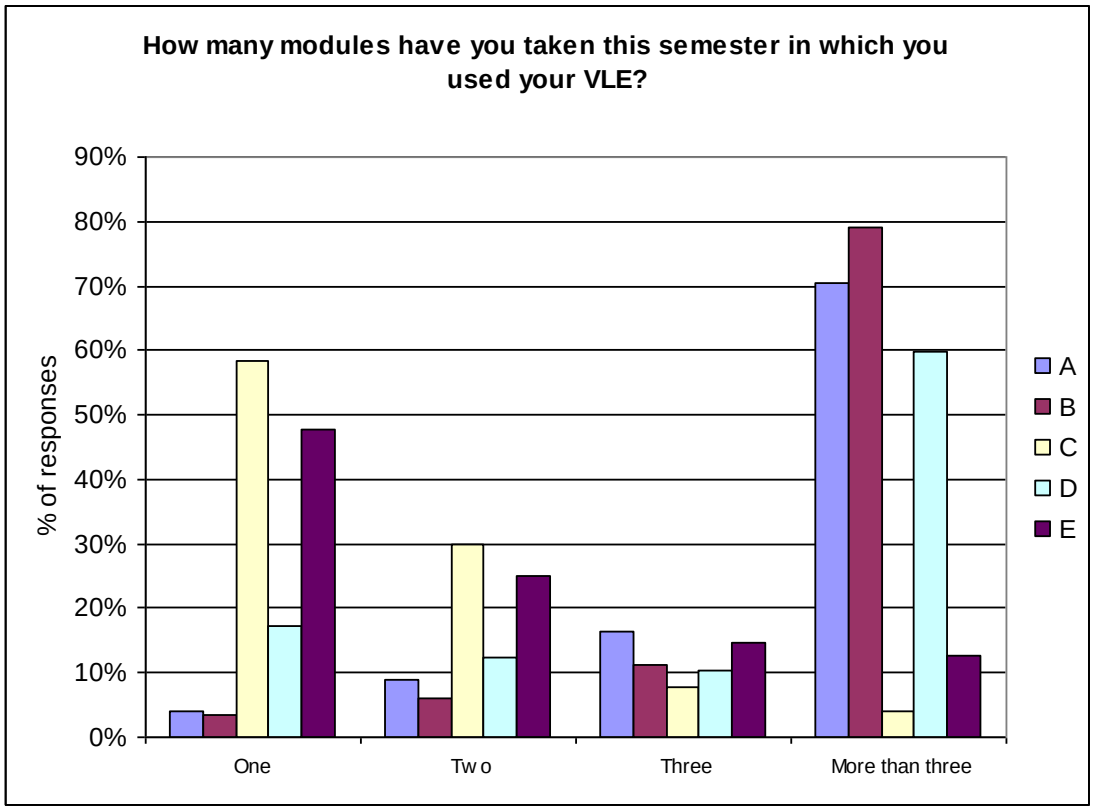
Findings

Level of use

The majority of students surveyed used their virtual learning environments quite frequently (a few times a week). In the institutions A and B, students to use their VLE daily, this may be related to the level of maturity of the use of the system. Institutions A and B use different VLE platforms, but had similar responses to many questions. Institution E uses the same system as A, and had very different patterns of usage. Thus, we can infer that the VLE system in use has relatively little effect on the pattern of uptake. The relative technical merits of different VLE platforms have little relevance for uptake and usage on ground.



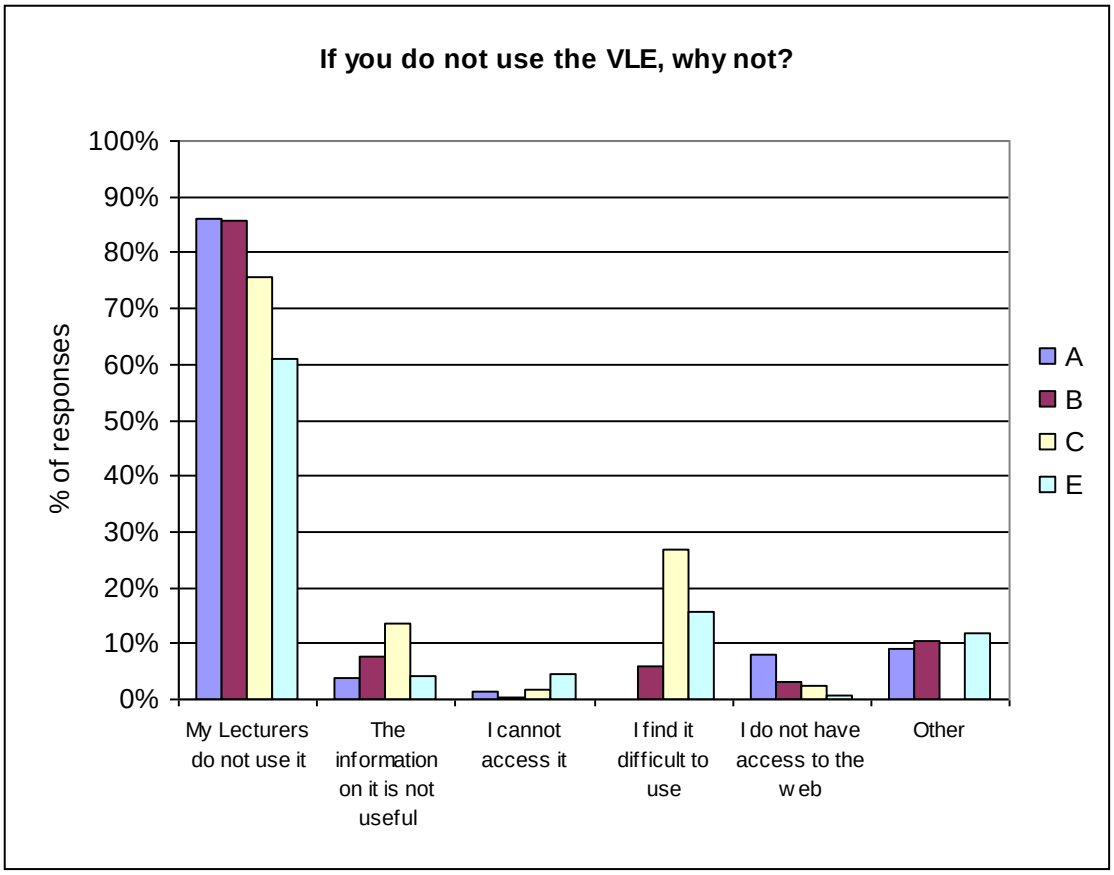
The figure below indicates how widespread VLE usage is. Institutions which have had systems for a medium or long time (A and B) show the most widespread use of VLEs across students' curriculum, as opposed to recent implementations/major upgrades like in the case of the institution C and E. Given all institutions rely on the voluntary decision by the lecturer to use the VLE, we can reasonably infer that maturity is likely to be a significant factor in the responses, although obviously not the only possible factor.



Barriers to use

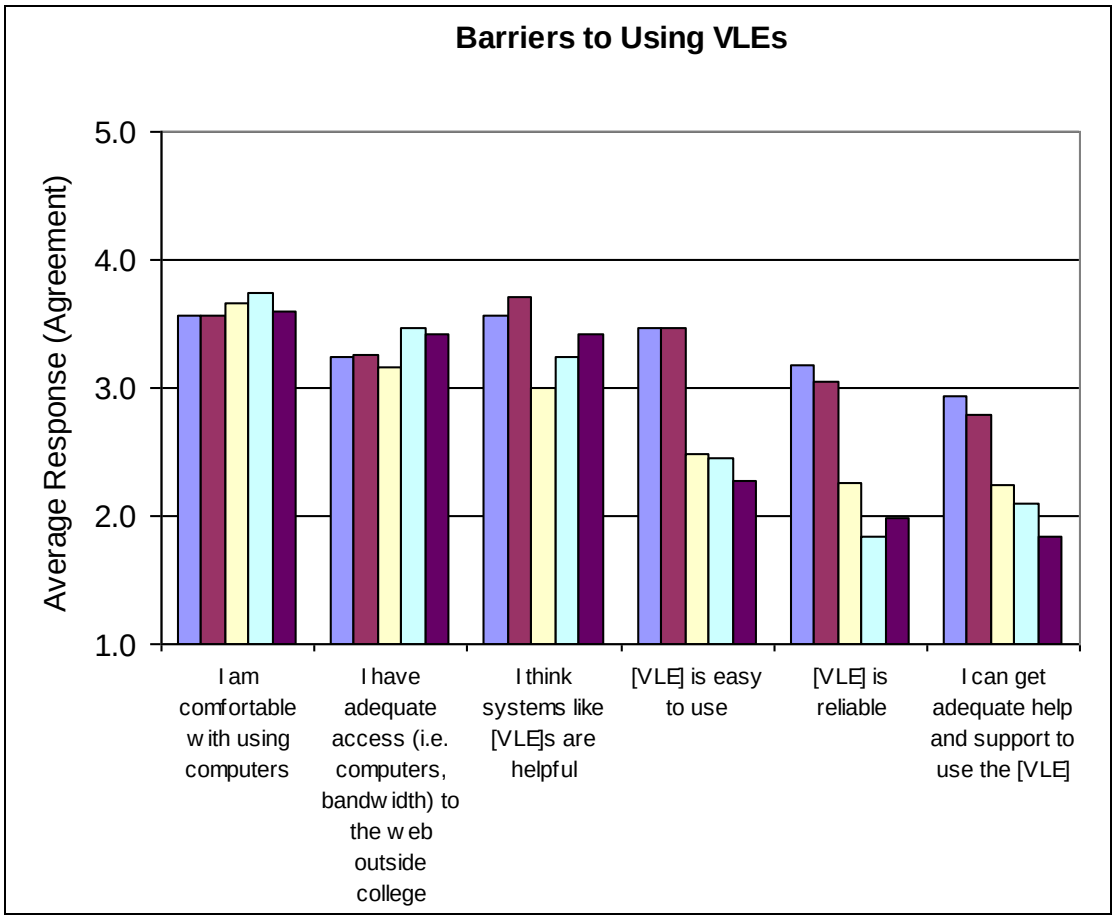
The results to the question "If you don't use the VLE, why not?" are very clear. If lecturers don't use the VLE, student's do not use it[3]. Although some usability issues are affecting student use in institution C, the response of the vast majority of students highlights the importance to get staff on board with trying to build up VLE usage.

[3] Note we do not have results in this variable for institution D



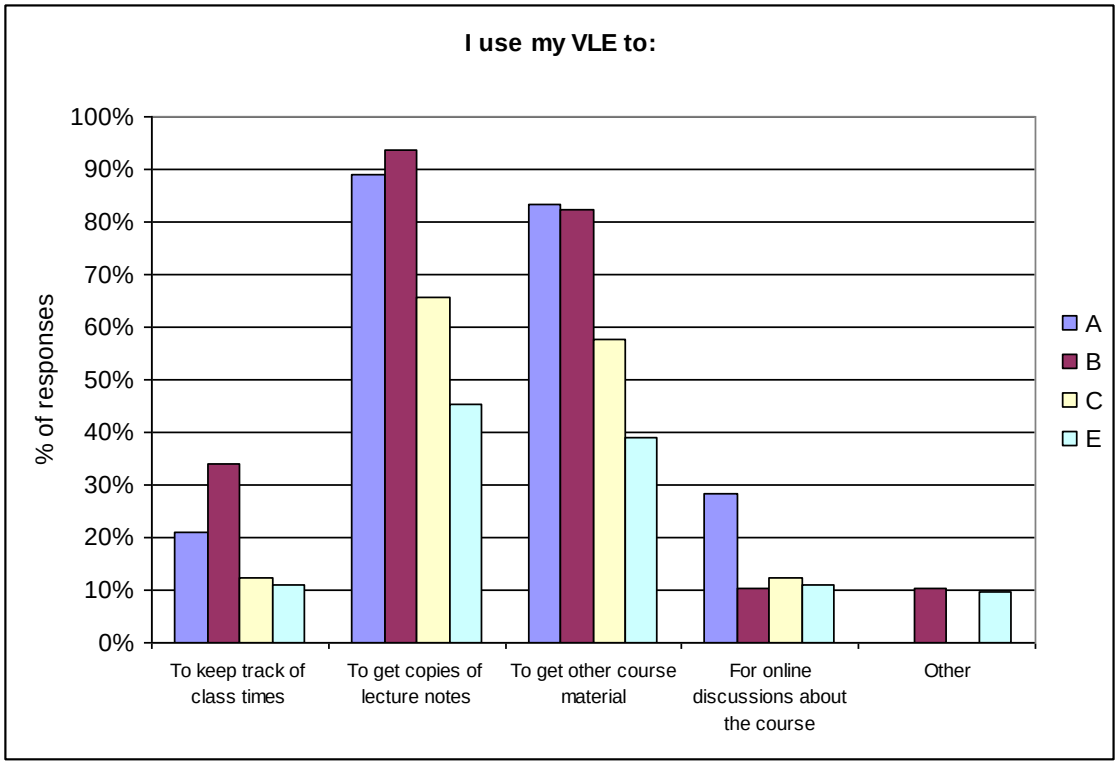
Other survey questions explored issues of bandwidth, access to computers and 'digital divide' issues and found these were generally not significant mainstream barriers to usage. The possible barriers to VLE usage were assessed on a 5 point Likert scale where high scores indicate high level of agreement. The results generally indicate that computer skills and access to technology are rated similarly in all institutions, and are the least likely factors deterring students from using their VLEs. Students tend to perceive VLEs are a useful resource, although those in institution C found it less useful, and less usable, probably due to the lack of experience with similar systems prior to the recent introduction of the institutional VLE.

Usability, reliability and support are however issues that split A and B from C, D and E. Students responding the questionnaire are unlikely to clearly distinguish these three factors so there is some blurring here, but in any case the results highlight the importance of guaranteeing that, regardless of the platform chosen (noting again that E and A use the same VLE) the system is adequately supported, has high reliability and response times, and has adequate support.



Purpose of use

When enquired about the concrete use the students make of their VLE, there was a general agreement that these are most likely to be used as repositories for content, which is likely to reflect traditional teaching methods. However it is also worth to notice that not all teaching practices facilitated through VLEs (for example provision of formative feedback) were not reflected in the survey.



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In institution B, students are much more likely to perceive that the VLE gives them more access to their lecturers and other classmates. This is may be due to a skewed response, noting the overall number of respondents from institutions E was low. In the rest of the institutions, the VLE does not seem to be a facilitator of greater student-to-student interaction. Interestingly, only in institution B do students believe that their lecturers are making good use of their VLE (there is no data for institution A), and tend to disagree that it facilitates learning and feedback. All these results are consistent with the finding that the systems are mainly being used for delivery of content, suggesting that the emphasis of promoting the VLE must go beyond superficial adoption that replicates traditional teaching methods towards a more student centred, engagement based type of use which makes it possible to enhance learning in new and creative ways.

Some recent e-learning research has focused on the perceived 'failures' of e-learning to deliver the kinds of change sought by policy makers in respect of higher education. In this context, data such as ours, which suggests that the VLE is an 'online filing cabinet' might be seen as further evidence of the limited changes that e-learning has brought to teaching and learning at third level. Kirkup and Kirkwood (2005)[4] counter this argument by suggesting that we should examine what is happening, rather than what we think *should* be happening.

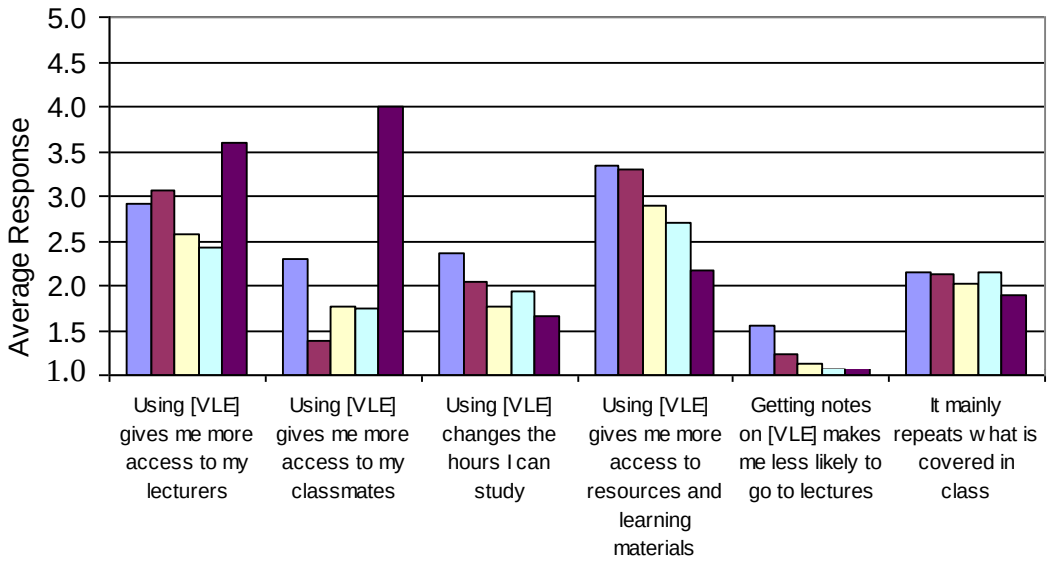
[4] Kirkup, G., & Kirkwood, A. (2005). Information and communications technologies (ICT) in higher education teaching - a tale of gradualism rather than revolution. *Learning, Media and Technology, 30*(2), 185-199.

Many universities, they say, have invested in VLEs or similar systems. An analysis of Teaching and Learning Strategies in the UK showed that around 50% of the institutions were looking to support more flexible methods of learning and wanted to exploit new technologies for this purpose, but they had not had the outcomes they anticipated from VLEs.

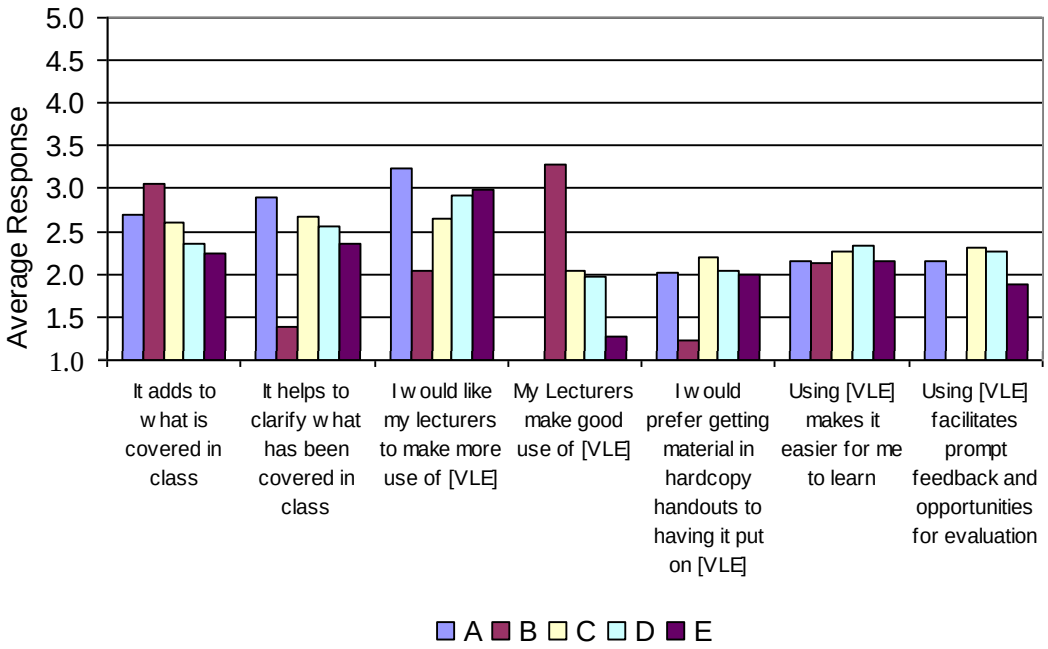
> It is becoming apparent that, in campus-based contexts, teaching staff appropriate those technologies which they can incorporate into their teaching activity most easily, that offer affordances for what they already do, rather than those which radically change teaching and learning practices (2005: 188)

Experience elsewhere in Ireland has also demonstrated that VLEs tend to be used to support flexible access to course materials in the first instance (Blin & Munro, 2008)[5].

However, the use of the VLE as a content repository is a necessary step. In this sense it is remarkable to note that, across all institutions, students disagree with the statement that "Getting notes on the VLE makes me less likely to go to lectures", which has been a very common concern for faculty considering integrating technology in their classes. They also tend to disagree with the statement that "I would prefer getting material in hardcopy handouts to having it put on the VLE", which links to the contentious issue of the responsibility for printing materials, and seems to support the view that portable and easily storable materials are the way forward.



[5] Blin, F., & Munro, M. (2008). Why hasn't technology disrupted academics' teaching practices? Understanding resistance to change through the lens of activity theory. *Computers and Education, 50*, 475-490.



Deepwell & Malik (2008)[6] find that little research in the effective use of e-learning has been conducted from the perspective of the learner. Their study examines overall patterns of use of technology by students in their self-directed study time, and their findings are similar to those of a similar US study: almost three-quarters of students' study time is spent accessing course materials.

> Most of the use of technology is reported to be to access information (76%) or review course materials (73%), manage course information (65%) and communicate with friends (59%)". Around half of the students used it for group tasks and 45% for self-assessments. There was less use to contact lecturers or other students, or to revise for examinations (2008:9)

This is broadly consistent with our findings. The VLE was "the first reference point for e-learning and was in general appreciated by students, although there are some issues arising with regard to the way in which the online environment is being used" (2008: 9).

Discussion

Our results have presented a snapshot of student perceptions with regards to the use of VLEs rather than clear cause-effect associations. The conclusion that can be drawn are necessarily limited, as there are only 5 data points, and significant response rate issues for some institutions., since we only count with five data

[6] Deepwell, F., & Malik, S. (2008). On campus, but out of class: an investigation into students' experiences of learning technologies in their self-directed study. *Association for Learning Technology Journal (ALT-J), 16*(1), 5-14.

points. This being said, it helps us to put institutional issues in context, and is likely to enable us to share practices and understand our realities better.

Also, some general inferences can be made from the findings. In the first place, the choice of VLE is not significant, as A and B show very similar patterns, yet use different platforms; while A and D use the same platforms and yet have very different levels of usage. This contrasts with technologically oriented discussions elsewhere about the benefits and shortcomings of particular platforms and version. From the point of view of students surveyed, it seems that once a basic level of usability and reliability is guaranteed, the particular choice of platform is not a critical issue.

The general feeling from the survey is that VLEs are being used to support traditional content based teaching styles. From a learning technologist's point of view, it is easy to lose perspective of this, as we are used to talking to groups of technology enthusiasts. Results highlight some benefits, and also challenge some negative assumptions about the impact of VLEs, for example with relation to class attendance. However it is in general evident that further emphasis is needed in the pedagogical motivation behind the use of these systems, and rather than "preaching to the converted", the challenge that educational developers face is to bring on board traditional-minded teaching and management staff.

Further Work

Initial findings from the 2008 survey were useful to the participants, and we intend to run the survey again in 2009. Once again, the project will be open to participation by any interested institution.

To allow valid year to year comparisons, the 2009 survey will be changed as little as possible, although some improvements will be necessary. A survey of teaching staff may be added to provide a more rounded view of the reality being explored, integrating necessarily faculty's views on their own use of VLE.