1. Introduction[1]

Virtual Learning Environments (VLEs) describe those environments that use digital and electronic technology in order to facilitate learning and teaching. This may include not only learning resources on CD or on the web, or both, but resources linked to more traditional, paper-based resources as well. The phrase VLE has tended, in recent years, to refer to an off-the-shelf set of facilities and applications that enable staff and students to read, write and communicate over the web.[2] While this is for many staff a helpful introduction to what can be created and presented on the web, VLEs are largely (though by no means always) a generic, institutional envelope within which administrative information, knowledge, learning resources, teaching plans and other elements are available for staff and students.

The web is, though, a remarkable medium whose capabilities are expanding hugely as bandwidth and our experience in using it expands. The virtual community created in the GGSL (and which is described in publications elsewhere) is an example of a VLE that is not a typical generic product, or one designed for all disciplines in the university.[3] Instead, our virtual law offices were designed specifically for postgraduate law students on the Diploma in Legal Practice, the Scottish equivalent of the Legal Practice Course (LPC) in England and Wales. The virtual town that surrounds the offices is itself a VLE that can be adapted to simulation in many university disciplines: it so happens that we have tailored the tools to professional legal education because that was our specific need. We would argue that generic tools such as VLEs must be adapted to particular disciplines. Indeed, there is a strong case to be made that if we are to be truly imaginative in our use of the web, we should have the capability to design VLEs that are programme-specific, and take account of our specific needs as teachers and our students’ specific needs as learners.

Without such freedom to design, we are in danger of constraining our teaching methods to the those of the economic models of corporations such as WebCT and BlackBoard. The educational use of technology should never be driven by technology or economies, least of all those of the corporate web: educational purpose, and the enhancement of learning should be our prime motivation. Indeed, we should probably invert the usual decision-making that takes place when faced with the option of using VLE technology. Rather than start to try to adapt in a VLE what we do in more traditional contexts, we should start by questioning what the available technology can do, and how we might use it to rethink our teaching strategies. In this sense, imaginative use of the web is often a disruptive use of the web – in the early cycles of existence, at least.

In this paper we shall take an example of one element that rarely appears in most VLEs, namely the webcast. As Ron Baecker has pointed out, webcasts have generally been seen as a fairly uninteresting element of the learning environment, and ‘typically viewed as an ephemeral one-way broadcast medium’. [4] Baecker’s body of work lies in the direction of systems architecture for
interactive webcasts that are accessible in real-time and retrospectively, and which contain a searchable archive.[5] The environment he is working on includes, but is more sophisticated than, video-conferencing and incorporates elements of online communication channels.

Our work is different again. We are interested in using webcasts as part of an integrated study medium, where images and text are used to provide what we hope is a flexible and powerful environment for study. Our environment may at first seem similar to environments such as IOLIS or web-enabled CALI programs; but there are significant differences in emphases, structure and content. We shall describe how we have developed it, how it is being used in a wide variety of courses, and how it is changing the learning landscape within the LLB in Strathclyde University’s Law School and postgraduate professional courses in the Glasgow Graduate School of Law.

Our paper is based upon a long-term project, still on-going, to track the use of two webcast environments by a small group of students, over the course of an academic year and beyond into traineeship. The aim of the project was to discover how, over the course of the year, the webcast environments were used by a small group of students (the Criminal environment was used during the first semester, and the Civil during the second semester).

In the following text we shall first define what a webcast is, and then describe the evolution of the two webcast environments we developed for Criminal and Civil Court Practice. After a brief overview of the design of the virtual learning environment, we describe the management of resources and the navigation and use of the resources by students. We then go on to consider some of the implications of our findings against the background of some phenomenographical research, and consider student comment on the usefulness of the environment for their study and traineeships.

Note that this paper is a shorter version of a larger paper which can be found at: www.ggsl.strath.ac.uk/ltdu/research.

2. The webcast

It may seem perverse to take as an item for analysis something that is often seen as a cheap substitute for a highly traditional form of teaching, namely the lecture. But if webcasts were only talking heads they would be tedious, and would be perceived by students as poor substitutes (however accessible) for lectures. From our work over the past three years it has become clear to us, though, that webcasts, when used in appropriate VLE environments, can do more than provide cheap lectures on the web. The profoundly different medium of the web transforms the student experience of learning. Such claims are not new, of course: the media of radio, TV and video were in their turns going to do something similar when first introduced, but have had, in the UK at least, relatively little impact on learning in HE. E-learning, however, is different in a number of respects.[6] Put simply, the relative ease with which video and text can be spliced, the accessibility of information and the environment within which knowledge can be constructed is significantly different from the experience, la durée, as Bergson has it, of paperworld study environments.

Our interest in webcasts go back over three years. Video elements of the VLE were already being experimented with in different learning projects – in our intranet, and in the virtual firms that we used in the virtual community of Ardcalloch. We had already begun the process of working with videotape in our Foundation Course multimedia CD, and we had learned how to use videotape excerpts to enhance student learning in combination with on-screen over a variety of professional legal skills. We knew from extensive student feedback as well as the literature that the combination of on-screen text and video was a powerful learning tool in the acquisition of professional legal skills. We decided to experiment and gain experience in the use of video pieces to camera, which we came to call webcasts, though the term has much wider application. When we looked around for a literature, similar to HCI literature, on how to use such video in conjunction with text, we found little that was of use to us, and therefore much of our environments has been constructed from observation, feedback and experience.
We began filming webcasts in 2001. Since then, we have completed around 25 separate webcasting projects, pertaining to both undergraduate and postgraduate legal education, ranging from one-off lectures to entire modules (for a detailed breakdown of these projects, see appendix 1). It might be useful to describe in general terms the content and tools of some of the early webcast projects, because it shows how we are developing webcasts within a virtual learning environment. The first webcasts were simple video windows containing talking heads which were synchronised to PowerPoint slides. Originally we thought that we would embed web resources with the slides. However it soon became clear that we needed to rethink the environment because the relatively crude interactions between resources and between user, video and resources were insufficient to enhance their learning. We therefore set out to design an interface which was not built around the implicit model of talking head + PP slides, but one where the talking head was synchronised to a specific set of resources, and where there was another, quite separate set of resources which would be entirely accessible to students. Users could thus interact with the synchronised set of resources (stopping, pausing, speeding up, re-starting at different points, etc), and bring in the resources to contrast, compare, support, qualify, or otherwise supplement the synchronised narrative. The space on the right-hand side of the window thus became no longer a dump for PowerPoint slides, but a modified resource area, where there could be not merely bullet-pointed lists that were similar to PowerPoint (yet quite different because authored in a sophisticated environment), but activities, pictures, graphics, diagrams, other video clips, references, etc. In other words, it became a resource area closely allied to the narrative of the talking head. Our aim was to have resources that were required when listening to or watching the webcast as closely adjacent to the webcast as possible. This can be represented by the following diagram:

In general design terms, we anticipated that the early webcasts would be used as single interventions – the appearances of guest speakers, as it were. However when we began to think of webcasts as supporting whole modules or courses, we needed to think about how we might replace face-to-face lectures. It became clear that the talking head simply would not suffice, even accompanied by handout materials. We really needed to plan and assemble the resources that students would need for study and support on the course. In other words, we moved from a presenter-centred event to a user-centred event, where more control was given over to the user, and where the sophistication of the interface matched the complexity of a module, as it builds up over the course of time.

We have relied on minimal literature (there is actually surprisingly little in the way of detailed literature on the educational design of webcasts) and much more on direct feedback from students.
However with the creation of two large-scale webcast projects in Civil and Criminal Procedure in the Diploma in Legal Practice we decided to track in as much detail as possible the use made by students on the programme.[8]

3. Design of virtual learning environment

The Criminal Court Practice subject in the Diploma in Legal Practice, like its sister course, Civil, is split into two halves – a set of procedure lectures, and a set of seminars on Advocacy & Pleadings. The division is traditional and – following Barnett, Eraut and many others who criticise the invidious separation of theory and practice at many levels in HE – it is probably the case that the course could be better designed so that both halves could be integrated. This was one of the topics that we examined in our project.

Last year, as in previous years, we held most of the lectures at 5.00 or 6.00pm, at the time convenient for our lecturers, but not for students. Following the resignation of our lecturer due to ill-health, we took the opportunity to substantially re-design the Civil as well as the Criminal lectures as part of a procedural learning environment, using webcasts and information resources. The environment would be available both on CD and online on GGSL computers. The design process began around nine months before the start of the academic year, when we re-designed our basic webcast environment.

The sections following describe the functionality of this VLE. The design was not based on extensive user observation. Instead, we tried to predict what users would do, based on our own experiences as users, and in small-scale observations of students. Users, after all, have goals that they attempt to achieve and which, while they are certainly not an exact map onto the aims of the course, are at least consonant with them. User design achieves the best results when navigation is organised according to user expectations (which we in part set up); when it facilitates common goals, and when we use familiar iconology in our constructed environment. In this sense, the less users do to navigate, the more successful the design of the interface. Users have little interest in the structure of the environment they find themselves in. It is simply there to be used, in much the same way as a pavement or a doorway has a purely functional element to it (though the aesthetic value cannot be ignored, and indeed we would argue that the aesthetic and the functional are heavily dependent on each other). Similarly, most users are uninterested in structure, and irritated if they need to use a map. They often put little effort into understanding where they are in commercial sites, for instance, and are much more interested in figuring out where they want to be. They have their purposes in visiting a site or a page, however vague that might be. Rather than structure information according to hierarchies, it is better to think about user-purposes and build that into the site.

3.1 Criminal Court Practice webcast environment

The Criminal Court Practice webcasts were delivered by an external lecturer, Ronnie Watson QC. In each webcast students can listen, pause, and review or advance the video. Resources adjacent to the video window are synchronised to the webcast itself. Users can navigate using a variety of methods that are explained on the opening page of each lecture eg the timeline, section break icons, pause/start button. They can also jump easily from one lecture to another. The adjacent resources often provided headings and textual content of each lecture segment. While it was technically possible to print out these resources, this was cumbersome and ultimately not practical.

The resources section of the environment gave students access to a minimum set of documents required for the lecture course. To access the resources in Criminal Court Practice students click on the resources button at the side of the video screen. The video picture itself disappears to the left and the resources page flows in immediately from the right hand side of the screen to cover most of the screen. Students can click on each of the headings in this page to reveal the resources that are available. There are a number of headings under which the resources are stored: weblinks, statutes, cases, Criminal Procedure (Scotland) Act 1995, BAILLI, WestLaw and Documentation.
The weblinks heading takes the student to the Diploma intranet page for Criminal Court Practice. This page hosts the web links and is easier to maintain than web links accessed directly from the CD. It also encourages the students to use the intranet and provides a place to put up new information/instructions which students can link to straight from the CD. As this is a protected page students require a password if they are viewing from outside the university. The web links are separated into sub headings allowing the student to go directly to what they need eg Regulatory and Professional Bodies has the web links for the Scottish Criminal Case Review Commission, the Glasgow Bar Association and Criminal Law firms. There are also useful web links to information on the course, eg there is a web link to FAQs on the Advocacy Assessment.

While we wanted the students to have the Criminal Statutes available in the resources we knew that there was one Act – the Criminal Procedure (Scotland) Act 1995 - which would be referred to frequently in webcasts and we wanted it to be easily accessible in the resources for students. The 1995 Act can be accessed directly from the headings in the resources page - rather than having to go into the heading for Criminal statutes and find the 1995 Act (ie from the lecture it would be two clicks rather than three). Within the 1995 Act students can go directly to specific sections by clicking on the desired section heading in the index thus making it a more intuitive resource. The statutes are mainly HMSO documents which do not incorporate subsequent amending legislation. Students are reminded of this on the web page and are given the amending statutes in the list. Other useful sources affecting criminal procedure are also available eg European Convention of Human Rights.

Cases are referred to in webcasts but not in detail. A comprehensive list is given in the cases section of the resources. These are divided according to solemn and summary procedure and sub divided under subject headings eg submission of no case to answer etc. It was not possible to deep link the cases to either Westlaw or BAILII but these applications are available directly from the resources section. There is also a printable version in Word of the case list for ease of reference when hard copy is required.

The last heading in the resources section contains Style Documentation. This has been particularly useful to give basic styles of court documents, especially those which the webcast presenter refers to frequently and the student requires to be fully conversant with. Two copy complaints, the initiating document which contains inter alia the narration of the charge, have been closely reproduced using scanning technology. Thus, the students have access to exactly the kind of document they would be faced with when seeing criminal clients for the first time - right down to the Sheriff Court stamp. Not only do the students have court/prosecution documentation but they are also given examples of documents pertinent to their criminal client eg letter pleas and joint minutes, as well as pro forma documentation from, for example, the Scottish Legal Aid Board. All the documents can be viewed on screen or printed off for use in class or for study purposes.

The criminal CD also contains a multimedia unit in Advocacy skills which had previously been housed in the CD for the Diploma Foundation Course. This unit contained three examples of submissions of motions in criminal cases together with supporting text which assisted students in preparation for the motions they required to perform not only in class but also for their assessment in the subject. Giving students access to this unit along with the other materials for Criminal Court Practice was a more effective use of this resource.

### 3.2 Civil Court Practice webcast environment

The Criminal Court Practice VLE gave us experience in assembling the basic environment. With initial feedback from the project, we hoped to produce a more sophisticated model for Civil Procedure which was to run from January 2004. The headings on the opening page of the Civil Court Practice CD reveal more functionality than its predecessor in the criminal field.
Students in the project group had indicated that despite having the facility to review the Criminal webcasts they found them quite intense and on occasion it was difficult to take notes. They wanted a copy of the script, rather than to have to copy down the words verbatim which was what they were tending to do. In Civil Procedure- more for practical rather than educational reasons- the webcasts were supplemented by bullet-point summaries rather than a complete script.

In the Civil environment, the webcasts were quite deliberately split up into appropriate sections. This was not necessarily into the traditional 50 minute lecture blocks but rather into sensible divisions. One lecture is only 20 minutes long while another stretches to 2 hours and is sub divided into 8 sections. The functionality of the webcasts remained largely the same although the timeline was altered so that the whole lecture was contained on each slide rather than scrolling off at either end. This was something we altered before the final feedback from the criminal students as we believed that the original timeline might have been difficult to use. In fact most students not only found the original time line very useful but also quite easy to use. Our study group had suggested that it was often too noisy in the computer labs to hear the webcasts so for the second semester we designated one of the labs a ‘quiet’ lab.

The principal change within the information resources for the Civil webcasts are the contextualised references to the main source of procedural law- the Act of Sederunt (Ordinary Cause Rules) 1993. These rules (OCR) are referred to in every lecture and it is useful for the student to be able to read the actual wording of the rule. Rather than having to either reproduce the rule in the adjacent resources or for the webcast presenter to read out the rule, we created a pop-up icon which sits at the bottom right hand side of each slide. By clicking on this icon the student is referred to the specific rules which are mentioned in the current webcast. The complete set of rules is contained in the resources panel as before and can be accessed in the normal way. There are also occasions in the webcasts where reference is made to documentation (eg the initial writ) and we intend to have this documentation available to the student from a pop up on the slide rather than having to search for it within the resources.

The bullet point summaries for each webcast are provided in downloadable and printable form in the adjacent resources section. It was hoped this would assist student note-taking and avoid the complaint that arose from the Criminal webcast that they were spending much of the time on the first viewing copying down the overheads rather than listening to the lecture itself. This proved to be the case; and in fact it was noticeable that students no longer requested a transcript of the webcasts. The summaries also provided a much-needed scaffold for the webcasts, and students welcomed this additional structure to the course.

The Civil resources panel contains the same headings as the Criminal application with the addition of a discussion forum. This forum was designed to address one of the concerns we had that students would not engage with the webcasts. Watching the webcasts can be seen as a low priority when assessments and other webcasts and classes are imminent. We wanted to find a way to encourage students to watch the webcasts and to interact with their peers and the webcast presenter on topics associated with the procedural issues raised in the webcasts. Rather than make it an open discussion forum we introduced problem based scenarios which are released through the intranet throughout the semester and which students were invited to comment on through the forum. We had hoped that a short period would be set aside in tutorials for discussion of the case studies but time constraints this session made this difficult. This activity was not compulsory and was designed to help the students think about the technical and procedural issues involved in the course. The tutorials are primarily designed to cover advocacy skills and, although they cannot ignore procedural rules, do not
give many opportunities to discuss complicated procedural issues. We deal with how the discussion forum was received later in this paper.

We added other aspects to the webcast environment to make it more effective for the students eg flow charts to see the whole process at glance, two multimedia units on advocacy and drafting and a further unit which led students through the assessment process with interactive formative activities.

The two webcast environments, therefore, are significantly different. Given the previous history of webcast development at the GGSL, this is not surprising. The Criminal environment was really a bridge between one-off webcasts and whole course webcasts. We did have experience of a whole-course webcast series in Domestic Relations (though course resources there were not as extensive as we planned for the procedural webcasts). In addition, we took the fairly radical step of not planning safety nets for the Criminal and Civil procedure courses. For the first year of implementation of webcasts in the Domestic Relations course, for example, lectures were delivered face-to-face as well as by webcast. Only later were they delivered solely by webcast. But in the procedural webcasts we took a much larger risk, namely that the technology would work on a much larger scale, and that students could be persuaded to accept it. In retrospect that decision does not seem foolhardy; but at the time it was certainly one that gave us a few sleepless nights. It was taken in part because we were certain that the technology would work; and that students would accept it as at least a viable substitute for face-to-face lectures. The project was accordingly vital in letting us know just how, in detail, we were going to succeed, or fail.

So far we have outlined the general background to the webcast initiatives. We shall now consider some of the data we received from the project participants under a number of themes, namely resources and navigation and use.

4. The role of resources

4.1 Convergence of resources

In order for any VLE to work effectively there must be a convergence of all resources- electronic, paper based and physical environment. Our experience with VLEs in GGSL had demonstrated that students dislike having to exit from one application in order to start another. They wished to move effortlessly through the different aspects of the environment – a seamless front end from where they can access all the applications required. We have discovered that this issue is a key element to an effective VLE and one which requires careful forward planning.

Within the webcast environment itself students had access to a range of applications and resources: webcasts, bullet point summaries, references (including case law, statutes, discussion forum, web links, Westlaw and BAILLI) and multimedia units. Students were also given hard copies of the statutes and the core textbook for the module together with the course handbook (there was also an online version). In order for the students to see all the elements of the module as part of an integrated whole we had to ensure there were cross references within the VLE directing them to other aspects of their learning. For example, within the narrative of the webcast students were referred to the core textbook while small paragraphs of text were reproduced exactly from the book onto the adjacent resource area alongside the webcast, highlighting areas where the student should refer to other resources for more information. Students were referred to cases and statutes within the webcasts and told these were accessible through the resources section in the VLE. The multimedia units were identified by an icon on the PowerPoint slide whenever a particular section was relevant to a lecture. For example one of the units involves the role play of a motion for a decree by default being made before a Sheriff. Whenever the substantive rules regarding this motion are mentioned in the lecture there is an icon which directs the students to the specific multimedia unit.

Our students were given the webcast CD which contained an electronic version of the handbook together with a hard copy of the handbook. As students were able to access the web version of the...
webcasts within the University they tended to use the online copy while in the University computer labs and use the CD and hard copy of the handbook externally:

I use both. When I am at home I use [paper handbook] but often find in Uni I haven’t it with me so it is good to know we have access to it online just to check what we should be covering as a class or whatever.

I would use [the online handbook] when I am in and when I finish the webcast lecture I look at the online handbook to see how many I have got to watch for next week, put that in my diary and when I come in I double check in the handbook that I have watched the right ones.

This shows how in some ways the handbook directs the use of other resources. e.g. the student is told which webcasts to watch before each tutorial. This information is contained in the preparation section for each weekly session and students were informed at the beginning of the semester that they should ensure that they had checked each week what they required to complete for each tutorial. For some students this integration of tutorial, webcasts and textbook worked well:

I think… the Civil webcasts are linked well to the tutorials and I feel they also link well to Hennessy’s book because …there’s a lot to grasp with procedure especially if you are not used to it and you do need it reinforced …what is good is that I feel that they do link up. I feel that if you do watch the web….and then that is followed up in the tutorial and it’s also followed up in the book.

It became clear that not only did we have to create convergence of the resources within the VLE but also that these would have to link with more traditional learning and teaching methods. The handbook, whether on line or hard copy, was useful in maintaining the link between the webcast environment and the tutorials. This did not always work as efficiently as we had hoped.

Although most students managed to make the link eventually some students did have initial difficulty making the connection between the handbook and the tutorials, although accepted that the information as to where to find it and why they should access it had been given to them:

The handbook – yes I did use the handbook but probably I picked up the fact that I should be using it much too late, especially for Criminal when I didn’t realise that I should be following a schedule for the lectures and things like that. It was my own fault obviously you can’t do anything other than give us the handbook and tell us it is on-line but I would probably be looking at the lectures and not the handbook.

It was apparent in our first webcast VLE (Criminal Procedure) that we were not directing students sufficiently to the links between the different constituent parts of the course. Although the information was available students were not finding it in time or missing it altogether. We felt that this revealed a critical aspect which we had to address for the second webcast VLE (Civil Procedure) – the involvement of tutors and their interaction with the VLE. Indeed we had to see the tutors as being one of the resources that had to be integrated with the other elements of the course. There appeared to be a direct correlation between how much the tutor engaged with the VLE (including the on line/hard copy handbook) and how much of a link the students saw between the webcasts and VLE and the tutorials. Some students indicated that their tutor made no reference to, or at the least very little mention of, the webcasts:

I can’t remember a single occasion that it was reinforced in the tutorial what was in the Criminal webcast.

I actually found the Criminal tutorials very, very interesting but we didn’t follow the webcast. It was purely a question at the start of the tutorial, ‘Have the students watched the webcast’ - met with the silence and ‘Ah yes I have watched that’ and it wasn’t really discussed.
In the second webcast VLE (Civil) we gave the tutors more support in the form of introductory sessions and ongoing assistance with the webcasts. A data projector and laptop were set up in the meeting room before the tutorials to allow those who had not been able to watch the webcasts prior to the tutorial the opportunity to do so. For a few weeks in the early part of the semester one or two tutors took advantage of this but it was not a well used resource. Some of the civil tutors, however, made good references to the webcasts within the tutorials:

*every week at the end of the week he pulled out the small manual and said you have to watch 3, 4 and 5 so we knew exactly for next week he was going to be discussing webcasts 3, 4 and 5, for example. I think that is more of a positive thing for the tutor rather than the system itself. The system works if it’s followed.*

*My tutor for Civil has been excellent and has followed the manual verbatim so I have no complaints on that at all. I think the small manual that comes with the webcast sets out exactly what the student has to do and we cover it in the tutorials, so I don’t think you can actually improve on that to be honest. I think it must depend on who your tutor is, but certainly if the tutor is following the manual and the students are following the manual, I don’t think there is a problem there at all.*

It was clear however that occasional references to the webcasts was still not enough for the students and tutors saw no incentive to watch the webcasts. Although they occasionally questioned students about the content, the webcasts were not seen as essential preparation for the tutorial. One of our initial concerns about the procedure modules when we began this project was that the webcasts, which dealt with the substantive law, and the tutorials, which dealt with the practical aspects (motions, drafting) were, as lectures, previously seen as a different course running parallel to the seminars rather than as one integrated unit of study. Partially this was promoted by the assessment regime which consisted of an exam in procedure and a role play and drafting exercise for the practical tutorials. These two assessments were seen as separate by the students and they seemed to invent imaginary demarcation lines with the two parts of the module. We wanted them to see the two parts as interlinked and that, for example, there was no point in a solicitor being able to argue a Motion if he or she had no idea of how the Motion was brought into the court.

We hoped to be able to encourage links between the two parts of the course within the different aspects of the webcast environment. While this was possible with the use of the Multimedia Units and references in the webcasts it was hindered considerably by the failure of the tutors to embrace the technology. In some ways it is understandable as the tutors are experts in procedure and in the normal course of events would not have attended the lecture. However the feedback from students suggested that they resented the fact the tutors had not watched the webcasts and they would have been more inclined to watch them if it was clear the tutors had too.

*What might help is if the tutors have to watch them and see what we see and I know that is not always going to be practical because they are busy but if they see what we see they would understand the reason why we don’t know in depth what they think we are going to know.*

*.. Civil tutor was completely unaware of what we doing at the start of every class we had to tell him what we had covered. There was a lot of repetition, like he was going over a lot of what we had already covered in the webcast instead of maybe explaining stuff a bit further that we were having difficulty with.*

*I would have liked my Civil tutor to have had more contact with the lecturer or my Civil tutor to have watched the webcast and Criminal as well. A kind of lack of ‘joined-up-ness’*
start of tutorials. Tutors also suggested that in order to assist students see the link between lectures and tutorials a short time could be set aside at various points to review exam questions. Not only would these activities assist with integrating the VLE with the tutorials but would also serve as a prompt/reminder for students to watch the webcasts.

4.2 Intrusion vs accessibility

Amongst the many complex design decisions that had to be taken in the construction of the environment was that of defining user’s prioritisation of tasks. Which tasks might users want to carry out, and in what order? Using which resources? And when might they want to do this when using the application? Clearly, if we limited access to the resources at any point, we were likely to inhibit student learning. But at the same time, total access to all resources is simply bad design and would have resulted in poor learning. Our environment was designed so that resources were there, to hand, whenever students wanted to use them. At the same time, they must not intrude upon the key narrative of the application, which is the webcast. One of our design decisions, therefore, was to balance intrusion of resources into the front-of-house space, as against having them so backgrounded that they became invisible. It is clear that most students were aware of the presence of most resources. However two key sets of information were not so well planned. In interviews it became clear that the flow-chart, embedded in the resources page, was not visible enough to students, who were missing it, or coming upon it too late in their study.

Similarly, and more surprisingly, a number of students missed the presence of the Ordinary Cause popup button in the Civil webcast environment, in spite of it being permanently on the webcast page, bottom right-hand corner. In discussion with students it became clear that they missed it simply because the visual cues on the page did not lead them to it. All the navigational buttons were on the left-hand side of the window, and the right-hand side was used for textual resources and occasional activities. In other words students were used to reading the right-hand side of the window for content and the left-hand side for navigation.

Other students seemed to be unaware of the digital copy of the flowchart of civil actions, in spite of the flowchart being in their handbook. This arose in one interview:

**Interviewer:** Did you use the flowchart that’s on the resources page at all?
**Student:** Could you just remind me of what that is?

**Interviewer:** If you go into the documentation, you will see the flowchart there [does this on laptop].
**Student:** Oh yes I did. I printed that off.

**Interviewer:** And did you find that useful?
**Student:** Yes

**Interviewer:** Right OK, that’s interesting.
**Student:** I took that to tutorials actually and quite a lot of people noted and ‘where did you get that’ they said.

**Interviewer:** So they didn’t know where you’d got it?
**Student:** No!

[Laughter]

5. Management of resources

We have 98 computers in GGSL and 250 students on the course. Most of the computers are in two purpose-built computer labs and the rest are in classrooms and can be used for teaching purposes as well. We don’t have statistics as to how many students have access to a computer outwith the
University but our experience suggests that most students but by no means all have access to a computer. As the students on the course attend either in the morning or the afternoon there were never times that students could not access a computer at University. Indeed students occasionally viewed the webcasts together using several headphones for one machine. Apart from the issue of noise (dealt with above), there were few other issues. Occasionally students experienced minor difficulties with the technology (e.g., how to access the multimedia units etc) which were addressed by our IT support officer.

The web application of the VLE was accessed through the subject page within the GGSL intranet. There were two advantages to this:

1. Resources and references could be easily updated. For example in the resources section of the webcasts students can access a section with web links.
2. Encouragement of the students to visit the subject website for information about the module.

Notices regarding the module were posted on the intranet, in particular when it became clear that students were not finding resources within the VLE. It should be said, though, that most resources were easily navigable by most students, as we shall see in the next section.

6. Navigation & use of the environment

6.1 Navigating the environment

A webcast is inescapably an event that depends on the passing of time, unlike for example web-linked text or a static graphic. Controlling the flow of time is critical for the user’s learning, and we do this in two main ways:

6.1.1 Webcast & section division boxes.

Users can switch from one webcast to another with one click using these facilities. They can also switch to different sections within a webcast. The rollover text alerts them to the name of the section which is of course the title of the knowledge segment.

6.1.2 Timeline

A timeline is a central device in statistical and historiographical literature. It is used here to give a more finely-granulated control over the flow of the webcast. In earlier iterations we used the timebar within QuickTime to give users the sense of duration, and a preview of the approximate length of time of the video clip. This was appropriate to the video clips within the Foundation Course multimedia CD, where videoclips are short, rarely lasting more than a couple of minutes. However the webcast environment is quite different, and the length of time that the webcast videotape lasts is much longer. While lecture & section division boxes are useful, they tend to atomise the webcast. We required a tool that would indicate the unity of the webcast, while giving something of QuickTime’s sense of duree reale (in Bergson’s phrase), and which would allow the user to drop into the webcast within sections.

The Criminal webcast timeline fulfilled all these criteria. However the length of the line meant that not all of it could be displayed on the screen at once. The answer to this was either to chop up a webcast into constituent parts (as in some of the Induction webcasts) or to concertina the timeline to fit a screen, which we did in in the Civil webcasts. We opted for the former where we felt that this was appropriate, but in general decided to keep the timeline as a horizontal scrolling bar. In its present state, then, the timeline is a useful tool for retrospective searching, and can be used to jump between sections. It is not as helpful for previews of the material to be viewed, but can be used for that, too.
Students preferred the second iteration of the timeline although felt that the there was some merit in being able to see the lecture headings on the timeline as well.

*I preferred the Criminal because it was split into the different sections but I liked that one because it was all on one screen. And if you could find a mixture of both then it would be prefect*

*I liked the way it changed on this one so that it was all on the same screen. I thought that was very useful. What I did like on the Criminal one was that it was labelled where you were going to come to the next section but at the same time you could easily do that with this and know which section you were on.*

Students suggested that they might like some form of time countdown on the timeline rather than just the ability to scroll along it. This might be useful for students returning to a webcast after a break or who wish to go to a particular section quickly for reference.

*I was quite happy with this because you could move it back and forwards. The only thing that I think would also probably help is that the time decreases as you go through it then you know how long you have because you couldn’t gauge it if half way through you. Well, you kind of think I probably have fifteen minutes to go - how far in to it you are - it might be useful if you knew that*

Information navigation (as opposed to navigation within the webcast itself) may appear to be easier to plan than webcasts themselves, since there are plenty of models and HCI guidelines on the subject. But even here, difficulties remain. For instance, users more often than not use categorisation techniques to navigate rather than search techniques.[10] The categories of information we used at the top of the information page, therefore, were going to be crucial, and would need to be if possible familiar to students, and would certainly need to be the categories that they would recognise and use when revising for examinations.

In assembling the page, general guidelines as to user navigation are of course useful.[11] However they are not the only way to design the page. Matching task to environment is critical, and we had to take account of user purpose as well. The variables involved in this design activity are quite complex; and to accommodate them we adopted an evolutionary approach to the environment. We have built as best we can for particular user purposes, and next year’s iteration will take account of this year’s project data.[12]

6.2 Finding resources

In the design of the webcast VLE we wanted to ensure that students had access to as many relevant resources as we could accommodate. While we drew on the experience of earlier webcast environments we were concerned the resources were clearly available and not hidden from view. We tried to find a balance where resources were easily accessible but not intrusive. If the screen becomes too busy students can get easily confused or frustrated finding their way through a mass of information. They need resources to be obvious without being invasive. The positioning of resources became an important issue for us. Despite careful thought as to where items should be placed we were still surprised that some of the students in our group seemed to develop a ‘blindness’ for items we thought quite obvious or a lack of interest in exploring the environment, whereas others had no difficulties.

Certain aspects gave us more problems than others. For example students welcomed visual aids and prompts which gave them an overall picture of the procedure:

*what would be most useful to me is a map of how these procedures actually work. I still can’t see, I can’t absolutely visualise the situation in which you would go to a proof before*
answer as compared to a debate. That’s not absolutely clear to me yet. I think I just need to see that written down

Within the resources section we gave the students a comprehensive flow chart of the complete procedure involved. Some students – like the one quoted above – never found it, saying they ‘didn’t know it was there’. Fortunately students became aware of the flow chart through other routes:

I took [the flow chart] to tutorials actually and quite a lot of people noted and [said] where did you get that?

This is another example of the importance of resource-integration. We found that it was not possible to rely on the students to explore the media thoroughly, nor to expect them to find something we thought was quite obvious. If we wanted them to use a resource we had to direct them to it. In retrospect we could have drawn attention to the flow chart within the webcast webcasts, we could have asked the tutors to mention it in tutorials or we could have highlighted it within the webcast environment. It also may be that the flow chart was not housed in the correct section of the resources page ie under ‘documentation’, the ‘umbrella’ sub-section. It may be that the resources page itself may not be as user friendly as we had imagined. Or it may be that we have not emphasised sufficiently the need for students to explore the environment, not as they would a book, but as they would a web page. In other words, they need to adopt more curiosity, more of a sense of Turkle’s bricolage.[13]

We had a similar problem with the OCR pop up icon which was placed on the bottom right hand side of the webcast lecture page where we thought it would be clearly visible to students.
Some students did not find this pop up either and it was not immediately clear from the responses from students why this was the case. In retrospect it was probably the case that, because all other navigational tools are on the left hand side of the screen, that students were blind to tools placed on the opposite side of the window, which was normally associated with adjacent resources, as above.

The multimedia units were in general found and viewed by most of the students. It was accessed from the opening page of the VLE where students were presented with four options. But even here some students didn’t manage to see it

    No, I didn’t notice it. I just went straight into webcast, on to the webcast I wanted to watch and when I had finished I just shut it down

When asked what would have helped her find this resource the student felt that highlighting by the tutor would have been useful:

    It would have been quite good if our tutor had said - like we are not going to be practising Motions but there are Motions on video if you want to go and watch them this how you get to them

The discussion forum was the most disappointing aspect of the resources available to students in the environment. Initially designed as an aid to encourage students to keep in touch with the webcast environment and to challenge their knowledge of the subject, it made very little impact on the
students at all. The forum contained a number of short histories from actual court cases each dealing with a number of small procedural points. Each case history was an entry in the forum and invited students to enter a threaded discussion on a number of identified issues. The forum was accessed through the web links section of the resource webpage which with hindsight was perhaps in an area too remote for regular contact.

I just didn’t know it was there. I am not the least IT literate person but it was kind of squirreled away

Students also felt they had a heavy workload with the webcasts and that entering the forum was just beyond what they felt they could or needed to do:

I printed off all the questions – that helped! I was reading through them for studying but to be honest I just spent like four days just doing webcasts and I just didn’t have time to go on to it.

Moreover even students who were motivated to look at the forum felt inhibited about entering:

I saw that somebody had posted three answers and that was all. I didn’t want to post some answers and have it wrong for a start and have it all be corrected or put up something really quite stupid and just think that I am right and have everybody laugh at me because I had put the wrong answer up. I did look at the questions to get some sort of idea what might come up.

The discussion forum has potential to make the environment less impersonal and more interactive but despite being directed towards it and being advised that the content was examinable students did not feel a need either to look at it or to enter. If this is to become an integral part of the VLE we will require to consider carefully how we use it in future and how it is integrated with the other resources (eg we may link it with the tutorials)

6.3 Flexibility of use

The single most attractive feature of the webcasts was their flexible nature and ease of access. Even students who preferred face-to-face lectures accepted that webcasts had advantages: ‘proper lectures would have been better but the webcast lectures were convenient’. Most students preferred the ability to be able to watch the webcasts at home or in University in their own time and at their own pace rather than the rigid nature of a traditional lecture at a set time.

I find it a hassle coming in here to study. Apart from train times which are pretty unreliable from where I stay it’s just I study a lot better at home. I can get up early and study all day and go to my work and come back and study so I used it at home.

For me it has been great because it gave me lot of flexibility in my timetable and I said because doing the Jessop [Moot competition] was consuming my whole life, so it has been great that I can fit things around me.

In my tutorials there werr a few dissenting voices about the whole webcast thing – ‘oh just have the lecture and then it would be over’ - but that is the whole point, it would be over!

Having the resources all in one place enhanced the flexibility:

there is an awful lot to take in when you first go on and finding your way around the resources and using them all. You don’t have maybe the length of time then that it would take to click on all the different links, but [it was] particularly useful, because the Sheriff Court Rules book is very very big and you don’t carry that around with you and it means then having it on line that you can just pop it up any day
The main concern of students regarding flexibility was that the technology wasn’t flexible enough. Students were not always able to access the CD at home and this led to frustration:

\[ I \text{didn’t ever use the webcast CD because I don’t have a computer that can cope with it. So,} \]
\[ \text{that was another thing actually I wanted to use it sometimes when I was away from Uni. and} \]
\[ \text{then I always had to stay in Uni I was thinking that’s a bit annoying but it was good to have} \]
\[ \text{the CD other people can use it was really helpful} \]

Other students did not have a computer at home:

\[ \text{The only frustrating thing has been not having a computer at home but that is my own} \]
\[ \text{financial problem not yours} \]

So far we have considered issues of navigation and general use. However in our research project we were interested to investigate how student study patterns were affected by the webcast VLE, and how, if at all, webcasts enhanced student learning. From the data we collected, a number of themes emerged, and we discuss these in the sections below.

### 7. Presence and absence

#### 7.1 Social presence

There is a considerable literature on the subject of social presence in electronic teaching learning, but the great majority of it focuses on the social factors in techniques such as tele- or video-conferencing, discussion forums and largely in the context online distance-education. [14] A number of researchers have developed tools to measure social presence.[15] The concept is still a contested one, though, and it would therefore useful to define what precisely we mean when we talk about social presence within a webcast. Rourke et al considered the subject, starting with Mehrabian’s concept of ‘immediacy’, which he defined as ‘those communication behaviours that enhance closeness to and nonverbal interaction with another’. [16] Note that Mehrabian defines enhancement of communication by means of two factors – ‘closeness’ and ‘nonverbal interaction’. We shall see that even in a pre-recorded webcast, where there are no synchronous or asynchronous modes of communication associated with the webcast, these two elements were important, and had an effect on student attitude to the two environments.

##### 7.1.1 Nonverbal interaction: the conversation with the camera

Even within the highly restricted context of the webcast talking head – and perhaps because of it – nonverbal elements of the speaker’s behaviour are heightened. Eye gaze, tone of voice, diction, relative speed of delivery, attitude of head and shoulders to the camera, dress – all these have an effect upon the viewer, as students pointed out. The students liked the presentations of both webcast presenters, but when asked for their preference, they all with two exceptions said that they preferred Patricia’s style to that of Ronnie.[17] It was clear that they preferred Patricia’s mode of structuring knowledge and the way she led them through that knowledge – we shall say more about this below. For the present it is important to note that they thought her method of delivery more ‘natural’, as several of them put it. They equated ‘naturalness’ with conversational ease – again, a notion we shall examine below.

##### 7.1.2 Closeness

As a result of student response to nonverbal interactions, there was a strong ‘affective response’ by the students to the webcast presenters. This phrase is used by Rourke et al to describe qualities such as ‘warmth, affiliation, attraction, openness’.[18] Rourke et al point out that according to filtered-cues theorists these qualities are reduced in text-based environments, but attain a higher profile when
there are embodied within expressive images of people. In other words, students were affected by the images of the webcast presenters they had in front of them. One student put it thus:

[… it’s always there and it’s not just a text or a book that you have got because it is someone else sitting there talking to you. It’s kind of comforting in a way as well, because they know what they are talking about, you can’t misread it.

One student referred in particular to the aural quality of presence:

I think that intonation as well was really important to me. Just reading something, you can read it, but the intonation I found really helpful. That was why I did go back over not just my own notes [for the exam] but actually watch it again because there is emphasis in important places and that is so important. Also you don’t want to end up completely isolated with no… I know webcasts are not very interactive anyway but they are much more interactive than reading a script.

Another student referred to a lecturer in another course, and how she associated the materials for that course with the lecturer:

… with the Professional Ethics, Professor […], his voice was ringing through my ears and every time I am studying I am thinking about him. It is a good thing that you can see the face on the screen [in the procedure webcasts] because when I am reading my notes and things like that you can hear them in my head and the way they say things and stuff like that.

The personal effect of lecturers and tutors on students can be a powerful determinant of learning. Such ‘closeness’ had an interesting effect on methods of study and what might be termed the affective context of study. A student commented on the variety of ways of learning that the webcast could give rise to:

It’s like a different way of learning, like if you hear it and then you write it down and then you read it back. Then you learn something in three different ways

When asked about watching and listening, this student replied as follows:

Interviewer: Would it have made any difference to you if you hadn’t actually seen the person and you had only heard what they were saying […]?  
Student: Strange, but I probably hardly looked at it [the webcast image] because I was writing notes anyway... But I don’t know... it just seems quite nice having a person there.

When asked about social presence, the student acknowledged its importance to her:

Yes, but it seems a bit strange because there is no real reason for it when you are not really looking that much [at the video window].

It is indeed strange, but it is nevertheless clear that for a number of students, social presence as represented by the video window did matter to them when they were studying.

8. Knowledge objects: intensive study for examinations

8.1 Knowledge objects: how they are constituted

In their classic phenomenological study entitled ‘Knowledge objects: understandings constituted through intensive study’, Entwistle and Marton interviewed eleven undergraduate science students about their methods of study leading up to their final examinations. As Entwistle and Marton describe it, a knowledge object for students is a form of understanding legitimated within a particular
disciplinary community, ‘a tightly integrated “bundle” of ideas and related information and experience’, in which

“The nature of the knowledge object formed will depend crucially on the range of material incorporated, the effort put into thinking about that material, and the frameworks within which the knowledge object is developed.”[21]

The metaphor of a knowledge object is, they suggest, a way of ‘describing aspects of memory processes and understanding which is not reductionist’: ‘[t]he structure of a knowledge object is not a way of acting appropriately in a familiar situation, it is a way of making sense of personal experiences of learning and studying’ (ibid., p.176).[22]

What was surprising and delightful was the extensive range of objects created by students within the horizon of the webcast environment, in order to make comprehensible and memorable the subject of procedural law. These included visual and aural channels, graphics, text and other media.

However, a knowledge object is not merely the product of cognitive processes. There are also experiential entities and qualities that are brought into being within an ever-shifting social and a disciplinary horizon. Entwistle and Marton describe this phenomenological awareness well, quoting Donaldson:

‘We may know in a variety of ways characterised by differing degrees of awareness. Some kinds of knowledge are in the light of full awareness. Others are in the shadows, on the edge of the bright circle. Knowledge on the fringe of consciousness … is always ready to move to the centre. It is accessible to us, even if we don’t attend to it.’[23]

The quality of attention to such a space was vital, as students made clear. Without exception it was clear from both the pre- and the post-exam interviews that they were giving careful consideration to the process of preparing for the procedure exams. In fact, it might be said that students themselves, when aware of the type of examination they would sit, used the environment in quite different ways that suited their modes of study. Nor should we be surprised at this. At a fairly deep level of theory, it could be said, as constructivists do, that learning rarely happens in the individual alone, but in the complex interaction between individual and previous learning and environment. Jean Lave, for example, has, in her studies of Liberian tailor apprenticeships and other works, drawn upon the phenomenological concept that human thinking and action in the world are so inextricably bound up with each other that what we understand by the concept ‘mind’ can only be understood within the context of social organisation. But cognition is not only in the ‘situated contexts’ analysed by Lave & Wenger.[24] It is also distributed around us in the form of real objects and teleological concepts with which we understand the world and its real and conceptual structures. Indeed, it is a general observation of cognitive psychology that most productive learning happens when the ‘material distribution of intelligence’ within any context closely supports a student’s learning structures. How did the webcast environments support student learning? We can begin to appreciate this by considering the variations between the quite different ways of studying adopted by students.

8.2 How the VLE affected intensive study

It must be said at the start of this section that the virtual learning environment is far from being the administrative centre that many generic managed-learning environments tend to be. There is almost no administration functionality within our VLE. Instead, we set out to equip students with tools that they could use flexibly in order to create their own knowledge objects throughout the semesters (for construction and use of knowledge in seminars) and in the period of intensive study leading up to the examinations. Students responded by using the environments to create knowledge objects in quite different ways.

I would come in, in the morning and watch a load of them in one day. I would just sort of
hammer my way through lots and lots of them. I just found that much easier to do rather than – I think I just learn things much better if I immerse in them. I am not very good at kind of incremental learning where I build upon it and go – ‘Oh yes that rings a bell from last week.’ So I did the whole Civil and Criminal webcasts in two days.

At the start of the process of intensive study, most students found that having the actual words of the lecture that they could review a source of comfort. One compared it to the situation in a face-to-face lecture where she would have had only her own lecture notes:

Yes the way the words on the page can become a miasma and you can think ‘Oh how do get back into this’ but [when you are using the webcast] you can just sit and you can hear and – that is what I was trying to say about not taking notes. Sometimes you can just sit and you can listen to what they are trying to describe.

Immersion was essential, and it seemed that the webcast environment encouraged students to immerse themselves in it. Another student explained how in detail she constructed the knowledge objects through the process of revising the webcasts:

I did Civil and Criminal a wee bit differently. Criminal, I just sat down and hammered through them all at once. I sat with my statute books, marking all the relevant points and annotating them as I went along and that was basically all I did. I didn’t look at any other materials it was just me and the CDRom. For Civil, I sat going through them one at a time and then would go on and read the relevant chapters in the Hennessy book and sort of annotate, not at the same time but at a different point and sort of try and let it soak in a bit more. Because I think Civil is a more complicated it is more than just marking a book up you are trying to remember the stuff a more. Obviously you are trying to remember stuff for Criminal but everything is more complex.

Another noted how the process of reviewing the webcasts made memorising easier:

I would say, for Criminal, I would just put the webcast on and would be sitting watching it and as he went along and was mentioning sections I would be sitting with my statute book annotating the parts and highlight them and then he would mention cases to do with it and I would mark them in. I don’t think it was anything more complex than that. Obviously because it was revision, you had watched them before. You didn’t feel you needed the same level of concentration as you would when you watched them first time round. You were able to sit there marking away and listening to him. I felt that I was doing something else that the information was still going in and I was learning it as I was going along. It was much better than sitting with a set of lecture notes and trying to revise that way. I have often found going back to the lecture notes and I can’t remember what I meant when I wrote something down and I think what was the lecturer’s point and can’t remember and you end up going to back to books and that sort of thing.

Another student spoke about how she used the webcasts with other resources:

I would probably try and do two lectures at a time, just to have a target. I always do that. Then I would sit with the Civil, I would just go through it and mark off the Ordinary Cause Rules. Anything that wasn’t in the rules that I thought I needed to know I would just scribble at the side and then sit and write things down. I would write it down until I knew it straight off my head. If there was something about preparation that we spoke about in the lectures that wasn’t in the Statute Book, I would go to Charles Hennessy’s book and read it there. I didn’t expect to have to use it in the exam but just that I knew it was there you know the things you had to take into the proof and things like that.

Another commented on the usefulness of the focused set of resources:
Before, I felt that the resources were scattered everywhere. You would have so many books you had to refer to lecture notes, handouts you had been given. You spent a lot of time trying to pull all your resources into one set of notes that you could refer to so that you weren’t constantly reading that chapter, that set of notes and trying to put it all together. All your information was together. Obviously for Civil you would have Hennessy’s book to look at as well but you had your webcast and your book and that was it more or less. Again Hennessy’s book was only adding to it or going over material that you had already done on the webcast. It encompassed everything that you needed you know I felt. Maybe you should have been doing a lot wider reading but I felt that was enough for me.

Within procedural law, structure is essential, and students need to be able to reproduce overview and detail. Students realised how the webcasts could help in this regard:

I just watched them the day before to re-orientate myself within the whole thing and the structure of it and certainly that helped me and the exam picked up what I had learned from the webcast.

Some students noted that the webcasts encouraged them to develop a more relaxed approach to studying:

when you come out of lectures when you were at Uni you’re an undergraduate - everything was so strange to you whereas, this, you just kinda, you were able to understand it more and take a more relaxed approach to it and just chill out if you didn’t understand it because you knew you wouldn’t. I’ve a bit more common sense now I’ve grown up a wee bit -

The CD and web environment were not going to be available to students in the open-book examinations for the two procedure courses. Only certain texts were allowed into the examinations. Students were given notice of this, and asked to prepare notes from the CD or online webcasts in any form that they wanted. One of our concerns was that students would be uncertain how to do this, and that this would affect the process of intensive study, and the formation of knowledge objects. One student reflected on how the process of studying with webcasts generally had affected her approach to the open-book exams held on the Diploma:

I found the whole process of the examination was, from my mind, better than in the LLB or certainly it was more about reaffirming what I had learnt and testing me on that rather than asking me just to re-produce something or to regurgitate something. I wouldn’t say I was super confident going into the exams, I mean I thought that they were difficult enough, I found them testing but I was aware that there was only so much revision you could do. I mean maybe I am just late in learning but it was more about reading the question and applying yourself to it rather than just reading the question and thinking ‘Oh that is about that, ok I will just write everything I know’, and I quite enjoyed it in as much as you can exams but I preferred that.

It thus became clear from the interviews post-examination that students were using the webcast environments in quite different ways. Was there any discernable pattern to the approaches they took to their study? As we reflected on the themes of the interviews and other project data, it became clear that there were amongst the project students what one might regard as two polar attitudes towards the webcasts – we call them paperworld student and e-world student.

8.2.1 Paperworld student

The first was characterised by student A. He did not like using the webcasts, and would have preferred face-to-face lectures. He did not use any of the learning tools in the environment, and engaged as little as possible with the resources on the CD and online. Where possible, he used books
instead of electronic resources, for example paper-based case and statute collections. He took verbatim notes from the webcasts so that he had a set of notes that most closely resembled what he regarded as a good set of lecture-notes, and did not listen to them again. He then worked on these notes in the way that he had always worked with his lecture notes, by reducing them to more easily comprehensible and memorisable structures on paper. He used WestLaw, but only to get a set of leading cases on paper. He viewed the multimedia units and found them helpful. The biggest improvement in his eyes would be a transcript of the webcasts that he could print out, and thus avoid listening to the webcasts themselves.

8.2.1 E-world student

This pole was characterised by student B. She was very happy using the environments, and made full use of the learning tools, and used online information where she could, including all the information resources. She used a word processor to type up her notes, or printed out the information in the resource panel to the right of the webcast, and added written notes to these. She studied for the examination by viewing and reviewing the webcasts and using printed out word-processed notes. She used the ‘speak-fast’ button, and many of the navigational aids. She viewed the multimedia and liked it. Her suggested improvements included sorting one of the bugs she had detected in the software, and adding more functionality, eg to the flowchart of civil actions so that students could navigate civil process by using it.

These two polar positions, though useful in characterising different approaches to the electronic environment, should probably be seen as pathologies of study techniques within the environment. Most other students ranged in the spectrum between A and B, more often towards the e-world student than paperworld student. When one student was asked if she typed out information from the webcasts, she replied:

> No, I like writing – I have seen people sitting typing but I don’t know how I could do that because I have done it for four years -- just sat writing. I can’t study from type either I like studying from my own handwriting as well so I just knew that would make it much easier.

Here is another student, uncertain about how to go about the process, learning from another, and adapting the electronic environment to the book of criminal statutes:

> on the second time on going through the Criminal ones I really took notes on all the information section numbers but some of the reading is just enormous, you know Ronnie will say like “Now turn to sections 100 to 365” and you are looking at being given a chunk of a couple of hundred sections to go and read. I didn’t stop and read the sections there and then. I wrote down the relevant sections and kept going but I was talking to someone about it that I was sitting next to and he said that he was stopping at every section number and going and highlighting that section number and really thinking about it and processing it and then moving on. It took about three times as long but he said that he had really got it because at the end of it he knew where everything and he was tagging his book as he went along and I think that is probably the wise way of doing it. Whereas, I think I was just kind of right, right, right I know that I will go back through it.

One student, asked about the effects that the webcast environments had upon her learning, described this mid-spectrum position in a way that summarised other students’ positions well:

> If you look at it as being a different study technique of sitting in front of a computer then yes [ie it was a different study technique that was being adopted]. But, it was basically the same processes that you were going through but it was more condensed because to you didn’t have this really big pooling exercise going on of trying to get all your information together. I mean the information is together so you were just sitting and working through the information the same as I would have done with anything else. I would have sat and annotated a statute book
before but it would have been a longer process to trying to get all the information together to see what points needed to be annotated.

What was interesting was how each of the students came, in quite different ways, to an accommodation within the environment. They used it in unique ways to dovetail with their traditional forms of examination study – or, to look at it from the opposite pole, they extended their study repertoire into the electronic domain.

9. Emergence of knowledge

9.1 Construction of conceptual knowledge

Emergence is a concept used by systems theorists and philosophers of mind amongst others. At its root is the consideration of the idea of change: how does it occur? Is it really change, or only a manifestation of identical or similar entities? How can change be categorised and differentiated from non-change? The concept is a profound one; and though this study is not the place to enter the epistemological and ontological debates surrounding its usefulness as an educational concept, that it is of interest to legal education there can be no doubt. [25]

Ever since Mill, the debates around the concept have centred upon issues of identity and levels of effect (sometimes referred to as supervenient) that cluster around the essential educational problem, namely the emergence of learning.[26] How is it that learning, which is often defined as a change in behaviour, attitude or activity, comes about? And more specifically in the context of our study here, how is it that a webcast VLE can bring about the emergence of learning?

Before we consider the evidence of this in some detail, there is one aspect of webcast VLEs we ought to consider, and that is the disruption that it brings with it. Without an exception in our project webcasts disrupted uniquely settled patterns of student study behaviour. It is not a face-to-face channel, nor is it the medium text, and it is certainly not TV or film. It exists uncertainly in the ground between a number of channels and media; nor is it an element of a standard VLE. Moreover, it is unsettling to student study patterns, to traditional forms of staff teaching, forms of assessment, and organisation of curriculum and syllabus, to administration of teaching, and much else. In fact, the more one considers webcasts in this light, the less they seem to fit into the settled life of academics, administrators and students.

In this sense, it is analogous to Christensen’s concepts of sustaining and disruptive technology. Within the context of corporate production, he identified two sorts of technological change. The first sustained the industry leaders’ rates of improvement in product performance, while the second disrupted or redefined performance trajectories, and according to Christensen, ‘consistently resulted in the failure of the industry’s leading firms’. [27]

To apply this analogy to education, we can point to improvements in lecturing as sustaining the relatively settled body of behaviour within a law school that groups around lectures. Contrast this with the environment of the webcast, which disrupts such settled patterns for students and staff. Is it necessary? We would argue that such intrusion is typical of the movement from one technology of learning to another, and if it contributes to the quality of learning and teaching, then it is justified. If law schools are to act responsibly, they need to consider and respond to many of the pressures they operate under today -- pressure of student debt, student numbers, fewer resources, a burgeoning curriculum, practitioner work pressure and much else. Under such conditions the emergence of knowledge is quite a different process and experience than it was for the generality of students 20 or 30 years ago. For us, webcasts were one, local response to such pressures. Indeed, had we not considered webcasts, we would have been, in the words of Christensen, been ‘held captive’ by students and staff to traditional patterns of working and studying – patterns that, under the pressures outlined above are already crumbling.
The concept of emergence is rather different to that of a knowledge object. In a sense it describes the process of knowledge-creation at a deeper level. We shall see this if we consider the forms of learning that students adopted when using the webcast environment.

9.2 Forms of learning

What forms of learning did students carry out while working within the webcast learning environment? In the interviews and logs it was clear that there were many forms of learning, and the following are a summary of some of them.

9.2.1 Writing up or typing up notes

Webcast note-taking was always going to be very different from taking notes at lectures. The procedures that students adopted varied from traditional pen-and-paper solutions and approaches to more electronic dialoguing with the on-screen resources. Some felt safer creating sets of what were akin to traditional lecture notes:

I think I am happier doing it pen and paper. I guess, I have written shorthand, rather than typed shorthand, so I think I would rather write and I can write quicker. But not everyone will be the same as that.

I am taking notes on every single webcast and for this I am adding notes in – like, on the stuff that is given in the Criminal, I pretty much sat and typed up a transcript of what was said.

When I did the first few I was writing absolutely everything out and I hadn’t really - because quite a lot of people were looking at the screen and were writing down what was on the screen and working their notes around that. I wasn’t doing that I was writing everything out and that took ages. So it was like well I’ll just write down what’s on the screen and then write my own notes.

Some wanted to take notes on the computer, but were unsure how to do this:

In the Criminal [webcasts] note taking - I would have preferred to have been able to take notes on the computer but I didn’t know how launch Microsoft Word. That’s a thing I noticed the other day there was a launch Microsoft word on one of these on a video or something, obviously to help us to take notes, which was a good thing. Because in the Criminal ones you didn’t have the slides printed out beforehand. I know some people went through the whole timeline and took down headings that were going to come up.

When asked about the forms of writing they adopted, students used a variety of methods:

Bullet points and headings, just kind of try and base it around the headings you’ve got and then expand like make my own notes from what the lecturers are saying.

All students were glad of the resources printouts that were available in the Civil environment, and which had not been available in the Criminal environment. However one student commented that the presence of the slides in the Civil environment made her study pattern less effective:

[In the Civil environment] I just became very passive […] because it was all very much in front of me. But with the Criminal ones I was very active about taking notes and if I had missed a few words I went back and made sure I had exactly what he was saying so I have quite comprehensive notes for that.

The same student commented on the effect that the bulleted style of information summary had on her note-taking method:
maybe it is just me, but I found it quite hard to work from the PowerPoint slide presentation that was on the lecture slides. It highlights what [the presenter was] saying - so it is quite difficult then to think back and think what context was it in or what was the first part of that sentence or what was the last few words of the sentence. There was one point where I thought I can’t remember if that flows on from the thing above so I started to draw arrows on to it to make sure that I knew the sentence was one and it flowed rather than thinking of things as distinct parts as bullet points.

This points to ways in which we can improve the environment. It should be noted that the resource panel is in fact not composed of PowerPoint slides, but is a fully-authored space within the environment. But often the forms in which information was presented gave students the impression they were watching a PowerPoint slideshow. Giving students the opportunity to print three-to-a-page ‘slides’ with five blank lines opposite each bordered slide reinforced this illusion. This print format also forced students to take notes in a way that marginalised their notes while foregrounding the presenter’s notes. The structure was quite restrictive in that sense. Ideally, we need a way in which students can print out the information in a form that suits their own unique forms of note-taking; or better still, take online notes in intuitive ways.

The point has deeper resonances. Knowledge-emergence is a deeply personal moment, and occurs best when the student is using whatever technology he or she is using rather as one might use a window. There is a degree of transparency associated with the task, but also a degree of awareness that one is writing on a page, or typing notes into a word processor, or whatever. The balance is a fine one, and if there is too much attention given to the technology of communication, or the window itself, then the process of knowledge emergence is itself affected.

Another student commented that the different style of presentation in the Criminal webcasts forced her to think about the subject more, though clearly she felt it was a difficult process:

Actually I like my notes from Criminal, even though it wasn’t such a [good] lecture style, my notes were actually fairly decent, apart from when you got to the end of it and you are feeling a bit like Oh I can’t be bothered.

There were many other ways in which, for students, knowledge emergence was a different process. These included use of two computers by some students, different time planning; different forms of reading and listening, and the use of the webcast as a mnemonic. For detailed discussion of these aspects of study, see the longer version of our paper online.

10. **Anticipation of VLE utility in traineeship**

Although the VLE was designed as a learning tool for students it is possible that there are attractive features for the trainee/young lawyer as well. The CD is a wealth of resources in a compact and accessible form. We asked students if they felt that the CD would be of use to them during their traineeship and in the main they were receptive to this idea. We wondered that as the level of knowledge assumed before the start of the course is not high it might have been considered too basic to be of any use to the trainee once they were in an office environment.

webcasts are excellent because you can go back to them oh my goodness what was the procedure for the options hearing? Of course there are books you can do that but [the VLE] is a very student friendly environment and doesn’t assume a particularly high level of knowledge

Indeed in demonstrations of the VLE to the profession and to Crown Office we have been surprised at the level of interest there is among fully-qualified and experienced lawyers in acquiring a similar resource for the legal office. It has been suggested to us that it would be a very useful tool for firms
Some students considered the portability of the resource to be of significant benefit. Rather than poring over reams of notes in personal shorthand they had the original lecture as fresh as the day they first viewed it. There was no difficulty in decoding or finding old notes:

it’s great when I start work in September I can take the CD with me and if there is anything they ask me that I am not sure about the I know where to check and that’s super cause you know when you look at you own lecture notes 8 months later I don’t even know what that one says never mind what it is supposed to mean. So it is great to have that as a tool I can use for coming years. I never expected anything like that

when I go on and do my traineeship you’ve got those materials there and it is not a case of finding the box under the bed where your lecture notes were stored 6 months previously… I have got something I can take into work with me and use on the computer. So it has been more than just a set of lectures it is a whole resource I can use for other things.

You know after the summer holidays I kinda wonder how much of this I am going to remember. It could be a year down the line before I am ever doing any Civil Court work and a lot of that will be forgotten and it will be good to have that to go back to and be reminded. Just again even from just a confidence point of view of the sort of way the court cases are carried out even if it is just that. Then again webcasts are excellent because you can go back to them …what was the procedure for the options hearing.

You don’t have to cart about four books and a folder with you to your office because you want to look up some area to do with Civil Litigation. You have got it all on CdRom. You can sit and play the relevant section and work through it and the Civil one is particularly good because it has a lot of diagrams

Students indicated that there may be a delay before they undertook court work in their firm and that the CD would prove invaluable in reminding them of the procedure:

I think they will help because I am doing a year that is purely Criminal and Civil work and that is my second year so I will have forgotten that completely by this time next year so I will definitely have to re-watch them before I go in.

The CD offered reassurance and confidence to trainees who may feel unsure about entering into this area of law in their traineeship:

I certainly don’t expect to have remembered everything that I have gone through so having that facility, having that CD will be great when I am training I am sure that whatever I have been asked to do I can always refer to that then maybe I still won’t know but I can ask with a modicum of knowledge.

Students accepted that there would be difficulties with the static nature of the CD. In some ways it is more like a book in that it represents the law at a given moment in time. Technology allows us to make changes to the web based version as they occur but the CD would eventually become redundant.

It is difficult to keep updated ….some method of trying to keep it up to date and contemporary but I don’t really know how you can do that. I think that is something you have to be responsible for yourself, be aware that it does have a time limit on it.

Students would either have to be aware of changes to the law themselves or the University would have to provide some form of updates through the intranet. Students recognised this difficulty but...
still saw the CD as an excellent resource.

*If you had a feature on the CD that linked up to the Internet because if I am watching that in a year’s time there might be changes that have happened.*

While we are delighted that students see the CD as a useful application for their traineeship we recognise its limitations in this regard. Our own view is that producing a CD for the legal profession is another project entirely, and one that would require as much attention given to it as has been spent on this project.

**11. Conclusion: quality of learning**

Quality of the learning experience is crucial: did the webcast environment help students to learn procedural law? When one asks the questions, quality of learning is almost inevitably a comparative process, not an absolute. Students compare their way of learning in one environment with that in another subject, module, programme, learning environment, etc. Such feedback can be useful, but we wanted to know if, at the subjective level, students could tell us whether the environment had helped or hindered their study for the examinations. The concept of affordance is an important one in education – namely, the notion that if students have poor resources in one channel or media, they will compensate by learning what they need to learn from another channel or media. We did not ask students whether in their opinion they *would* have studied more effectively with face-to-face lectures than with the VLE, since this would be asking them to compare their actual experience with an unknown variable (the face-to-face lectures they did not have) in an area of law that was entirely unknown to them. Such a triangulation would give us relatively meaningless information. Instead, we asked students about the quality of their learning while they used the webcast environment by asking them whether, in retrospect, the webcasts had helped or hindered their revision for exams. With only two exceptions, all of them thought that the environment had enhanced their processes of learning. One student described it thus:

**Interviewer:** Did you think the webcast environment helped or hindered your study for the exams?

**Student:** They definitely helped.

Another was quite emphatic about the effect that the environment had had on the quality of her learning:

**Interviewer:** Do you think the webcast environments helped or hindered your study for the exams?

**Student:** Definitely helped. It was very, very positive. I know some people have complained that they found it hard to work and all the rest of it. But I just thought in comparison – I have sat four years of exams before I came here, I am an expert as far as exams are concerned, and this has really, was two of the easiest exams I have sat, in terms of revision for them. I felt that I came in well prepared – maybe my results will show that this was not the case! I definitely felt that I was really learning the material. I understood it better.

Another revealed in her language how familiar she had become with the environment, and how much the VLE had become a part of her study environment:

Helped, definitely helped, being able to flick around. Just right before the exam I actually went back and watched one particular lecture on fast speed again for half an hour and was lucky one of the things came up. It was all there and I just sort of blasted through it one more time because I thought I am not absolutely sure.

Two students were neutral because they had used the webcasts to take notes during the semester, and
did not use the webcasts again in their revision for the examination. One of these students had no computer at home. She lived on the outskirts of Glasgow, and did not want to travel in to the GGSL to study, preferring to study at home. She explicitly planned her semester time so that she could revise from paper-based notes. When asked if she found that this had disadvantaged her, she replied

Student: \textit{I probably should have planned for it more because I would have liked to have done that, but that was my own fault, so… I mean, the day I came in and watched the webcast, it was just the one Criminal \textit{[lecture]}, I was thinking, ‘Gosh, this is good’, because as soon as you hear something it is not going to go out of your head.}

Interviewer: \textit{When you say it was good, what do you mean?}

Student: \textit{It's just like I knew what he was going to be saying \textit{[etc., quoted above]}. \textit{It makes more sense when you are doing it for another time}. You kind of understood it because you had looked at the statutes and know what they are talking about as opposed to the first time when you don’t really know.}

Interviewer: \textit{[…] Your advice to students who are coming next year would be…?}

Student: \textit{View the webcasts twice and especially during your study session. \textit{But the thing is, it is time-consuming and some people just don’t have that amount of time to do it.}}

Quality of learning and available time are always issues for students, and it was for this student, who had no computer, and for whom two hours’ round trip travel to the GGSL was not perceived at the time to be a useful option. She had planned her study time in detail but had, almost by chance, discovered that the webcast environment could have been more useful in intensive study than she reckoned, and that e-learning could be a significant enhancer of learning, and in surprising, unbidden ways. Her words are quite profound: they indicate a willingness to acknowledge that e-learning could help her understand the law as much as traditional forms of learning – a view that, with only one exception, we found prevalent among all the students in our research group.

\[\text{[1] Draft text. Please do not quote extracts without prior permission from the authors. We are currently creating a number of papers from this text, and would welcome comments from readers – if you have any, please forward them to either paul.maharg@strath.ac.uk or patricia.mckellar@strath.ac.uk}
\[\text{[2] For example WebCT, BlackBoard, Merlin, etc.}
\[\text{[5] See Knowledge Media Design Institute at the University of Toronto, http://kmdi.utoronto.ca/?docID=Documents/22.html&db=kmdi and his homepage at http://kmdi.utoronto.ca/rmb/}
\[\text{[7] Filming was carried out by Learning Services, University of Strathclyde. All programming and design work was carried out by the Learning Technologies Development Unit in the Glasgow Graduate School of Law, working with the authors.}
\[\text{[8] For detail of the methodologies used in the project, see the longer paper at www.ggsl.strath.ac.uk/ltdu/research}
\[\text{[10] ‘Strategies for Categorising Categories’, http://world.std.com/%7Euieweb/Articles/strategies_categories.htm}
For example, the arena of e-commerce, see Michael Bernard, ‘Examining User Expectations for the Location of Common E-Commerce Web Objects’, Usability News, 4.1.2002, http://psychology.wichita.edu/earl/usability/new4/1/web_object-e com.htm


[17] And one of the two students who preferred neither did so because he was indifferent to styles of lecturing in general: It [different lecturing styles] didn’t [affect me] – I’ve had so many different lecturers over the years that you just kind of adapt to the different styles. It didn’t make that much of a difference between the two.

[18] Rourke et al., ibid.


[20] See Entwistle N. & Marton, F. (1994) Knowledge objects: understandings constituted through intensive academic study. British Journal of Educational Psychology, 64, 161-178. See also Entwistle N. and Entwistle, D. (2003) Preparing for examinations: the interplay of memorising and understanding, and the development of knowledge objects, Higher Education Research and Development, 22, 1, 19-41. In this latter article it is significant that the delineation between memorising and understanding is shown to be quite complex and where the linkage of forms of intention (deep, surface) to specific studying processes is equally complex. We would argue for a similar complexity in the studying techniques adopted by students in the webcast environments.


[25] In a sense the problem is similar to that of identity, but with a focus more on the properties of change itself. Thus, for a early emergence theorist such as Pepper, there were three types of change: first, chance occurrence; second, a “shift”, a change in which one characteristic replaces another; and third, ‘emergence, which is a cumulative change, a change in which certain characteristics supervene upon other characteristics, these characteristics being adequate to explain the occurrence on their level’. Nowadays, emergence is a term often used in systems analysis and the philosophy of perception. It can refer to the collective behaviour of a system; its relationship to its environment, and the processes by which a system or entity within it can become emergent from its context or environment. In this sense emergence is closely allied to the cognitive literature on perception, particularly the study of field and ground. See Pepper, Stephen C. (1926) Emergence, Journal of Philosophy 23 (1926):241-45, p.241, quoted in Meehl, P.E. and Sellars, W. (1956). The concept of emergence, in Feigl, H. & Scriven, M., editors, Minnesota Studies in the Philosophy of Science, 1: The Foundations of Science and the Concepts of Psychology and Psychoanalysis, University of Minnesota Press, 259-282, reproduced at http://www.ditext.com/sellars/ce.html


[27] See http://www.businessweek.com/chapter/christensen.htm

[28] It is only in their second year under the Scottish system of training that trainees are given restricted practising certificates that entitle them, under certain conditions, to appear on behalf of a client in court.

[29] The simple statistics from our questionnaire amply confirmed this. In the year group evaluation, when asked to rate the flexibility of the resources. 22 students thought them excellent, 47 very good, 49 good, 31 reasonable, 2 not very good, 7 poor, and 4 gave no response (n = 162). When students were asked what they thought of the VLE as a learning tool, 17 thought it excellent, 41 very good, 42 good, 37 reasonable, 9 not very good, 14 poor, with 2 giving no response.

[30] ‘Fast speed’ refers to the facility to control the speed of the webcast presentation, including of course the rate at which the speaker spoke.