Lumping and Splitting. Rolling out a new VLE at the University of Lincoln.

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Context.

Fig. 1. University of Lincoln locations

The University of Lincoln has undergone profound physical change in the last decade or so. In 1995 it was the University of Humberside, and had three campuses in the relatively compact city of Hull, with one across the River Humber in Grimsby. Now of course, it's the University of Lincoln, with a main campus in the city Lincoln, plus an agricultural campus just outside the city, a new campus at Holbeach focussing exclusively on food technology and, one remaining campus in Hull. None of the University's campuses enjoy good physical communications. Even the Riseholme Campus, while only four miles away from Lincoln is not linked to the city by any sort of public transport. Lincolnshire is not blessed with particularly good road and rail links. This relative isolation has been an important factor in the University making a major investment in technology, including the establishment of a Virtual Learning Environment. This paper reviews the methods adopted by the university to replace a long established virtual learning environment which had been developed with Blackboard, a commercial Virtual Learning environment.

The University of Lincoln has a long standing commitment to technologically enhanced learning. In its former incarnation as The University of Humberside it was one of the first universities to develop what became a Virtual Learning Environment. Some of you may remember the ELEN (Extended Learning Environment Network) project from the early 1990s which involved the Universities of Manchester, Huddersfield, Middlesex, Thames Valley, Plymouth and Loughborough. The outcome of this was the creation of a virtual learning environment which became known as the Virtual Campus. This was later sold off to a private company, Teknical. Humberside was the only one of the ELEN partners to develop the Virtual Campus as its own VLE (although the term "Virtual Learning Environment" was rarely used in the mid 1990s when the Virtual Campus was set up.)

What was the rationale for developing the Virtual Campus?

Originally the ELEN project was very much about supporting study skills and employability, which at the time was very much a side issue in the curriculum. It's important to remember that at this stage all the work on technology was on "what could be done with it", rather than "what people wanted it to do." There was a great deal of discussion of the "New Learning Environment" a feature of which would be a much greater exploitation of technology. So the ELEN project developed a variety of on line tests in the form quizzes, (now very much regarded as traditional features of a VLE) but also contained a variety of practical tests where students were asked to do

things like format word documents, which were assessed using macros which checked the accuracy of the students' efforts against a "correct" standard and gave the student a mark, and also gave them feedback where they had not met the required standards. Nearly all of this work was aimed at improving students study skills, in particular introducing them to products like Word and Excel which were seen as key to employability in the mid 1990s. There were also some learning materials aimed at more generic study skills, such as referencing, CV building and so forth, but there was very little "academic" content, in the sense of disciplinary material.

You may be wondering what all this has to do with Blackboard. Well, it was important, if we were going to assess students, that we had accurate student data, and because the Virtual Campus was being built within the university, it was, from the start designed to work with data that could be downloaded from the University's MIS system (At the time the university was using a very crude "green screen" system called SMS to manage its student records and programme data.) This data included the students unique user id, their name, their date of birth, their award, and the units of study that made up their award, and their level of study (the stage of the programme that they were at) So an academic who wished to use the Virtual Campus had a ready made class list, and tests which would automatically mark students work and complete the grade book for that element of the course.
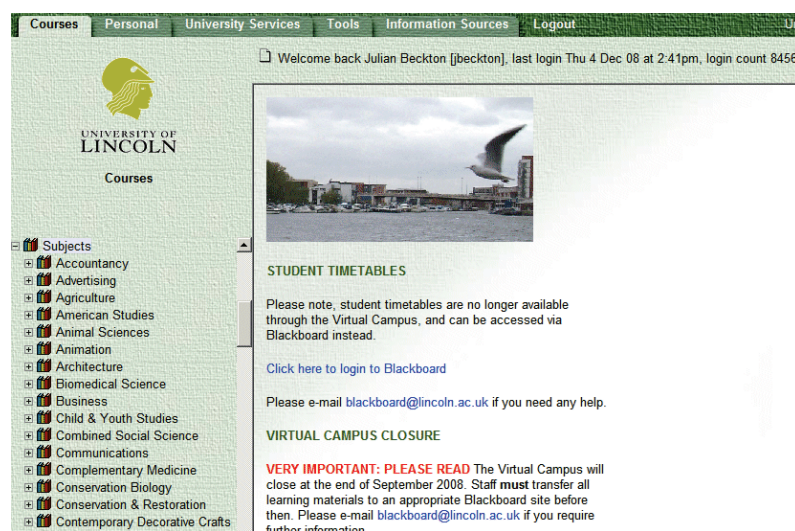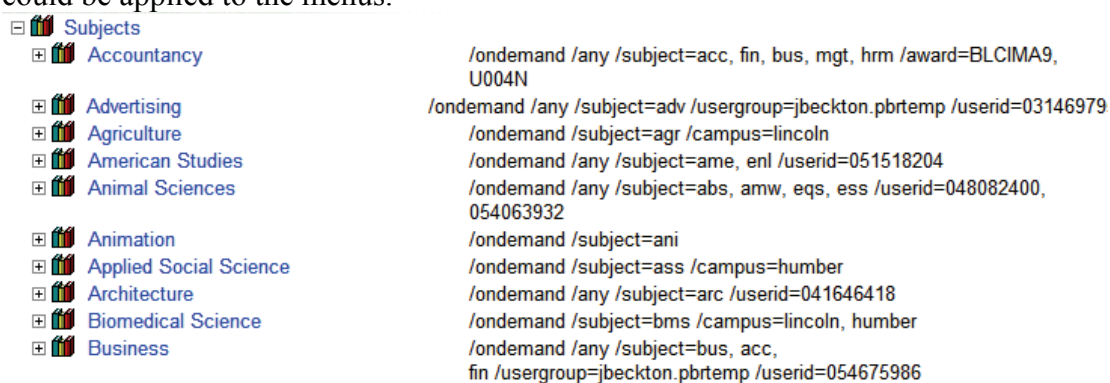

Figure 2: The Virtual Campus

But despite efforts to make these units compulsory across the university many disciplines were reluctant use the Virtual Campus. Some of this was partly to do with the nature of some disciplines. Art & Design for example felt that the IT content wasn't really relevant to their students, and IT was much less familiar to many staff than it is now. Furthermore because the Virtual Campus didn't really match the structure of the university, many staff simply didn't see it as relevant. If they logged on they wanted to see "History" or "Computing" rather than "Study skills." There were, as always enthusiasts who had done quite a lot in their own area, but most people simply didn't see using the Virtual Campus as part of their role. An opportunity to remedy this was provided by the creation of an Educational Development Unit in the year 2000, of which the author was a founding member of

staff. One of the first tasks of this unit was to try and increase the use of the Virtual Campus.

We thought (and in truth we didn't really base this on much other than our own experience of working with colleagues) that a major issue was simply that the visual appearance of the system simply didn't reflect the organisational structures and hierarchies of the University. If you logged in, there was nothing obviously visible to you. So we spent our first summer in the EDU redesigning the system so that when somebody logged in they would at least see a link to their own subject. Of course there were people who were already doing something, and we ensured that nobody lost what they had done.

The Virtual Campus also offered was a complex set of visibility conditions which could be applied to the menus.

Subjects	
Accountancy	/ondemand /any /subject=acc, fin, bus, mgt, hrm /award=BLCIMA9, U004N
Advertising	/ondemand /any /subject=adv /usergroup=jbeckton.pbrtemp /userid=03146979
Agriculture	/ondemand /subject=agr /campus=lincoln
American Studies	/ondemand /any /subject=ame, enl /userid=051518204
Animal Sciences	/ondemand /any /subject=abs, amw, eqs, ess /userid=048082400, 054063932
Animation	/ondemand /subject=ani
Applied Social Science	/ondemand /subject=ass /campus=humber
Architecture	/ondemand /any /subject=arc /userid=041646418
Biomedical Science	/ondemand /subject=bms /campus=lincoln, humber
Business	/ondemand /any /subject=bus, acc, fin /usergroup=jbeckton.pbrtemp /userid=054675986

Figure 3: Visibility conditions

As figure 3 illustrates, this meant that we could make any menu link visible to any combination of students. So, as in the illustration, the menu link "Animal Sciences" was visible to all students who were studying a relevant subject, but we were easily able to make the link visible to students who may not have been studying the subject but did have a legitimate reason to have access to it. Remember all the student records in the Virtual Campus database had a variety of attributes downloaded from the University's student record system. This reconfiguration did have the desired effect, and more tutors began to see the relevance of the VC to them. Another feature was the ability to post notices, and many tutors saw this as an excellent way of delivering handouts and lecture slides to students. While the pedagogical value of this practice is rather questionable, it did lead to a much greater demand from students for access to the Virtual Campus. Those students whose tutors were using the VC showed their friends what was available to them, and when those friends clicked on the link to their subject, they found nothing there. So they went straight around to their tutors and demanded that they get the same service as their friends, and really within a year we had about 90% of our academic staff using the Campus

Why Change?

Inevitably, as with all such systems the VC became rather dated, and we realised that while it still met the needs of many of our users, it really didn't have the functionality of more modern VLEs. Furthermore, having effectively sold the Virtual Campus to Teknical, we were the only users of the Virtual Campus in HE. They had some early success in selling it to FE colleges, but these installations have now been largely

replaced by Moodle, and they appear to have concentrated on developing the Virtual Campus as a training tool for the private sector. It is also very difficult for small companies to survive in a very competitive market and Teknical has now been absorbed into Serco learning. So we began to form the view that any future development of the Virtual Campus would be unlikely to meet our needs. One of the problems of using the Virtual Campus was, to all intents and purposes that we were in a "club of one". The University of Humberside may have blazed a trail, but no-one was following, and we thought there was considerable benefit to adopting a more widely used VLE where we could learn from others. That really reduced it to Blackboard or Moodle, and the decision was swayed by the fact that we weren't entirely comfortable with our lack of expertise in open source software. We thought that the support and consultancy provided by Blackboard would be useful to us. In fact the decision proved relatively uncontroversial, and we decided to adopt Blackboard in early 2007. It is fair to say that the change was approached with some trepidation. There was evidence in the literature that other institutions had taken a much more cautious approach to this change (Beastall and Walker, 2007). We really wanted to go for a "big bang" approach, and effect the change as quickly as possible, but we were equally aware that the more complex a change is the more difficult it is to mandate it (Fullan, 2003). We therefore tried to develop a method that gave our potential users as much opportunity as possible to articulate their needs, as recommended by (Bell and Bell, 2005) who argued that any such change was as much cultural as technical and that for the change to take hold it had to work with the existing culture, rather than try to change it.

Introducing Blackboard.

As described above the Virtual Campus was highly configurable and we could meet pretty much any need that was expressed by colleagues, and thus did reflect the culture of the University reasonably accurately. The default module in Blackboard is the "course". Clearly a course can be anything we want it to be, but each "course" has to be structured from the same data. As the university has a modular degree structure, the most widespread data unit is the module. (Each degree is made up of a number of modules). So we initially decided that we would create a Blackboard Course for each Module. However, this was not greeted with universal acclaim by academic colleagues. (That's not to say that there was universal disapprobation either.) But before discussing the way in which this issue was dealt with, I want to look at some of the issues associated with the wider Blackboard roll out.

Firstly there was a lot of concern in the Blackboard team and senior management about "selling" the new system to staff. Blackboard represented a significant investment on the part of the University, and as might be expected there was a desire to maximise return on that investment. Such a return was identified as a significant proportion (at least 50%) of courses using Blackboard from the 2008 roll out, and also there was a desire to see as full an exploitation of the affordances that Blackboard provides as possible. One of the criticisms of the Virtual Campus was that most people used it for nothing more than "posting lecture notes". In fairness, though that is a criticism that is often levelled at virtual learning environments in general. I don't think that is necessarily a criticism of the VLE or academic colleagues, because they were responding to what students were asking for. We also felt that at the very least

people should be able to do in Blackboard everything they had been used to doing in the Virtual Campus.

Our first concern though was to raise awareness of Blackboard. So we worked with our human resources department to develop a very comprehensive programme of introductory workshops. These workshops were principally about learning the language of Blackboard, for example what was meant by sites, communities, content areas, tools, and modules. We also covered things like adding learning materials, creating and contributing to discussion groups, making announcements, and creating and managing assessments. In fact most of the workshops were delivered by an external training consultant (who was a former director of Computing Services who had gone freelance.) The main reason for this was to relieve the pressure on the support team, which consisted of three members of staff, whose other responsibilities didn't go away. Most of those who attended actually found Blackboard very easy to use, but were more critical of the idea of using the module as the basis for each Blackboard course. What we discovered very early on was that people were very interested in some of the affordances of Blackboard but they didn't want to use it in the ways we anticipated. For example The Virtual Campus didn't have anything like the announcement tool in Blackboard, and you could see colleagues' eyes lighting up when we mentioned it in the training session. The ability to send e-mails to all members of a course was something that people had been asking for, for a long time. To complicate matters further there were many courses that didn't actually teach using modules. They were an administrative convenience for the purposes of assessment, but they didn't mean much to students on the ground.

However there were concerns especially from our Social Work department which was spread across two different campuses, one in Hull and one in Lincoln. The problem was for them, that while students were on the same course (as far as the University's MIS databases were concerned) they were actually being delivered at different timescales and they didn't want to be providing material, for (say) the Hull students which the Lincoln students would pick up at the wrong time. There were also "sessions" – different types of route to the award, for example we had some students who were doing an employment based route, some who were full and part time. And so on. Again, all of these were ignored by Blackboard which just saw a single unit code and thus created one course.

At the other extreme there were those courses for which modules had little practical value. My own department runs a doctoral programme which is split into modules, but these have no practical application in the actual teaching. Art and Design is another faculty where little use is made of modules, rather students tend to be grouped into awards and levels of awards. The university also offers a small number of FE courses under its Riseholme College brand, which unlike the HE awards are not modular. There's an interesting contrast here with the Virtual Campus. It's important to understand that the Virtual Campus didn't have the concept of a "course" so we created "folders" to which we applied appropriate visibility conditions and in which we stored appropriate tools. These included a "notice board", which was roughly equivalent to a Blackboard content area, although much less functional, a discussion group, a chat room, external web links, and online tests.

So on logging into the Virtual Campus you would see a "Subject" folder. This used a rather ingenious trick to work, and relied on the fact that all the units in the university belonged to a "subject" in the MIS database. So if you were registered on a psychology unit you would also belong to the subject of psychology. So if a student on say, PSY101 logged in, the visibility condition for the subject of psychology would also be valid. In the "Psychology" subject folder we could create sub folders for each unit. You will of course have noticed that the student's award is missing from all this. That was quite deliberate. As already noted Lincoln has a modular structure, so any student on a joint honours degree (Say Psychology and Computer Science) would see the subject folders for both subjects and the unit folders for the units they were studying in each subject.
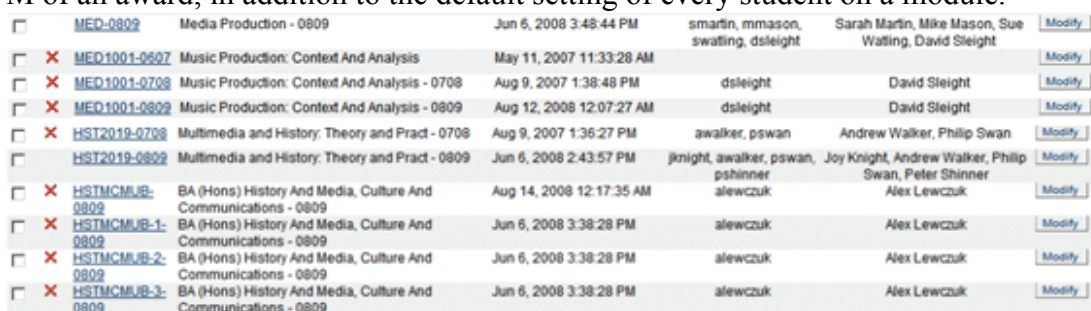
The effect of this was to allow academics to post notices that all their students would see. E-mail wasn't suitable for this because there was no easy automatic compilation of distribution lists and even if there were students tend to use a variety of exotic e-mail addresses rather than those provided by the University. But the Virtual Campus was somewhere that students needed to go, because lecturers posted lecture notes, and we'd also provided links to the timetabling system. There was also a module on the front page that was more or less equivalent to the "What's new" module in Blackboard which notified users when something new was posted

So, the result of all this was that when Blackboard was introduced the notion of the "course" did not immediately strike a chord with the majority of users, although a large minority were perfectly happy with it. But for most people there were some serious concerns, especially around the use of the announcement tool. Typical of the questions that we received were "How can I send messages to all our students?" "What about students on level 1 of an award?" "I only want to send messages to part time students on the employment based route in Hull?" There were also some semantic problems. Our Academic Registry was very unhappy with the idea of students being "enrolled" on "courses" as they thought it might cause confusion with their work. If a student was to be told by an academic that they had been enrolled on a Blackboard course, they thought the student might interpret that as being told that they had formally enrolled on a university course. " From the workshops it became clear very rapidly that we needed to do some more work on configuring Blackboard.

We couldn't do this ourselves, so we set up a user group which proved to be very important. As (Marshall and Mitchell, 2002) argue, difficulties arise because the creation, utilisation and support of e-learning facilities requires a balancing of tensions between technical, organisational and pedagogical considerations across the entire institution. One academic member of the group noted that this was the only group at which all sides of the University were represented (We had representation from ICT support, that the technical team who essentially made Blackboard work, Business Systems, the people who wrote the extracts from our QLS system, Registry, people who maintained the MIS databases, Centre for Educational Research and Development (us) (who were developing support for users and trying to create a strategy for use of Blackboard and managing the pilots) and of course academics from the departments that were running the pilot programmes which had been set up in four departments. This gave us an excellent perspective on the problems that were arising and what could be done to resolve them.

The solution

Let me recap. We had multiple units that were in reality (or as far as Blackboard was concerned) a single unit or "course" and we had areas of the university which wanted something that went beyond the Blackboard course. This is where the user group came into its own. Perhaps the simplest solution was the problem of what to call Blackboard "courses" We decided to call them "sites" which actually covers communities as well as academic courses and this does seem to have stuck quite well. We did secure excellent representation from most faculties, and there was good attendance from the various support departments. All of the issues I have been describing were given a thorough airing, and the Registry team were able to identify various features of the MIS database that would support the creation of snapshot extractions that would create Blackboard courses that automatically enrolled every student on a "Subject", every student on an "award", every student on level 1, 2, 3 or M of an award, in addition to the default setting of every student on a module.

☐		MED-0809	Media Production - 0809	Jun 6, 2008 3:48:44 PM	smartin, mmason, swatling, dsleight	Sarah Martin, Mike Mason, Sue Watling, David Sleight	Modify
☐	✗	MED1001-0607	Music Production: Context And Analysis	May 11, 2007 11:33:28 AM			Modify
☐	✗	MED1001-0708	Music Production: Context And Analysis - 0708	Aug 9, 2007 1:38:48 PM	dsleight	David Sleight	Modify
☐	✗	MED1001-0809	Music Production: Context And Analysis - 0809	Aug 12, 2008 12:07:27 AM	dsleight	David Sleight	Modify
☐	✗	HST2019-0708	Multimedia and History: Theory and Pract - 0708	Aug 9, 2007 1:36:27 PM	awalker, pswan	Andrew Walker, Philip Swan	Modify
☐		HST2019-0809	Multimedia and History: Theory and Pract - 0809	Jun 6, 2008 2:43:57 PM	jknight, awalker, pswan, pshinner	Joy Knight, Andrew Walker, Philip Swan, Peter Shinner	Modify
☐	✗	HSTMCMUB-0809	BA (Hons) History And Media, Culture And Communications - 0809	Aug 14, 2008 12:17:35 AM	alewczuk	Alex Lewczuk	Modify
☐	✗	HSTMCMUB-1-0809	BA (Hons) History And Media, Culture And Communications - 0809	Jun 6, 2008 3:38:28 PM	alewczuk	Alex Lewczuk	Modify
☐	✗	HSTMCMUB-2-0809	BA (Hons) History And Media, Culture And Communications - 0809	Jun 6, 2008 3:38:28 PM	alewczuk	Alex Lewczuk	Modify
☐	✗	HSTMCMUB-3-0809	BA (Hons) History And Media, Culture And Communications - 0809	Jun 6, 2008 3:38:28 PM	alewczuk	Alex Lewczuk	Modify

Figure 4: Lumping showing each type of site (the site MED-0809 is available to every student enrolled on a MED unit)

This process we called "Lumping" because we were lumping modules together to make awards and subjects. We were able to deal with the FE Courses by creating a separate extract that just created sites based on the level of the award.

Lumping did a lot to relieve the problems of those departments that didn't really use modules, although it wasn't entirely unproblematic. Also we didn't have a particularly detailed set of records of programme leaders and module co-ordinators. Furthermore there was no role of "subject leader" anywhere in the Universities databases. As all of these new sites were by default unavailable, that meant there were an awful lot of sites that were invisible to everyone except system administrators. The problem here was not so much that people complained that they didn't see anything, but more that they just assumed that there was nothing there for them. In a sense we were back to the problem we had with the Virtual Campus which was that on logging in to the new system, people thought it didn't apply to them. We alleviated this by simply allocating each site to the respective head of department and asking them to enrol instructors on those sites that were actually being used. This did generate some dissatisfaction, (not least from heads of departments), and it wasn't as effective as we hoped and at the start of the year we did get quite a large number of phone calls from staff wondering if we might set up a Blackboard course for them. Of course this then necessitated us explaining the three different types of sites we had created which isn't in itself particularly intuitive.

Neither did this solve Social Work's problem, of the different "sessions". Lumping wasn't going to work here, because we wanted to break down modules into smaller groups of students. The original suggestion was to use the groups tool in Blackboard,

but of course this does require that the staff maintain accurate records. There would for example be no automatic update if a full time student decided to become part time. However, such a change would be recorded in QLS. The Registry team went away and identified fields in QLS that did indicate which students were based in Hull, and which in Lincoln, and which indicated the appropriate session (Part/Full time, Employment based and so on. Again the business systems team were able to write appropriate extracts that ensured that snapshot could create sites with the correct students enrolled upon them. There was a similar problem of identifying instructors although the Social Work team were well aware that they were a special case, and in fact made a considerable effort to work with us in this area.

☐ ✗	SOW1034M-1-0809-SWKEBRUB-PK-K	Contemporary Policy And Society - 0809	Jul 17, 2008 12:07:23 AM	plee	Philip Lee	Modify
☐ ✗	SOW1034M-1-0809-SWKEBRUB-PKN-K	Contemporary Policy And Society - 0809	Jul 17, 2008 12:07:23 AM	plee	Philip Lee	Modify
☐	SOW1034M-1-0809-SWKEBRUB-PT-L	Contemporary Policy And Society - 0809	Jul 17, 2008 12:07:23 AM	plee, jmccavish, pmusson	Philip Lee, John McCavish, Philip Musson	Modify
☐	SOW1034M-1-0809-SWKSWKUB-1FK-K	Contemporary Policy And Society - 0809	Jul 17, 2008 12:07:29 AM	jbethell, jmccavish, plee, krustryan	Jackie Bethell, John McCavish, Philip Lee, Kate Rust-Ryan	Modify

Figure 5 Splitting (Notice how there are multiple instances of the module SOW1034M with a different set of instructors)

At first sight the result of all this looks rather messy. As we now had a Blackboard sites for every module, award and subject in the university, as well as a site for each of the various flavours of social work module and each level of the FE awards we had something like 19,000 sites. In reality only about 2,000 of these are actually being used but we do feel that the roll out of Blackboard has in fact been surprisingly unproblematic.

Of course we have had some difficulties. One faculty didn't engage with the user group and then at a late stage in the proceedings decided that they wanted to use Blackboard as a Faculty web site, because a head of department in that faculty had seen it used in this way at a previous institution. We don't have any faculty field in QLS at present so this wasn't possible, although given adequate notice we could have lumped the subjects in that faculty together. However, this faculty also contains one of the most advanced users of Blackboard we have in the University, and he has come to the conclusion that this isn't a particularly sensible way to use of Blackboard.

The fact that there are enthusiasts for technology in each faculty can itself present a problem. Some faculties sent their "enthusiasts", who had already done some work with e-learning and thus were regarded as being the local experts. We found that these were not always the best people to work with a user group partly because they tend to follow their own enthusiasms, but also because we really wanted a much broader, and possibly shallower engagement with Blackboard across the departments.

Conclusions

Our aim was to roll out Blackboard across a multi site university within a single academic year, and having run the system for one Semester we feel we have largely succeeded in doing this. We have had very few technical problems, either with the installation, or with people not knowing how to use the functions in Blackboard. Most of the support calls we have received have been related to explaining the different

levels of site we created or simply enrolling instructors into a site. The population of the different sites with student records appears to have worked very well indeed

Perhaps the most valuable lesson we learned was to focus on what users of the system wanted and to give them plenty of opportunity to articulate those needs rather than us focussing on what the system could do for them. The very intensive programme of staff development we offered gave everybody a chance to attend and to raise any concerns they might have about how Blackboard would affect their practice. (We also kept records of who attended and monitored levels of attendance from each department, so we could nudge heads of department if there were low levels in any particular areas) But articulation of needs is not enough and we had to find a way of ensuring that we met those needs. The most effective thing we did in this respect was undoubtedly the creation of the user group. This had senior representation from all the departments involved and was chaired by the Dean of Teaching and Learning. There were subgroups, some related to technical development which did some of the basic work on lumping and splitting, but the main Blackboard User Group met each month, and each and every member usually went away with a series of actions to be implemented, although it is unlikely that the user group would have worked without the input from the development workshops and the pilot programmes. We can conclude that to successfully roll out a major change you need both data about the way people are already working, and about how they are adapting to using it, and most of all an effective method of acting on that data that is sanctioned by representatives of all those involved.

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