

Summary of learning technologies survey results

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Background

To support the Centre's operational strategy of enhancing its development and support for learning technologies within the community a scoping survey was undertaken focusing on the engineering community's current engagement with this aspect of learning and teaching. Consultations with other Subject Centres revealed a similar survey by the Subject Network for Sociology, Anthropology and Politics (C-SAP) who had in turn based their survey on one conducted by the Subject Centre for History, Classics and Archaeology (HC&A). C-SAP kindly agreed to share their survey with us through the Bristol Online Survey system and we decided to base our survey on this but to adapt some questions where necessary.

Outline of survey

There were 5 sections to the survey:

- Section 1 - The respondent's role
- Section 2 - Electronic learning resources
 - This section focused on the use of electronic resources and how these resources might be found and adapted for use.
- Section 3 – VLEs
 - The questions in this section related to the use of institutional virtual learning environments (VLEs).
- Section 4 - Pedagogical aspects of learning technologies
 - These questions sought to elicit information about the process of *design* when teaching with e-learning materials.
- Section 5 - Engineering Subject Centre resources
 - These questions focused on a selection of Engineering Subject Centre electronic resources.

Section 1: Respondent's role

The UK-wide online survey collected the responses of 55 respondents, mostly from Scotland and England, two from Northern Ireland, none from Wales and one from overseas. All worked in higher education (HE).

Most respondents were either academics or in learning technology related positions within their institutions. The spread of respondents from the four nations is reflective of the distribution of HEIs (i.e. the majority from England, followed by Scotland and then Northern Ireland). There were no returns from Welsh HEIs. 66% of respondents were academics involved in teaching undergraduates and postgraduates with some offering continuing professional development courses as well. The remaining respondents worked in learning support roles. Class sizes spanned a range of less than 10 to more than 200, so a good range of teaching class sizes was represented by the respondents, as well as levels of study.

Section 2: Electronic learning resources

There was a clear response in this section that showed that resources (assessment, course content, further reading, general information, independent study support, practical examples, practice questions, simulations and virtual labs) were created by the respondents themselves. Others were working in consultation with other staff, typically from their own department or institution.

Not surprisingly the dominant learning technology tools frequently used by respondents are Microsoft Word and PowerPoint (over 80%). VLEs and Excel were next, with 60% of respondents using them on an occasional to frequent basis. 72% said they collaborated in creating learning resources, most were created by themselves with a third being created in conjunction with other faculty members with little or no inter-university collaboration. This was fairly consistent across the full range of teaching activities. Obviously this needs to be unpacked at a more detailed level, but for now we can take away a picture of respondents describing solo activity as well as some collaboration. There was a strong indication of this work being shared amongst a range of colleagues both within and outwith the institution. Sharing has occurred through a range of approaches such as VLEs, websites, the Subject Centre, email and personally. Searching using Google and advice from colleagues were the main ways of finding electronic resources. The Engineering Subject Centre website proved a popular source. It is unclear why this was the case but may be due to Google's extensive coverage of our website and resources overlapping with facilities provided by the Centre. Books and seminars were also listed as sources of resources, as were email forums.

In summary:

- Resource creation is a solo task in the main with some collaboration with colleagues
- Traditional technologies dominate but VLE usage is on the increase
- Sharing of a range of electronic resources is evident and there is a clear willingness to share within and outwith the institution.

Section 3: VLEs

Blackboard, WebCT (now owned by Blackboard) and Moodle are fighting it out for VLE dominance in HEIs. Any mention of in-house systems was followed by a comment that they were moving to one of the big two. Support for VLEs was largely at the institutional level, then faculty and, finally, departmental. One of the key aspects that did not differ across the learning and teaching spectrum is that more than 80% of respondents indicated that no time is given to develop materials outside of their normal teaching load.

More than 80% indicated that they used the VLE to post their lecture notes, with some indicating that audio recordings were also used to complement the notes, particularly for international students. A third said they used the VLE for online assessment whilst over 60% said they used it for communicating with students, however, further questioning would be needed here to elicit a meaningful understanding of this statistic. Not surprisingly, only 22% indicated that they used the VLE for supporting discussion. This is not unusual, but given the underpinning pedagogy upon which VLEs are based (social constructivism - <http://docs.moodle.org/en/Philosophy>), as yet they are not realising their full potential in learning and teaching. Currently VLEs are used as a course management tool. For all its advantages, PDP is becoming embedded into the student experience, but as it stands we

are at around 40% of this being operational via electronic media. Separate tools (e.g. pebble pad or in-house developments) still dominate but some are linked into their VLEs.

In summary:

- Blackboard and Moodle are the dominant VLEs
- VLEs are mainly used for posting lecture notes, with some assessment and communication with students also being facilitated
- VLEs are little used for discussion and group work
- Full potential of VLEs is not being realised.

Section 4: Pedagogical aspects of learning technologies

68% of respondents considered learning technologies to have had a positive impact on their teaching practice, but most commented about the lack of time to undertake the extra work involved in this form of teaching, with a few exceptions suggesting it had made some aspects of communication and feedback easier. There was some suggestion that the technologies had had a positive impact on student learning outcomes, with about 75% of respondents indicating a medium to high perception of impact. The comments varied from students having access to materials and use of formative assessment to the other end of the spectrum, with concerns about how students are engaging with the materials in the VLE. In terms of supporting individual and group learning 55% considered these approaches to have had a modest impact, with around 30% considering them to have had a significant impact on student support.

There was an indication from the survey that there is scope to explore the potential of other tools which respondents indicated they were not currently using but thought could be valuable for teaching, e.g. wikis, blogging, YouTube, podcasting, voting systems and maybe Second Life[®]. Podcasting, electronic voting systems (EVS) and Youtube were used by 20% of respondents, with photo sharing, social bookmarking and Second Life[®] all registering very low. 35% of respondents indicated they had incorporated one or more of these alongside, or in conjunction with, institutional tools in the past academic year.

The position of learning technologies within learning and teaching strategies is unsurprisingly varied, although we can expect this to change over the next few years as it seems inevitable the learning technologies will become more pervasive in HE.

In summary:

- Learning technologies have a positive impact on teaching but there are concerns about the time taken to implement them
- Some indication that learning technologies are having a beneficial impact on students in terms of support and potential achievement
- An apparent willingness to explore how other potential teaching technologies (other than VLEs) could be used in practice.

Section 5: Engineering Subject Centre resources

Engagement with Subject Centre resources was variable across the array of different categories. Around 41% said that they used resources such as reports and events. Resources such as the journal, mini-projects, SIGs, case studies and HE/FE pages were not used by over 60% of respondents. However, where they had, positive comments relating to the usefulness of articles they had found were noted.

Responses to how the Subject Centre could support the community in the field of learning technologies showed no strong preferences for any in particular (i.e. embedding resources, information about new technologies, sharing materials, case-studies on learning technologies and toolkits for how to use technologies - although this was the least favoured option), but all indicated that they would be interested in more activities in this field, from traditional face-face events to online events.

In summary:

- There is variable engagement with Subject Centre resources. There is some suggestion that we could reconsider how we position some features, such as case-studies and the journal, on the website to reflect the positive comments made by those who had utilised these resources.
- More examples of how learning technologies have been used were identified, as well as a willingness to share materials.
- The community is willing to engage in a range of face-face and online events.

Conclusions

This survey has provided the Subject Centre with a snapshot of how the engineering education community is currently engaging with a range of learning technologies. The responses received provide a framework to inform our activities in learning technologies within the Centre's remit. The recommendations that follow are based on the survey results.

Recommendations

1. Engineering Subject Centre to continue to develop its resource base to facilitate greater sharing of electronic resources amongst the community (see section 2)
2. Centre to collate examples to showcase the use of VLEs within engineering education that reflect the range of tools available within this technology (see section 3)
3. Centre to gather evidence from the community to explore the impact of learning technologies on the student learning experience. (see section 4)
4. Centre to develop and deliver both online and face to face events as appropriate and develop more blended learning events (see section 5)
5. Centre to be pro-active in providing information to the community about new learning technologies, from a quick overview to examples in practice, and any research carried out in respect to student learning (see section 5).

These recommendations will be implemented through the Operational Plan for the Centre's activities during the academic year 2008 – 2009.