

NATIONAL SURVEY ON THE USE OF TECHNOLOGY TO ENHANCE TEACHING AND LEARNING IN HIGHER EDUCATION 2014

NATIONAL FORUM

FOR THE ENHANCEMENT OF TEACHING AND LEARNING IN HIGHER EDUCATION

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NATIONAL FORUM FOR THE ENHANCEMENT OF TEACHING AND LEARNING IN HIGHER EDUCATION

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Preface

Policy is most likely to have a real impact when it is informed by accurate knowledge and understanding of the key issues, a solid evidence-base in other words. This is why this survey is a particularly welcome contribution to the work of the National Forum and as a resource for institutional managers. Given how busy most of us are in the sector, I'm extremely pleased to see that so many colleagues took the time to respond to this survey and to contribute comments and suggestions that ensure the process is capturing the real, lived experience of those engaged directly in teaching and the support of student learning.

Surrounded as we are by technologies, in almost every aspect of our lives, it is important that we are able to make sensible decisions about what works and what doesn't work, about what facilitates and what encumbers and, importantly, about what inspires and encourages learning and creativity. This survey provides invaluable information about the current state of play in our institutions of higher education.

Whilst it may come as no great surprise that the bulk of use of technologies such as VLEs is in communication, course organization and the sharing of teaching & learning materials, it is interesting to note the level of penetration into practically all courses and all institutions. VLEs are now part of the institutional 'plumbing' as it were, and for the vast majority of respondents, an essential everyday tool for managing courses and programmes.

Their current role is clearly captured by the original label 'Learning Management System' but there are signs that people are eager to push a little further and use these, along with complementary systems, for more sophisticated forms of engagement, adding multimedia components, assessment tools and the like. In a sense, perhaps, actually moving closer towards what might be implicit in a 'learning environment', virtual or otherwise.

The fact that lack of time and the sparse provision of support (technical and pedagogical) are identified as the two most prominent constraints experienced by staff reflects the resource constraints under which Irish higher education has been operating in recent times and suggests a need for appropriate resourcing and prioritisation. Flexible provision of training, the sharing of practice amongst colleagues and recognition for efforts made are also reflected in contributions made to other consultations, such as that for a professional development framework for those who teach and support learning.

Combining this survey with other information gleaned from a review of existing IT infrastructure for teaching and learning will provide a more comprehensive understanding of the key issues, outlining both the challenges and the opportunities for the future.

This report makes for fascinating reading not just for those already engaged in supporting technology, but also for those with any responsibility for determining policy and practice at institutional and subject discipline levels. It counters some of the misconceptions about willingness to engage, the level of technology use and the extent of teaching innovation which have all too often in the past clouded discussion and, perhaps also, public perception. Irish HEIs are using technology extensively to support their teaching mission, their staff are eager to learn more, to focus on more engaged forms of media and technology use and to encourage and enthuse students. The challenge for the policy makers is to ensure that resources and priorities align with such ambition.

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EXECUTIVE SUMMARY

Survey of Technology Enhanced Learning

In May 2014 The National Forum for the Enhancement of Teaching and Learning in Higher Education conducted a survey to get a picture of how those in higher education are engaging with technology for supporting and enhancing teaching and learning. The survey aimed to enhance our understanding of the attitudes and beliefs of education professionals regarding the actual and potential role for technology in higher education. The survey also addressed more general questions about the respondents' motivation to pursue qualifications in teaching and learning for higher education.

The survey, (appendix A), was distributed to those who teach in Universities, Institutes of Technology, Colleges of Education and Private Colleges, through the National Forum's contact network. The responding sample is demographically representative of the range of teaching staff in Irish Higher Education.

Engagement with TEL Activities

More than 80% of teachers in the sample expressed confidence in their use of technology in teaching. Three-quarters of the sample show a strong willingness to experiment with technology to enhance their teaching. Respondents generally shared a strong belief that students are competent with routine, discipline-specific and HEI-specific technology. Almost half the survey participants indicated that students look to teachers for technology support, whereas 25% of respondents reported being less confident than their students when using technology.

The survey indicates that the perceived barriers to engaging in TEL are diverse. The most frequently cited obstacles were lack of training, or the lack of time to attend training, in addition to uncertainties regarding the possibilities afforded by TEL, and a relatively low expectation that support would be provided when required.

A third of the respondents agreed that the students in all HEI types drive the adoption of technology to enhance their learning. There is an almost unanimous view that technology will be an essential part of teaching in the future, with 80% of respondents also agreeing that HEIs encourage using technology to enhance teaching and learning.

VLE use as a component of TEL Activity

The most frequently reported important uses for VLEs include the distribution of learning materials, administration information and online assessment. Less frequently cited uses include the detection of plagiarism, student/teacher communications, and submission of coursework.

In general, respondents report using VLEs at least once a week and view them as a useful tool to enhance teaching and learning. VLEs are considered to be 'critical' to 70% of respondents, though there is not universal agreement among respondents about whether VLEs improve teaching. The main VLE uses (80%) are related to class management and dissemination of information, including email, slide-decks, video clips

and links to other material supported by general-purpose platforms. In contrast, applications specifically designed for the education environment e.g., Smartboard, Clickers, & E-Portfolios and MOOCs etc., were reported to be used by relatively few of the respondents in this survey.

Teaching and learning qualifications

The underlying trend among responding teachers with 5 years or less experience, suggests strong recognition of the importance of Teaching and Learning qualifications as evidenced by their having achieved, or intending to obtain, a T&L qualification. Roughly half of all respondents hold a teaching and learning qualification. Of the most experienced teachers, 42% reported that they do not intend to pursue such a qualification at this time.

Gender

In this sample, more females than males had achieved, or were pursuing, a T&L qualification (F: 65%, M: 51%). In contrast, more males than females report that they do not intend to pursue such a qualification. (M: 34%, F: 22%).

HEI Role

Teachers who described their role as 'primarily teaching, and learning support with teaching', are most likely to hold or currently completing a T&L qualification (65%), while 19% report no intention of pursuing one. 59% of those occupying roles described as 'primarily teaching with research' have, or intend to obtain, a T&L qualification, with 30% declaring no current intention to pursue one . 54% of those in roles described as 'teaching only' hold, or intend to hold, a T&L qualification, while 29% have no intention of completing one.

Employment Status

Most of the respondents who hold, or who are in pursuit of T&L specific qualifications are those occupying temporary or permanent part-time positions. While the intention to pursue a qualification is similar across all employment status categories, those with permanent full-time positions are twice as likely as all others to have no intention of pursuing one.

The Role of HEIs in engaging with TEL

Respondents acknowledged the key role of the HEI in implementing, enabling, encouraging and supporting advances in Technology Enhanced approaches to learning. However, only 40% of respondents reported being aware of their home institute's TEL strategy. The TEL environment provided by the HEIs was experienced as 'at least adequate' in the year preceding the survey. While many relied on supports such as HEI helpdesks and T&L Support units, very high proportions found support among their local champions, online resources, and peers, these being cited most frequently by the newest teachers. The lack of training or the time to engage in training was widely cited by teachers as a barrier to TEL.

Meaning & Implications

Responses to this survey indicate the high value placed on TEL, its role across the pedagogical landscape now, its criticality in the future, and the extent to which it has been embraced by lecturers in a range of HEI types. Despite a diversity of nuance in relation to the issues, attitudes and values seem generally consistent throughtout the survey sample.

Notwithstanding the very positive orientation towards using technology for teaching and learning, many challenges and obstacles remain. A substantial minority expresses concern about the availability of resources and timeliness of support necessary to introduce new TEL initiatives. Some respondents articulate a reluctance to participate in TEL due to lack of equipment, knowledge, time to train, perceived relevance, and time to develop new materials. Those who are persuaded by the value of TEL, but have not yet embraced it, express a degree of anxiety surrounding 'getting started'.

Approximately 60%, of respondents reported not being aware of the existence or content of a TEL strategy within their HEI. Similarly, the reported experience of the HEI-provided TEL suggests a resources and support structure than was less than optimal, which, in turn, indicates a disincentive regarding the adoption of TEL for the benefit of the learners.

There is a powerful case for embedding technology in pedagogy at the earliest stages and throughout students' careers. Placing modern technology at the services of experienced teachers offers opportunities that contain enormous potential for enhancement and engagement, in the interests of teaching and learning. In the light of this, it is incumbent on the National Forum for the Enhancement of Teaching and Learning to establish the extent of the existing IT infrastructure that supports TEL in HEIs in Ireland, as an evidence-base for future development across the higher education sector.

Acknowledgements

The National Forum for the Enhancement of Teaching and Learning would like to thank the survey participants for their engagement with the survey, and to acknowledge the key role played by the Irish Learning Technology Association (ILTA) who contributed both the design of the survey and its distribution. We also acknowledge the support of Designated Contacts (DCs) for each Higher Education Institution, who facilitated the distribution of the survey.

This research project was designed by the National Forum team in partnership with ILTA. The results were compliled by Dr John Keogh and Dr Terry Maguire with support from the Forum team.



Introduction and background

This survey was carried out as one of a number of elements of an extensive consultation process with higher education in Ireland that led to the initial development of a preliminary roadmap (Principles and First Insights from the Sectoral Consultation on Building Digital Capacity in Irish Higher Education – May 2014) (http://www.teachingandlearning.ie/wp-content/uploads/2014/05/Digital-Roadmap-PHASE1MAY282014. pdf), and a subsequent extended roadmap (Teaching and Learning in Irish Education: A Roadmap for Enhancement in a Digital World 2015-2017 – March 2015) http://www.teachingandlearning.ie/wp-content/ uploads/2015/03/Digital-Roadmap-web.pdf. This builds on the preliminary roadmap by highlighting key considerations which aim to address the challenges of building digital capacity across higher education in Ireland more explicitly.

The survey provides the first national snapshot of how those who teach in higher education currently use technology to enhance their teaching, where they go for support and what challenges they face. This report presents the findings of the survey. It is hoped that departments/schools/faculties in higher education will use the findings to initate a discussion and interpretation within their own context.

Methodology

The survey was developed in partnership with members of the board of the Irish Learning Technology Association (ILTA). The survey was piloted amongst a small group of practitioners before being launched in its final form (Appendix A).

After a pilot phase, the survey was distributed through ILTA Group Page on LinkedIn © http://www.linkedin. com, and the ILTA website, hppt://www.ilta.ie. The National Forum asked each Designated Contact to distribute the survey to 10 staff members engaged in different topic disciplines within their HEI. The Survey was also promoted through the National Forum's Social Media channels by inviting participation via the National Forum's website http://www.teachingandlearning.ie/.

The Survey was constructed using SurveyMonkey© and distributed online only. The response setup enabled the identification of which distribution channel elicited each survey response. The analysis of the data was carried out using Software Package for the Social Sciences (SPSS) IBM©, EXCEL Microsoft©, and NVivo © QSR International, computer software.

Survey Sample

The survey received 790 responses from the following sources:

- 195 responses: Irish Learning Technologists Association
- 294 responses: Designated Contact (Key individuals in Teaching and Learning organisations in Ireland)
- 301 responses: Web based open invitation to participate in the survey.

A comparison of the resulting data sets revealed a degree of homogeneity sufficient for them to be combined into a single sample.

Overview of survey items:

The lens of enquiry underpinning the development of survey items was shaped by a number of focus groups and expert opinion, which identified a range of factors thought to influence the adoption of TEL, Figure 1. Survey items were developed to probe these factors.



Figure 1. Range of factors that influence TEL

Responses: categories and rating scale

The majority of the response options were categorical (Questions 1, 2, 4, 5, 6, 7, 9, 12, 14, and 15). Free text responses were sought in Questions 1, 3,7,8, & 14 to account for categories other than those specified in the survey item. Question 8 invited an evaluation of a range of TEL activities ranked in ascending order of importance from 1 to 5. A 'Don't use it' category was provided for completeness. The response data were ordered by the quantity of responses in each category to reflect the variation in opinions expressed.

Questions 10, 11, 13 and 16 invited responses to Likert-style items, varying from the dichotomous to the more traditional 'Don't Know, Strongly Disagree, Disagree, Agree, Strongly Agree'. The neutral category i.e. 'neither Agree nor Disagree' was omitted to encourage the participant to position their view towards agreement or disagreement.

Question 18 probed sources of TEL support and the extent to which it was relied upon, measured on a 7-point scale. While invited to evaluate seven different sources of support, a response was optional. The response data were ordered by weight of the number of responses and displayed accordingly.

Questions 19 and 20 invited participants to articulate in free text, their beliefs and attitudes that were not catered for explicitly otherwise.

No Response

The vast majority of the survey respondents engaged with all of the items, attracting a maximum of 790 and a minimum of 656 responses. The sample and it's representativeness is considered sufficient to underpin the validity of the survey findings.

Presentation of data

The structure of this report is aligns with that of its underpinning survey. Illustrative charts and tables are accompanied by explanations of the dataset to communicate the survey's findings, elaborated by cross reference where appropriate.



Section 1: Institutions surveyed – Sample profile

Type of Higher Education institute

Comparison of Sample (excluding Private Colleges) with HEA reported Academic Staff



Figure 2. Distribution of academic staff reported by HEA¹ compared to the survey sample. (N=675)

The total sample accounts for 675 individual responses, excluding private colleges, which represents 8.7%, of the total number of people reported by the HEA¹ to be engaged in academic activities, and is a reasonable return for a survey of this kind. When multiple response options are taken into account, the data set comprises more than 95,000 data points, distributed across a range characteristics including:

- Teaching experience
- Subject discipline,
- Institutional role
- Gender
- Employment status, and
- T&L-specific qualifications.

1 http://www.hea.ie/sites/default/files/key_facts_and_figures_2012-13.pdf

Teaching experience

The survey invited participants to describe their involvement in the provision of teaching and learning, by reference to a number of important characteristics, to capture a sense of their beliefs and attitudes regarding the potential for technology to enhance their role and the experience of their students. The following sequence of questions was designed to probe a range of personal and organisational factors that may shape teachers' attitudes and their appetite for acquiring and including technology in support of their pedagogy. In the first instance respondents were asked to indicate how long they had been teaching, Figure 3.





Figure 3. Teaching experience reported by the survey respondents. (N=758)

The sample comprises a broad range of teaching experience representing a reasonable cross-section and is consistent with their respective response rate, Figure 4.



Teaching Experience compared by HEI type

Figure 4. Reported teaching experience profile distributed across HEIs. (N=752)

The relative proportions of the different categories of teaching experience is similar across all HEI types, which helps to underline the breadth of opinion expressed in the survey.



Subject disciplines

The participants were asked to identify their subject discipline against the ISCED broad fields².





Figure 5. Count and Proportion of Respondents' Subject Disciplines. (N=725)

This figure shows the spread of subject disciplines among the survey participants.



Figure 6. Academic Discipline by reference to HEI type. (N=655)

Respondents in the Health and Welfare discipline represent the majority of the Universities' contribution, whereas the Engineering, Manufacturing & Construction cohort is the dominant discipline reported for the IOTs. Education and the Humanities & Arts, predominates among the Colleges of Education, while responses from those in Private Colleges are predominant in the fields of Social Sciences, Business & Law, and Education.

Institutional role

The respondents were invited to select the category which most closely described their role in their respective HEI, (Figure 7).

Teaching Role



Figure 7. Survey participants profiled by Teaching Role. (N = 784)

The vast majority of the sample described themselves as engaged in teaching, whether solely, primarily, or attached to other duties.

Respondents' gender

Gender representation in the sample is closely aligned with that reported by the HEA in 2014, http://www. hea.ie/news/gender-and-academic-staff.



Figure 8. Gender representation of the Survey Participants. (N= 719)

Employment status

The majority of the sample (71%), declared themselves to be permanent employees, either whole-time or part-time, a further 23% occupying temporary posts. In the case of Private Colleges, slightly more than a quarter occupy temporary positions, more than three-quarters reported being employed on a permanent basis. In contrast, respondents from Institutes of Technology were, in the main, permanent, fulltime staff. In all, 87% of the staff in IOTs who responded are employed on a full-time basis. The Universities had a similar profile. Overall, the majority of the sample were employed in permanent, whole-time roles, Figure 9.



Employment Status: All HEI Types

Figure 9. Employment status reported by the Sample. (N= 714)

The pattern of employment status for all HEIs is depicted in Table 1.

Employment status	Colleges of Education N=127	Private Colleges N=77	IOTs N=331	Universities N=179	Overall N=714
Permanent Whole time	65%	57%	74%	74%	71%
Permanent Part time	12%	16%	8%	4%	9%
Temporary Whole time	7%	3%	13%	12%	10%
Temporary Part time	16%	25%	5%	10%	10%

Table 1. Employment status compared by HEI

T & L Qualifications status

The survey sought to determine whether the respondents held Teaching and Learning qualifications, in addition to those associated with their academic discipline (Figure 10).



T & L Qualifications Status- All HEI Types

Figure 10. Teaching & Learning Qualifications Profile. (N = 714)

Differences in types of HEIs notwithstanding, the substantial majority, 72%, claimed to have, or to be in the process of acquiring, relevant qualifications, while 28% indicated that they had did not have a teaching and learning qualification, and that they currently did not intend to pursue one, Table 2. Colleges of Education reported the highest proportion of those in possession of a T&L-specific qualification.

Qualifications status	Colleges of Education	Private Colleges	IOTs	Universities	Overall
Yes, I have a T&L-specific qualification.	57%	48%	41%	49%	47%
I am pursuing a T&L-specific qualification	8%	8%	14%	11%	12%
No, I do not have a T&L-specific qualification, but I intend to pursue one	13%	19%	14%	11%	14%
No, I do not have a T&L-specific qualification and I Do Not intend to pursue one.	21%	25%	31%	29%	28%

Table 2. Teaching and Learning-specific qualification status, compared by HEI type

The respondents from IOTs reported the least number of staff with a T&Lspecific qualification or the intention to pursue one. The survey did not capture the quantum of learning claimed by the respondents. A comparison of reported T&L experience and qualifications status reveals a strong underlying trend among those in the earliest stages of their teaching careers, 64% of whom either holding or pursuing a T&L specific qualification, while 23% reported that they did not intend to pursue a qualification currently, Figure 11. In contrast, 42% of the most experienced teachers express no intention of completing a T&L qualification.

Qualifications Status compared by teaching experience



Q02*Q07 Teaching & learning-specific qualification compared by years of teaching experience

No I do not have a qualification in teaching and learning and I do not intend to pursue one

Figure 11. Profile of Qualifications status of teachers, grouped by years of experience. (N=720)

The extent to which the survey participants described their role in the HEI as comprising teaching duties (either wholly of partially), may help to illuminate the reported attitude to T&L qualifications, Figure 12.

Qualifications status compared by HEI Role

Q04*Q07 Teaching-specific qualification and HEI role



Figure 12. Teaching & Learning qualifications clustered by HEI role

In every case, the majority hold, are in pursuit of, or intend to pursue a teaching and learning qualification. However, the cohort not intending to pursue such a qualification, while present in every case at around 30%, is more prominent amongst those who describe their role as including a research component.



Qualifications status compared by gender

While there was no specific intention to investigate gender representation, the survey revealed that more females than males (F:78%, M: 65%) actually held, were in pursuit of, or intended to pursue a T&L qualification, Figure 13.





Figure 13. T&L Qualifications Status - Gender representation. (N=713)

Qualifications status compared by employment status

The extent of correlation between employment status and commitment to teaching qualifications was tested by comparing the relevant survey items. Figure 14.



Q06*Q07 Qualifications Status compared by employment status

Figure 14. Employment Status and the likelihood of Teaching-specific Qualifications. (N=716)

The highest proportion of T&L qualifications was reported by those in part-time employment (permanent or temporary). At the same time, 68% (N=333) of those holding a teaching and learning qualification were in fulltime permanent positions. In all, almost 29% (N=204) of the respondents declared having no intention of pursuing a T&L qualification, 84% of these occupied permanent positions in their HEI.

The gender representation of the sample shows some difference in attitude, especially in the desire to acquire a T&L qualification. The less experienced teachers represented in this sample, and those holding temporary posts, are more likely to pursue T&L qualifications. The ways in which TEL is being realised in practice is explored in the next section.

Section 2: Technology-Enhanced Activities

TEL activities

The survey participants were invited to identify their typical uses of TEL and to assign a degree of importance on an ascending 5-point scale. The 'Don't use it' category was included for completeness, Table 3.

	Table 3.	The	relative	importance	of	Technology-Enhanced	Activities
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Q08 Importance of Technology-Enhanced Activities	N=	Upper range of importance (score 5-3)	Lower range of importance (score 2-1 or Don't use it)
Distributing learning materials (e.g., copies of lecture notes, reading lists, links to websites)	654	90%	10%
Distributing admin Information (e.g., Module handbook, assessment details etc.)	651	88%	12%
Online assessment	653	83%	17%
Delivering multimedia (e.g. audio, video)	651	79%	21%
Asynchronous :student to teacher (e.g., discussion forums, email)	648	77%	23%
Student collaboration or group activities	655	73%	27%
Plagiarism Detection	656	72%	29%
Providing revision exercises	649	69%	31%
Online submission of coursework	649	63%	37%
Interactive learning materials (e.g., animations, simulations)	651	62%	38%
Asynchronous: student to student (e.g., discussion forums, email)	650	61%	39%
Developing / supporting "learning communities"	642	58%	42%
Creation of collaborative documents (e.g., using wikis, shared file space)	654	48%	52%
Synchronous (in realtime) :student to student (e.g., twitter, instant messaging)	651	30%	70%
Synchronous (in real time) student to teacher (e.g., twitter, instant messaging)	649	29%	71%

The four highest ranking Technology-Enhanced activities appear to be more associated with class management, which is consistent with other research regarding the use of VLEs (Risquez et al, 2013)³.

While the range of features is neither complete nor exhaustive, the TEL activities listed and the extent to which they are considered important by the participants indicates a strong commitment to TEL nevertheless. However, there is evidence of a number of obstacles to engaging with TEL.

Perceived barriers to engaging with TEL

The barriers to TEL cited in the survey are diverse both in character and intensity, and may be expressed in terms of personal perceptions or as consequences of other agencies. The survey participants were offered the opportunity to choose, from among 10 possibilities, all of the features they perceived as restricting or obstructing the use of TEL, (Table 4).

Perceived Barriers (total unique responses, N= 657)						
Q09E. None. I use technology comfortably. N=234	36%					
Q09C. Lack of time to engage in technology-enhanced learning. N=275	42%					
Q09B. Lack of time to attend training. N=182	28%					
Q09J. Lack of technical support. N=156	24%					
Q09H. Lack of training. N=150	23%					
Q09G. Not sure of the possibilities. N=117	18%					
Q09D. Do not have access to the technology. N=64	10%					
Q09A. Lack of confidence. N=56	8%					
Q09I. Not relevant to my teaching / subject area. N=33	5%					
Q09F. Do not like the technology (individual). N=26	4%					

Table 4. Barriers to use of Technology-enhanced learning - Overall

The cross-comparison of the different categories of barriers revealed that respondents cited more than one barrier to TEL, (Table 5). The column and row headings show the number of people who agreed with the relevant statement. The number of people who agreed with both statements is reported in the cell at which they intersect in the table.

Risquez, A., McAvinia, C., Raftery, D., Costello, E., O'Riordan, F., Palmer, M., Harding, N., Cosgrave, R., Logan-Phelan, T. and Farrelly, T. (2013) 'Engaging students through the VLE: findings from the VLE Usage Survey 2008–2013', presentation at LIN conference, Dublin, 17 October. Available at: http://www.lin.ie/wpcontent/uploads/2013/11/VLE-2008-2013.pdf [Accessed 19 May 2014]

Table 5. Cross-comparison of barriers to TEL

&

	Lack of confidence N=56	Lack of time to attend training N=182	Lack of time to engage in technology- enhanced learning N=275	No access to technology N=64	l use technology comfortably N=234	Do not like technology N=26	Unsure of possibilities N=117	Lack of training N=150	Irrelevant to topic N=32	Lack of technical support N=156
Lack of confidence		16%	12%	11%	0%	8%	24%	23%	16%	12%
Lack of time to attend training	54%		44%	39%	3%	15%	44%	53%	22%	46%
Lack of time to engage in technology-enhanced learning	61%	66%		50%	9%	42%	53%	58%	28%	64%
No access to technology	13%	14%	12%		3%	8%	14%	18%	13%	22%
l use technology comfortably	2%	3%	7%	9%		19%	5%	1%	19%	7%
Do not like technology	4%	2%	4%	3%	2%		3%	1%	25%	4%
Unsure of possibilities	50%	28%	23%	25%	3%	12%		41%	19%	21%
Lack of training	63%	44%	32%	42%	0%	8%	52%		22%	47%
Irrelevant to topic	9%	4%	3%	6%	3%	31%	5%	5%		3%
Lack of technical support	32%	40%	36%	55%	5%	23%	27%	49%	13%	

It is apparent that a number of people perceived different combinations of barriers to TEL. Most commonly occurring is the lack of training and insufficient time to engage in with TEL, followed by degrees of awareness regarding the potential of TEL and confidence in the availability of technical support. It is notable that the cohort expressing comfort in using technology report very low incidence of barriers to TEL, time being the most common factor, albeit limited in extent.

These findings are supported by a 'WORDLE' representation of the comments offered by the respondents in free text, Figure 15.



Figure 15. Word picture of the barriers articulated by the respondents (Q09K) (N=84)

Students and TEL

Teachers responded to questions regarding their perceptions of their students' disposition regarding technology as a learning support whether in the form of:

- Institute-specific VLE,
- Basic software,
- Discipline-specific software,
- Extent to which they sought support from their teachers, and
- Confidence with technology.



Most of my students can use HEI-specific technology (e.g.VLE)



Teachers report that there is a high level of confidence in students' facility with HEI-provided VLE (> 80%), regardless of HEI type.

Teachers also reported their students to be capable of using basic software products, (Figure 17).



Most of my students can use basic software (e.g. MSOffice)

Figure 17. Teachers' perception of Students' competence with basic software. (N = 656)

All of the HEI types reflect the same profile.

The reported perception of students' competence with basic software is considerably higher than with discipline-specific software (>85%, 70% respectively), (Figure 18).



Most of my students have adequate technology skills for discipline-specific software

Figure 18. Teachers' perception of their students' competence with discipline-specific software. (N = 648)

This is strong evidence of the teachers' belief in their students' competence with discipline-specific software, however, between 25% and 35% of teachers either cannot say or do not perceive their students to have this competence.

The extent to which students sought support from teachers was probed in survey item 10D, illustrated in Figure 19.



My students look to me for technology support

Figure 19. My students look to me for technical support. (N= 653)

The intent of this survey item was to establish whether the teacher was expected to provide technical support for topic-specific applications software, as distinct from technical support in a general sense. In this light, teachers' perceptions of their competence, relative to that of their students was investigated, Figure 20.



My students are more confident using technology than I am

Figure 20. Respondents' perception of their students' confidence using technology. (N=602, excluding Don't know)

There is strong evidence of the teachers' own confidence, accompanied by a proportion of those who thought that the students were more confident.

The source of the drive towards adopting TEL was probed by the next survey item, Figure 21.



My students ask me to use technology to enhance their learning

Figure 21. Influence of Student demand in driving TEL. (N= 618, excluding Don't Know)

All HEIs reflect a similar profile. Excluding the 'don't know' response category, approximately one third agreeed that TEL is motivated by the students.

Teachers and TEL

Teachers' attitudes and beliefs surrounding the use of TEL in HEIs were probed by inviting responses to a number of items concerned with awareness, confidence, enthusiasm, worth and their perception of the encouragement provided by their HEI. There is a clear expectation of the future role of TEL in teaching, (Figure 22).



I think technology will be an essential part of teaching in the future

Figure 22. Future role of technology in teaching. (N = 654)

However, many respondents described their attitude to TEL by citing different combinations of attributes, Table 6. For simplicity, each descriptor is listed across the column headings by reference to the number of people who agreed with the statement. The same features are listed in rows. Each cell gives the number of respondents who agreed with both statements.

Table 6	5.	Cross com	parison	of	attitudes t	to	TEL	in	teaching	(Q	11).
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	I am not sure about the benefits of using technology in my teaching (163 agree)	l am confident using Technology in my teaching (536 Agree)	I am an enthustastic user of technology to enhance my teaching (500 Agree)	I am a late adopter of using technology in my teaching (171 Agree)	I experiment with technology in my teaching (544 Agree)	I think technology will be an essential part of teaching in the future [618 Agree]	My Institution encourages me to use technology in my teaching (520 Agree)
I am not sure about the benefits of using technology in my teaching		20%	16%	42%	22%	22%	25%
I am confident using Technology in my teaching	64%		90%	54%	87%	81%	81%
I am an enthustastic user of technology to enhance my teaching	48%	84%		53%	83%	79%	76%
I am a late adopter of using technology in my teaching	44%	17%	18%		21%	25%	27%
I experiment with technology in my teaching	72%	89%	90%	66%		84%	83%
I think technology will be an essential part of teaching in the future	83%	94%	97%	91%	96%		94%
My Institution encourages me to use technology in my teaching	80%	79%	79%	81%	79%	79%	

For example, of the 618 people who agreed that technology would be an essential part of teaching in the future, 22% (136) said that they were not sure of the benefits. At the same time, of the 500 people who described themselves as enthusiastic users of technology to enhance their teaching, 79% (397) reported being encouraged by their HEI to use technology in their teaching.

Survey items Q09 and Q11 were included to test the validity of the responses by matching the perception of barriers to TEL with self-reported attitudes to using TEL. The cross-comparison provided in Table 7, offers confirmatory evidence in a number of dimensions.

ltem	Barrier (Q9)	Cited by	Corroboration Q11	Agree
1	Lack of Confidence	8%	Confident using technology	82%
2	Lack of time to attend training	28%	I am a late Adopter	26%
3	Lack of time to engage in technology- enhanced learning	42%	My Institution encourages me to use technology in my teaching	80%
4	Do not have access to the technology	10%		
5	Lack of training	23%		
6	Lack of technical support	24%		
7	None. I use technology comfortably (see Tables 4 & 5) N=234	36%		
			Confident using technology (N=536)	82%
			l experiment with TEL (N=544)	83%
8	Do not like the technology	4%	Enthusiastic user of technology	77%
9	Not sure of the possibilities	18%	Not sure yet about the benefits of TEL	25%
10	Not relevant to my teaching / subject area	5%	TEL will be an essential part of teaching	94%

Table 7. Comparison of Barriers to TEL (Q9), and Attitudes to TEL (Q11).

A comparison of Q9 and Q10 demonstrates good reliability of responses.

The survey analysis has endeavoured to capture a sense of the motivation to use technology enhanced teaching and learning resources. This report now examines the sample's attitude to the Virtual Learning Environment (VLE), its perceived value, usefulness and its contribution to the students' learning experience.

Section 3: Virtual Learning Environment & other technologies

VLE (as a component of TEL): frequency of use



Figure 23. Teachers' use of VLE. (N = 666)

More than half of the respondents reported using the VLE every day, rising to 88% at least every week. Just over 91% used the VLE at least monthly; 9% either occasionally or not at all.

Attitude to VLE as a component of TEL

Of those who expressed an opinion, approximately 70% agreed that the VLE was critical to their teaching, (Table 8).

Table 8. Q13. Impact of VLE use

VLE use	Agree to some extent	Disagree or Don't use	N =
The VLE is critical to my teaching	70%	30%	618
The VLE is useful as a tool to enhance my teaching	93%	7%	618
The VLE is useful as a tool to enhance student learning	89%	11%	618
The VLE has helped me to improve the way I teach	63%	37%	614

The vast majority agreed that the VLE enhanced their teaching (93%) and student learning (89%), while 63% reported the VLE helping to improve the way they teach.

Purpose of VLE

In Survey Item 14, participants were invited to identify their use of VLE features from 7 possibilities.

Table 9. VLE use interpreted as Administrative or Pedagogic in orientation

VLE use	N =
Lecturer Notes	588
Class Announcements	523
Submitting Assignments	496
Reading Recommendations	472
Plagiarism detection	339
Online Discussion	262
Quizzes	253
Other VLE uses – Figure 24.	78

The responses to this item chime well with the ranking of importance attached to TEL activities reported in Table 3, the highest ranking of which demonstrates a class administration, focus. The 78 'other uses' contributed by the respondents in free text option (provided for that purpose) are represented in Figure 24.



Figure 24. 'Wordle' thematic representation of 'other uses' cited by respondents.

The emergent themes seem to feature students, videos, work, links, feedback, blogs etc., with undercurrents relating to assessment, attendance, projects and surveys. The full list of other uses is provided in Appendix B.

There is a contrast between the relatively low frequency of Quizzes and Online discussions, when compared with uses that have more of a course-administration focus.

Range of VLE use

The World Wide Web hosts a myriad of applications catering for social media and special interests, including teaching and learning supports. The respondents were invited to indicate the extent of their use of such platforms, by selecting from a list of 36, Figure 25. A broad range of technologies used was reported.





Figure 25. Reported use of TEL resources

The next section was designed to investigate teachers' motivation for engaging in TEL and the extent to which HEIs enable and encourage its adoption.

Section 4: Institutional Support

TEL Strategy

From the survey participants' point of view, the awareness, or otherwise, of a HEI strategy for TEL may exert an influence on its implementation, and the availability of the necessary supports, whether, equipment, software or training, (Figure 26).



There is a clear strategy for technology-enhanced learning within my Institution

Figure 26. Teachers' Awareness of a strategic plan for TEL in HEIs. (N = 642)

Over 60% of the respondents reported that they were not aware of their HEI strategy for TEL, or did not know if one existed. Furthermore, a cross comparison of the extent of awareness of HEI strategy for TEL and the sense of being encouraged by the HEI to use TEL, reveals that of the 637 people who answered both questions, 233 (37%), agreed that they felt encouraged by their HEI and that there was a clear strategy for TEL.

Section 5: Attitudes & beliefs regarding support for TEL

Experience with TEL use

The survey participants evaluated their experience of using a range TEL resources in the preceding year, using a graduated scale to indicate level of satisfaction, ranging from excellent at the upper end of the scale and either poor or 'not available / haven't used it' at the lower end, Figure 27.

Q17. What was your experience of using the following in the past year?



Figure 27. Over of experience of using a range of TEL features

The relatively high levels of satisfaction related to infrastructure are countered by less satisfactory experiences of technical support, relevant CPD, and other resources.

Sources of TEL Support

Teachers were asked to order by relative importance, the sources of support upon which they rely, typically. The rating scale offered 7 response categories, rank 1 being the most important. The responses are ordered by weight of response in each category, (Figure 28).



Q18. Who do you rely on for support for Technology-Enhanced learning (ranked in ascending order of importance)?

Figure 28. Relative importance of sources of TEL support detailed by all response categories. N = 634

The most frequently cited importance sources of support are the Helpdesk, followed by T&L Support Unit and online resources.

Thematic Analysis of free text responses

In order to provide additional opportunities for respondents to record their thoughts and opinions the survey format invited 'free text' comment on the following themes:

- Q08. Please comment on the importance of a range of technology-enhanced activities for your teaching
- Q09. What are the barriers to your use of technology-enhanced learning?
- Q14. Please specify how you use VLE, other than the activities listed
- Q19. "Technology provides opportunities for new ways of teaching". Please comment based on your own experience as a teacher
- Q20. "Is there anything else you would like to add?".

Survey participants' comments- An Overview

The additional comments attracted positive and negative contributions in roughly equal measure. The respondents were positive regarding the convenience of tools enabling them to provide links, conduct polls, use wikis, present e-clips, use videos, engage with adobe connect, class management, and podcasts. The advantages identified for students included mind-maps, collaboration, submitting work, chatroom, learning journals, access to lectures and material, distance learning, and feedback.

A small proportion of the respondents reported that they have plans to acquire more TEL skills, to experiment, develop quizzes, support group work, and E-portfolios, and in one instance, to overcome their fear of technology.

To this end, there is a suggestion that National Forum produce guidelines and instructions for lecturers who want to integrate technology, but do not know how, or provide a 'drop-in' centre for TEL queries.

Survey participants made challenging comments regarding funding and resources for technology enhanced teaching. Some voiced their concern about its pedagogical value and some argued that it should not be seen as a substitute for personal engagement in the classroom. TEL seemed to be associated with an extra commitment in time and effort, and perhaps reliant on technical support that was often seen as either inadequate or absent. There were some concerns that TEL was thought to mask serious problems in Higher Education, seeming to prioritise IT over education to underpin a 'distance correspondence' culture and to be constrained by institutional policies. There were minor complaints regarding desirable VLE functionality, and its shortcomings.

In general, the survey reports a developing confidence with technology use, its increasing importance to practitioners, and not only a 'cheap alternative'. Respondents generally consider technology in teaching to be indispensable, to enable discussion, offer a safe repository for submitted work, provide customised learning materials, enable concept-visualisation, engage students, accommodate mixed ability groups, free-up time for research activity, and in ways that can be used with, rather than instead of, face-to-face learning events. TEL is credited with 'efficient teaching', enabling the 'flipped' classroom, allowing complete access to teaching materials and increasing class-contact time. While challenging traditional methods, it is seen as supporting inclusion, and is broadly endorsed for its power to enhance the learning experience.

Appendix A: Survey Questions

20 Questions on Technology-Enhanced Learning survey

Staff who teach in Irish higher education institutions were invited to complete the following online survey.

Message to Participants

Welcome to the National Forum's first survey on the use of technology to enhance teaching and learning in higher education. This survey focuses on finding out more about the ways in which higher education teachers currently use technology to enhance the teaching and learning of their subjects/disciplines.

For this survey we define technology-enhanced learning as the use of any technology to support teaching and learning in all contexts.

The survey consists of 20 questions and should take you no more than 15 minutes to complete. It asks about your own experiences with, and orientations towards technology. Your responses will help to generate a good snapshot of the way in which technology is currently being used to enhance or support teaching and learning in Irish Higher Education.

Results of the survey will be presented in the form of collated data and will not reveal your identity or that of your institution. There are no right or wrong answers; we'd just like you to answer as honestly as you can. Click the 'Next' button below if you agree to participate.

Section 1 Demographics

1. Select which type of higher education institution you are from

- University
- Institute of Technology or DIT
- Private College
- College of Education
- Other (please specify)

2. How many years have you been teaching in higher education?

- 5 years or less
- 6 to 10 years
- 11 to 15 years
- More than 15 years

3. Which subject area / discipline do you teach?

*4. How would you best describe the focus of your role within your institution (This question requires an answer)?

- Primarily Teaching and Learning Support with Teaching
- Academic Manager with Teaching
- Teaching only

- Primarily Teaching with Research
- Equal division between Research and Teaching
- Primarily Research with Teaching
- Primarily Technical Support with Teaching
- Primarily Teaching, but with a Teaching and Learning Staff Support role
- None of the above

5. Gender: Male / Female

6. Please indicate your current employment status

- Permanent wholetime (including Contract of Indefinite Duration)
- Permanent parttime (including Contract of Indefinite Duration)
- Temporary wholetime
- Temporary parttime

7. Do you have or are you currently pursuing a teaching and learning specific qualification?

- Yes I have a qualification
- Yes I am pursuing a qualification
- No I do not have a qualification in teaching and learning and I do not intend to pursue one
- No I do not have a qualification in teaching and learning, but I do intend to pursue one
- If Yes (please specify)

Section 2 Digital Practices

8. Please indicate the importance of the following technology-enhanced activities for your teaching on a scale of 1 - 5 (1 = not important, 5 = very important)

1 2 3 4 5 Don't use it

- Distributing learning materials (e.g. copies of lecture notes, reading lists, links to websites)
- Student collaboration or group activities
- Online assessment
- Synchronous (in real time): student to teacher (e.g. Twitter, instant messaging)
- Online submission of coursework
- Synchronous (in real time): student to student (e.g. Twitter, instant messaging)
- Asynchronous: student to student (e.g. discussion forums, email)
- Delivering multimedia (e.g. audio, video)
- Creation of collaborative documents (e.g. using wikis, shared file space)
- Plagiarism detection
- Interactive learning materials (e.g. animations, simulations)
- Developing/supporting "learning communities"
- Distributing admin information (e.g. module handbook, assessment details)
- Providing revision exercises
- Asynchronous: student to teacher (e.g. discussion forums, email)
- Please comment if necessary

9. What are the barriers to your use of technology-enhanced learning (tick all that apply)?

- Not sure of the possibilities
- Lack of technical support
- Lack of time to attend training
- Lack of training
- Lack of confidence
- Do not like the technology
- Lack of time to engage in technology-enhanced learning
- Do not have access to the technology
- None. I use technology comfortably
- Not relevant to my teaching / subject area
- Other (please specify)

10. To what extent do you agree with the following statements?

Strongly agree – Agree - Don't Know – Disagree – Strongly Disagree

- Most of my students have the skills to use institutionally specific technology (e.g. the module registration system, the VLE, the library search system)
- Most of my students have the skills to use basic software programs and applications (e.g. MS Office, Google Apps, etc.)
- Most of my students have adequate technology skills for discipline specific software
- My students look to me for technology support
- My students are more confident using technology than I am
- My students ask me to use technology to enhance their learning

11. Please indicate whether you agree or disagree with the following statements:

- I'm not sure yet about the benefits of using technology in my teaching
- I experiment with technology in my teaching
- My institution encourages me to use technology in my teaching
- I am confident using technology in my teaching
- I think technology will be an essential part of teaching in the future
- I am an enthusiastic user of technology to enhance my teaching
- I am a late adopter of using technology in my teaching

Section 3 Virtual Learning Environment and other technologies

12. How often do you typically use the Virtual Learning Environment (VLE) during an academic year (e.g. Moodle, Blackboard, Sakai/SOLAS etc)?

- Daily
- Weekly
- Monthly
- Less than monthly
- Do not use a VLE

13. Please indicate your level of agreement with the following statements about your VLE

Strongly agree – Agree – Don't know – Disagree – Strongly Disagree

- The VLE is critical to my teaching
- The VLE is useful as a tool to enhance my teaching
- The VLE is useful as a tool to enhance student learning
- The VLE has helped me to improve the way I teach

14. Please indicate how you use the VLE (tick all that apply):

- Class announcements
- Plagiarism detection (e.g. Turnitin, SafeAssign, etc.)
- Reading recommendations
- Lecturer notes
- Online discussion
- Quizzes
- Submitting assignments
- Other (please specify)

15. Which of the following learning technologies do you use in your teaching (tick all that apply)?

Announcements; Google docs; Prezi; Articulate / generated content; Lecture capture; Quizzes; Blog; LinkedIn; Screencasts; Chatrooms; Mobile apps; Skype; Clickers; MOOCs; Slideshare; Data analysis tools; Online games; Discussion boards; Online meeting room / Webinar; Smartboard; EBooks; Open Access Repositories; SMS texting; Email; Other social media tools; Twitter; EPortfolios; Personal website; Weblinks; Facebook; Podcasts; Wikis; Google apps; Powerpoint; You/Tube Other videos

Section 4 Institutional Support

16. There is a clear strategy for technology-enhanced learning within my institution

- Agree
- Disagree
- Don't know if a strategy exists for my institution

17. What was your experience of using the following in the past year?

Haven't used/Not available - Poor - Adequate - Good - Excellent

- Online or virtual technologies (e.g. network or cloudbased file storage system, webportals, etc.)
- Access to open applications/ websites (e.g. Second Life, Jabber, YouTube, Dropbox)
- Technology support (e.g. desktop support, classroom technology support, course media production support, etc.)
- Communication technologies (e.g. email, web-based conference services, social media, etc.)
- Academic classroom based technology resources (e.g. computers projection systems, lecture capture systems, SMART boards, etc.)
- · Access to institutional resources while off site

- Online collaborative spaces (e.g. synchronous or asynchronous virtual connections)
- Digital repositories for researchers and scholars
- Access to institutional WiFi networks
- Professional development around integrated use of technology in your teaching role

18. Who do you rely on for support for technology-enhanced learning?

Please rank the following in order of importance to you (from 1-7 with 1 being the most important)

- Peers, friends, or family
- Google, YouTube, or another online source
- Local champion/ colleague
- Supplier or vendor
- Institution IT help desk services
- Students
- Teaching and Learning support unit

Section 5 Final Thoughts

19. "Technology provides opportunities for new ways of teaching". Please comment based on your own experience as a teacher.

20. Is there anything else you would like to add?

Thank you for completing our survey. The results of the survey will be published later this year. If you have any queries please contact info@teachingandlearning.ie



Appendix B: Survey Participants' Other uses for VLE

Q14 : Please specify other uses of VLE	
I am the VLE administrator also, so all that entails	
Hosting of YouTube videos announcements of virtual office hours	
Online assessments	
Setting assignments	
Attendance and tracking of students' progress	
Attendance tracking	
Student blogs, sign-up sheets	
Primarily posting of material & references	
Storing course materials	
Digital performance creative projects	
Class delivery.	
Delivering live lectures	
Discussion forums (fora), wikis, blogs, etc.	
Discussion forums where students upload work and review and discuss uploaded material	
Distance learning education	
Sending group e-mails	
Emailing students, administration for modules	
Emailing students, with individual feedback on coursework assessment	
Emails, gradebook, exam preparation	
Email, Surveys	
nd a pile of other ways in blended modules: we do ansynchronistic document analysis, visual analysis, ne class wrote a wiki for the entire module, SCORM and other packages contain interactive inquiry based xercises, hyperlinks, youtube etc., links	

Data links for research projects; online mapping; blogs; sign-up sheets; group formation; links to visualisations, videos etc.; disciplinary news items; advertising postgrad courses of interest to students; setting up field work assignments; exhibiting work; there's no end to the ways we use it

Polls, Moodle Book Activity, Infographics, Mindmaps, Collaboration, etc.

Provide links to new content, watch observation videos, developing a community of learners

Visual Arts presentations, Virtual Gallery tours, History of art Appreciation, Videos on Teaching skills, Videos on technique development, Film-making (editing, adding sound etc.), Display of student work, exhibition of student work in international virtual gallery, animation, claymation, However VLE will never replace workshops where creating art is paramount I could go on forever

Group work (wiki)

Set up a wiki for group work

Institution requires degrees to use BBL for Programme Support Areas.

Interactive content and simulations

Interactive podcasts, media site lectures, etc

I see myself as an 'intermediate' user - lot of extras in Moodle that I am not yet familiar with

Learning journals/blogs,

Links to other resources. Also see Irish longitudinal study on use of VLE

Provide links to useful websites ect.

Provision of material and links expanding on class material.

Supplementary focused taks with listening clips and wider reading

URLs to connect to useful information, URLs to access videos

Using eclips

Video clip library and screencasts

Video clip, podcasts

Video demonstrations

Video links, URL links

Video streaming, class management, grading



Video tutorials

Videos, voting buttons

Support Documents for self learning

Hope to develop quizzes, but it is difficult to get the time to do this with a high teaching load. I used Adobe Connect Pro to deliver an online module three years ago, but the programme only ran for one year. I can see online delivery becoming more important but the institute is slow to recognise this and put resources in place to support and develop it.

It is not useful for urgent announcements, since students are not required to regularly check their student e-mail account and therefore my miss communications

I don't currently use

VLEs are overrated. The Lecturer is important to build up a relationship with students.

Classroom response systems

Sharing readings

Making Panopto recordings of lectures available

Recordings of lectures

Reflective blogs

Disseminating exam results

Distributing grades (for assessments not delivered using VLE)

Grading assignments

Grade record, If the student has an offline exam I put it up on Moodle as an assignment and I give them feedback. They have acomplete record of their work also this way.

Lessons in moodle, rubric feedback, grades feedback

Platform for shared results. Communications with students. Providing feedback on assignments

Keep students engaged in the topic outside of face to face lectures

Student questions - either as P.M. (personal messages) or to a question forum

Surveys, Dividing class into smaller groups

Synchronous teaching

I sometimes have a twitter feed

Links to useful online resources

Access to supporting video clips

Directing students to watch videos, listen to podcasts, make podcast recordings

Lecture screencasts/videos, links to other online resources, study log wikis, student collaborative document creation

Links to content (videos, blogs)

Links to extra materials, videos, websites, resources

Module relevant you tube clips, recordings of industry speakers

Multi media references, audio, video, how tos

Have experimented with other Blackboard tools (quizzes, etc.) but found them not sufficiently effective for my teaching

Wikis

Wikis for group work

Wikis, blogs, chatroom

Wikis, eJournals, Discussion Boards

