TEACHING NOTE

LEGAL EDUCATION IN THE TECHNOLOGY REVOLUTION
The Evolutionary Nature of
Computer-Assisted Learning

INTRODUCTION

The wider community's rapid assimilation of computer- based tools in the 1990s has given rise to calls by students for parallel integration of these innovations into their education.[1] This call has been intensified by the provision of computer hardware infrastructure and of Computer-Assisted Learning (CAL) programs[2] such as Iolis. The United Kingdom's Law Courseware Consortium's (LCC) homepage[3] describes Iolis CD-ROM as follows:

> Iolis is a collection of learning materials for undergraduate law students. It contains interactive exercises, charts, diagrams photographs and more, covering most of the subject areas taught in a typical UK undergraduate degree. It also contains a large full-text library of over 2,000 cases, statutes and articles.

The features of Iolis have been described in detail elsewhere.[4] The features are summarised by Grantham:[5]

(a) an easy to use and powerful navigation system

(b) self-test questions with feedback

(c) excellent resource books with leading case reports and some leading articles

(d) self-paced learning

(e) an increasingly wide range of subjects or modules

(f) a scrapbook and copying/printing facility

(g) annotation facility

(h) twice yearly updates

(i) recently introduced direct link with some Web resources.

As students have become increasingly familiar with, and

dependent on, computer technology, the boundaries of what constitutes a comfortable, stimulating, flexible and varied learning environment have altered. This inevitably adds to the demands placed on those individuals who have painstakingly developed, programmed, tested, and refined unique computer packages for student learning. Keeping materials updated is of particular importance in legal education, and this maintenance function alone can consume substantial resources.[6] The task of adapting an existing program to incorporate textual changes and new technologies on an ongoing basis, while concurrently developing new programs, is a particularly overwhelming one. Indeed, the task may be beyond individuals or even institutions. For the program author who wishes to capitalise on work already completed and to enhance the benefits gained thereby, a different approach to future development is clearly required.

This Note describes the development of a small-scale CAL lesson and compares the benefits gained from it with those obtained from some major collaborative endeavours, in particular, the LCC Iolis program. The economies of scale and scope achieved by the LCC coupled with the benefits of flexibility and familiarity of generic CAL authoring systems provide a compelling argument in favour of the collaborative approach. Australian Law Courseware (ALC) is licensed by LCC to use Iolis to produce electronic teaching/learning materials in Australia for distribution in the Asia-Pacific Region. The production of workbooks has begun in Australia and is being considered for New Zealand. For countries such as New Zealand which are not currently developing CAL under the auspices of a broader national or trans-national education technology framework, the task of catching up to countries like Britain appears daunting. Careful analysis of the research, however, yields an insight into how that goal might be attained. Collaborative planning, development and resourcing of Australasian CAL programs for legal education is necessary to achieve widespread support and acceptance by students, faculty and the legal profession. In addition, a balance of technological advancements, flexibility and standardisation using Iolis as the *de facto* standard[7] will allow fast-tracking of development without undue back-tracking over individual initiatives.

THE EVOLUTION OF PARTNERSHIP COMPUTER SEMINARS (PCS)

The original DOS version of Partnership Computer Tutorials (as it was then named) was the result of a joint effort between one of the current authors, Maree Chetwin, and Ian Wilson (Senior Lecturer, Faculty of Law) of the Queensland University of Technology. The programming was, of necessity, performed by an expert programmer. The package was intended to supplement lectures and be a substitute for the three traditional tutorials required in the running of the partnership module of a second-year level Accountancy course, AFIS 253 Law of Organisations. It should be noted that this module constituted only a small part of the entire course, typically at the University of Canterbury, consuming eight out of 50 lecture hours. Most of the students enrolled in the course intended to become chartered accountants and were required to do the course or its equivalent by the Institute of Chartered Accountants of New Zealand.

It is a simple program designed to provide an opportunity for students to review certain key aspects of partnership law. There are three question types:

- problems that require a yes or no answer;
- multichoice format;
- problems that require a brief typed answer.

The program contains cross-references to two texts, and students are advised they should have a copy of the relevant Partnership Act with them for reference during the four lessons. In addition to the revision questions and text references, the program provides introductory notes, expansions of answers in the form of explanatory text, and where appropriate, passages from text that include some of the more important sections of the relevant Partnership Act.

The 1992 pilot program was initially run in a campus networked computer laboratory. The partnership lecture component was delivered in the traditional oral manner, and students were assigned to tutorial groups for the computer module. Attendance at tutorials was recommended but not compulsory, and approximately half of the 114 students in AFIS 253 attended the three laboratory sessions. The methodological problems in testing have been referred to by others including Clark,[8] Teich,[9] and Mason.[10] Like Shapiro,[11] it was

decided not to experiment on what was, first and foremost, a class. For this reason, control groups were not implemented. However, at the completion of the partnership unit, participating students were requested to complete a questionnaire prepared by the University's Educational Research and Advisory Unit (ERAU). The survey comprised 11 questions for which students rated their response on a five-point Likert scale. In addition, respondents were invited to provide open comment. The questionnaire, summary data, and students' comments are set out in full in the Appendix.

The survey results were used to gauge the general level of interest in CAL by Accountancy students and to assess the potential for further development of the package. Summary data provided the view that between 92 per cent and 100 per cent of surveyed students considered the program to be of average or above average value to them in the learning and revision processes. Further positive indications were noted regarding the availability, content coverage, and organisation of the package; and a surprisingly large percentage (92) of students called for other course topics to include a similar approach. As encouraging as these results were, it may be of significance that all the students surveyed had chosen to attend the computer labs; and as such, were more likely than non-attendants to have perceived tutorials in general to be of value. These students were also more likely to have been comfortable in a computer laboratory environment. The data was, nonetheless, useful in assessing the potential for further development of Partnership Computer Tutorials and for gauging interest in CAL in general. The students' comments highlighted technical areas needing improvement: notably, access to computer facilities, and occasional program errors. The lack of immediate feedback as per a traditional tutorial appeared to be of moment to at least half of the respondents and this was of significant concern.

Subsequently in response to the questionnaire, an optional traditional face-to-face tutorial has been held. On average, approximately a fifth of the students attended this tutorial in 1993 and 1994. However, in the last four years this percentage reduced (no data was kept). This decline may be attributed to several factors. Substantial investment in technology infrastructure and training by our department in recent years has raised the general level of student computer skills and has allowed realistic access to 24-hour networked computing facilities. Further the publication of

the corrected and updated program on floppy disk by The Law Book Company in 1994 (renamed Partnership Computorials) enabled students to access the materials at home where that was a desired option. In 1998, the package was reprogrammed for use within the web browser environment and renamed Partnership Computer Seminars. As with previous updates, these primarily aesthetic changes consumed all available resources but offered no significant improvements in interactivity.

A further factor influencing the decline in attendance at the traditional tutorial was the provision of an online email feedback facility. Whilst up to 20 per cent of students typically use email to contact the module lecturer at least once, lack of time and financial resources have restricted development of this facility. Email is not an integral part of the program and this form of feedback cannot be provided in real time. For the lecturer, this system has made forecasting and controlling the allocation of time for the module increasingly difficult as compared with fixed traditional tutorial times. The importance of student and teacher interaction in CAL has been well documented and is reflected in our own student feedback.[12] Experience to date demonstrates, however, that major improvements in PCS are not feasible on the current level of resourcing, commitment, and support. Funding of future efforts is limited to small research committee grants, while commitment is restricted to the spare time of a busy lecturer in an environment in which there is no national or local guidance or support. Clearly, the repeated requests from students for further CAL programs in other law subjects are also likely to remain unfulfilled unless a development system can be devised that addresses these deficiencies while retaining the many benefits provided by PCS.

THE CONTINUING EVOLUTION OF SUSTAINABLE CAL DEVELOPMENT

To what extent do other CAL experiences provide a new direction, and what are the critical steps that must be taken? A study of other small-to-medium scale CAL projects initiated by individuals or individual institutions reveals several obstacles. One of the most common and manifest observations is the extent to which available time and money restrict initial and future developments. Kelman's successful virtual tutorial experiment at

the London School of Economics revealed a need for substantial future investment by the lecturers to produce workbooks and to develop the administrative support structure.[13] Migdal and Cartwright cautioned that the "personal commitment demanded … cannot be over- emphasised" and remarked that the number of staff hours required to produce their CD-ROM exceeded their "wildest nightmares"! In this instance, the program authors sought economy of scale through the sharing of centralised programming resources with two similar CAL projects proceeding at their University. However, after some trial and error, a software package was produced "which operates as a program template enabling anyone who has word processing skills to author electronic teaching packages".[14] The benefits of this approach are clear. Use of a template drastically reduces the time and cost of initial programming. Furthermore, significant efficiencies are gained, as program authors need few (if any) programming skills in order to produce a series of consistently formatted programs.

Standardisation of CAL authoring tools has been an important feature in what must be acknowledged as the ongoing success of Iolis.[15] In the same year that we began work on PCS, the LCC commenced centralised development of the Iolis CAL authoring templates for use directly by their authors. At the time of writing, there were over 100 Iolis-based lessons on CD-ROM available for UK law students[16] and a similar number produced by The Center for Computer-Assisted Legal Instruction (CALI) under licence for their US counterparts.[17] In addition to largely solving the authoring problems experienced by Migdal and Cartwright and others, the widely used templates have provided a single, consistent, and familiar-looking program interface within a reasonably flexible framework.18 These economies of scale can dramatically reduce the time required for students and teachers to master program navigation and feel comfortable with the CAL components across their courses. Where an authoring tool such as Iolis is used across institutions nationally, or even internationally, even greater economies of this nature are plainly attainable. Clearly, major collaborative endeavours are superior in terms of cost, time, and output than individual stand-alone efforts with PCS.

Nevertheless, as compelling as the argument for standardisation is, the "mass-production" approach inherently implies restrictions on program control. Indeed, Migdal and Cartwright's decision to

develop their own CAL template was motivated by a policy decision to include a substantial human element on video, as such a facility was not available within the Iolis framework.[19]

The importance of pedagogical goals as the starting point for CAL development has been well documented.[20] When planning a CAL program, establishing whether pedagogical aims are attainable using a standardised package is obviously a precursor to using such a template. For those of us considering converting an existing program into a standard form, the extent to which both systems are likely to achieve pedagogical goals must be reviewed and compared. Quoting the 1995 edition of Iolis, Paliwala notes that "the design of the courseware was deeply influenced by the need to ensure respect for pluralism as well as the need to enhance existing educational values."[21] However, in his generally favourable assessment of Iolis, Moodie highlights several current features that may limit its potential application:

- no integrated real-time email or conferencing facilities;
- no facility allowing students to bypass topic text for quick revision;
- limited potential for direct customisation — annotations, for example, cannot incorporate interactive elements and cannot be inserted in precise locations within a page;
- no integrated communications function to ensure automatic updating of stand-alone CD-ROM versions;
- linear rather than branching structures are promoted;
- no automated assessment and scoring of students' answers;
- the resource book is limited to material selected by individual workbook authors;
- no provisions are made to support collaborative learning or small group teaching.[22]

The very nature of CAL development is evolutionary. Whilst every case will be determined according to the required balance between time, resources, and program features,[23] the speed of development of technology requires CAL program designers to factor anticipated changes into their planning. That is, the sacrificing of desirable program features such as integrated email and conferencing can be considered temporary and should not necessarily be used to reject adoption of a standard template. Indeed, the increasingly integrated nature of global telecommunications is likely to render CAL standards almost

universally portable, further augmenting their economies of scale and their scope and popularity. Following their experiment exploring the potential of email technology (in conjunction with Iolis courseware), Widdison and Schutte predicted that "the most likely end result will be an electronic communication medium that is infinitely plastic …"[24]

CATCHING UP TO THE COLLABORATORS — HOW DO WE DO IT?

If we accept that CAL has a continuing role to play in legal education in the new millennium, countries such as New Zealand which do not take a coordinated approach to development, are in danger of becoming increasingly isolated backwaters. The Iolis and CALI research suggests that many programs can be delivered via standard templates, and many more will become feasible as technology advances. Furthermore, the resource and time constraints associated with individual CAL attempts plainly prevent sufficient programs from being developed at all. It is therefore imperative that New Zealand legal educators investigate utilising Iolis as a national de facto CAL standard in order that program development time be reduced dramatically and quality program output be increased substantially. More importantly, the current levels of maturity and stability made possible by Iolis provide timely opportunity for the analysis of the successful collaborative CAL integration model applied by the LCC. By borrowing experience and leasing technology from the forerunners, it is anticipated that the development of a sustainable and effective national (or intra-national) CAL structure appropriate to Australasian conditions can be accelerated considerably.

In addressing the issue of the high cost of CAL development, Dale observes that:

> The techniques which might usefully be applied to make it cheaper — large-scale development and distribution, efficient reuse of components, licensing content from other publishers — are by their very nature techniques which are most effective when utilised within a large-scale project. Yet bringing about the creation of such projects requires initial large-scale funding and collaboration between institutions, which is itself difficult to achieve.[25]

Despite this inherent difficulty, the need to overcome these obstacles is clear. In 1993, Laurillard produced a comprehensive

and detailed blueprint for embracing educational technology in which she advanced the concept that "quality is best established through organisational infrastructure and collaboration".[26] Paliwala, in a recent review of the LCC's progress, corroborated this view, and summarised the key ingredients in their success:

1 commitment to sound educational values;
2 commitment and enthusiasm of academics;
3 the production of a critical mass of material;
4 sound management;
5 the development of a technical environment which supported the above values;
6 institutional support from … other law schools; and
7 infrastructural and financial support at the national level.[27]

These essential components — in addition to serving as a useful starting-point checklist for developing a more comprehensive national CAL plan — highlight the importance of commitment. In terms of Dale's Development Triangle,[28] commitment from academics, technical people, and national policymakers appear to form congruent triangles of interdependence in which a change in one component alters the balance of the other two components. The superimposition of this commitment relationship on Dale's development interdependence model can be graphically represented thus:
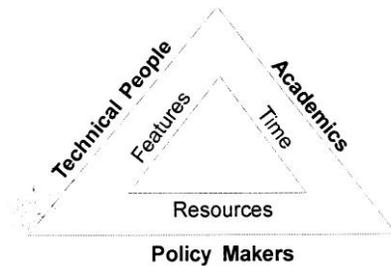
Just as a change in development time alters the balance of features produced and resources required, a lack of commitment and funding from policy makers, for example, will necessitate greater commitment from academics and technical people. Given this interdependence, it is of paramount importance that a feasible and sustainable balance of commitment from these parties at the outset is established.

One common denominator in all successful CAL programs has been the commitment of development time by the academics

driving the project. The greatest progress, however, has been achieved when this enthusiasm and vision — coupled with commitment to sound educational values — has been aggregated and centrally coordinated.[29] Currently there is no national effort being directed at CAL development in New Zealand. The Victoria Law Foundation[30] in Australia, however, has recognised the importance of collaboration through its funding and support of the Australian Law Courseware (ALC). Although not yet a national institution, the ALC is licensed to use Iolis software for production of workbooks in the Australasian region and comprises authors from several Australian states. The ALC has spent approximately 12 months modifying the UK workbooks and, at the time of writing, has produced 30 workbooks for use by Australian law students. It is too early to assess the value or impact of the ALC's efforts in the classroom, however, their application of the UK collaborative development model and technology has clearly brought about the economies of scale and time-savings required for sustainable CAL.

CONCLUSION

United Kingdom enthusiasts,[31] meanwhile, are at the stage of looking beyond Iolis. Widdison, for example, foresees legal education fully embracing computer-based simulation games and using "virtual law tutors … as managers of the learning process". Clearly the long-term future of Iolis is secured[32] and will continue to improve in quantity and quality.

Technology has an important role to play in campus- based legal education. The centralised process of producing workbooks has begun in Australia and is receiving increasing support. As we head into the next millennium, it is critical that New Zealand law lecturers and tutors recognise the current opportunity to commit, collaborate, and capitalise on existing achievements and technical expertise. We must lobby the policy makers and legal profession for their commitment to support CAL and embrace a full-scale mass production to catch up. The adoption of the tried and tested Iolis model will accelerate the process.

Questionnaire and Summary Data

1 How valuable to do you think this computer assisted learning package has been for you?

1	Not at all valuable	0%
2		0%
3		40%
4		47%
5	extremely valuable	13%

2 How much do you think you have learned from this package?

1	Very little	0%
2		1%
3		46%
4		48%
5	A great deal	5%

3 Has the package improved your understanding of the concepts and principles of partnership?

1	No, not at all	0%
2		8%
3		40%
4		40%
5	Yes, greatly	12%

4 Would you like other course topics treated in this way in other years?

1	No, not really	0%
2		2%
3		6%
4		31%
5	Yes, please!	61%

5 How often did you use the package?

1	One time only	50%
2		27%
3		18%
4		5%
5	Five or more times	0%

6 Would you have preferred a traditional series of tutorials covering the partnership topics?

1	No, not really	33%
2		14%

3		25%
4		16%
5	Yes please!	12%

7 Would you appreciate further traditional tutorials covering the partnership topics?

1	No, not really	14%
2		25%
3		20%
4		25%
5	Yes please!	16%

8 In my view, the package has attempted to cover:

1	Much too little	0%
2		0%
3		94%
4		6%
5	Much too much	0%

9 The package seemed:

1	Very disorganised	0%
2		0%
3		18%
4		56%
5	Very well organised	26%

10 How available was the package for you to use?

1	Very inaccessible	0%
2		7%
3		20%
4		33%
5	Very accessible	40%

11 How useful was the package in helping with your revision?

1	Useless	0%
2		4%
3		20%
4		45%
5	Very useful	31%

STUDENTS' COMMENTS

- "Difficult to get into the program to start with, maybe a handout would be of use."
- "Unclear instructions as to how to actually start the program

made it inaccessible."

- "How to get into the system, ie instructions for this."
- "Too hard to get a computer when other classes have regular tutorials in the computer lab every week — could perhaps set aside some computers for it."

  (Author comment — set computer lab times were available.)
- "Hope those errors have now been resolved."
- "At times if you got the answer wrong then at times the package would not accept the correct answer when it was correctly entered in Stage 3 especially."
- "I felt that some of the answers required a Yes/No answer and a True/False answer was required or vice versa. I will use the tutorials again in the future for part of my revision for mid-years."
- "When you get a question right (which you may have guessed) there is nothing to say why the writer gave it as right. If you answer it wrong you get the info. Why not give the same info either way."
- "Cool."
- "Great, fab."
- "I really enjoyed the experience."
- "Useful in confirming topics learnt."
- "Only had one session on this. It would have been better to do this questionnaire after, using the package a lot more. And when I had done enough study on it, to answer it properly."
- "Appreciated the fact that it was interactive but not in a stressful environment (eg you didn't feel a fool, if you got something wrong but it told you where you went wrong.) Much more interesting than simply sitting down and studying."
- "Only used it once but intend to use it again."
- "Even though I have only used the package once, I plan to go back to it for revision purposes."
- "I intend to use the tutorial a few more times as I haven't been right through it yet. Access in the evenings would be good for those who are working."
- "I found the most valuable aspect of the package was that it indicated to me the areas in which I did not know as much as I thought I knew. I thought I knew the material reasonably well, but I found a few areas in which I did not know the answer. It was much better to find out in this way than in an exam!"

- "Could we have ones for the other 253 topics."

* Senior Lecturer, Department of Accountancy, Finance & Information Systems, University of Canterbury, New Zealand.

** Research Assistant.

1 See T Suwardy and P De Lange, Delivery of Accounting Subjects via the Internet: Student Perceptions (1998) 11 *Accounting Research Journal* 327, at 335 in which the authors report the findings of an empirical study into attitudes of students towards the Internet. They note that "94% of respondents believed that the Internet would be used increasingly as an educational tool and that this would be beneficial to their careers" and that the "vast majority (90%) of respondents felt that the Internet would be "a significant part of their (future) work environment".

But see also R Jones and J Scully, Hypertext within Legal Education (1996) 2 *The Journal of Information Law and Technology* <http://elj.warwick.ac.uk/jilt/cal/2jones/> where they cite evidence that approaches used in some electronic workbooks act to "demotivate and discourage" students.

2 See Students' Comments, *infra* Appendix A, in which a call is made for further computer tutorials on other subjects offered in the AFIS 253 course.

3 <http://www.law.warwick.ac.uk/lcc/>

4 R Widdison, Law Courseware: Big Bang or Damp Squib? (1995) 4 *Web JCLI* <http://webjcli.ncl.ac.uk/articles4/widdis4.html>; P Moodie, Law Courseware and Iolis: Assessing and Constructing the Future (1997) 1 *The Journal of Information Law and Technology* (*JILT*) <http://elj. warwick.ac.uk/jilt/cal/97_1mood/>; A Paliwala, Co-operative Development of CAL Materials: A Case Study of Iolis (1998) 3 *The Journal of Information, Law and Technology* <http://www.law.warwick.ac.uk/jilt/ 98-3/paliwala.html>

5 D Grantham, IOLISplus — Extending the Electronic Learning Environment (1999) 1 *The Journal of Information, Law and Technology* <http://www.law.warwick.ac.uk/jilt/99-1/grantham.html>

6 For a discussion of development issues related to CAL, see J Dale, The Money Pit: Why is CAL So Expensive? Paper presented at the Australian Conference on Assisted Legal Instruction, Brisbane, 1996. In explaining his contention that "developers are frequently in the position of being able to develop only a single module or lesson because it takes all their time and resources to create the *first* electronic lesson", Dale uses the "Development Triangle" model showing the interdependence amongst time, resources, and program features.

7 Moodie states "the other major attraction of IolisAuthor is that it must now be seen as the *de facto* standard for the production of law courseware in England and Wales": P Moodie, Law Courseware and Iolis: Assessing the Present and Constructing the Future (1997) 1 *The Journal of Information Law and Technology* <http://elj.warwick.ac.uk/jilt/cal/97_1mood/>

8 R C Clark, The Rationale for Computer-Aided Instruction (1983) 33 *J Legal Educ* 459, at 468.

9 P F Teich, How Effective is Computer-Assisted Instruction? An Evaluation for Legal Educators (1991) 41 *J Legal Educ* 489, at 489.

10 R Mason, Where does Computer Aided Learning Fit in the Tertiary Education Equation? (1996) 7 *JLIS* 105, at 112.

11 S J Shapiro, The Use and Effectiveness of Various Learning Materials in an Evidence Class (1996) 46 *J Legal Educ* 101, at 109.

12 See *infra* Appendix A.

13 A Kelman, Distance Learning at the LSE with Virtual Tutorials, IT Review (1997) 1 *The Journal of Information Law and Technology* <http://elj.warwick. ac.uk/ jilt/sw/97_1lse/>

[14] S Migdal and M Cartwright, Pure Electronic Delivery of Law Modules — Dream or Reality? (1997) 2 *The Journal of Information Law and Technology* <http://elj.warwick.ac.uk/jilt/cal/97_2migd/>

[15] See, for example, A Paliwala, Co-operative Development of CAL Materials: A Case Study of Iolis (1998) 3 *The Journal of Information Law and Technology* <http://www.law.warwick.ac.uk/jilt/98-3/paliwala.html/> for an overview of Iolis and a commentary on progress.

[16] See Subject Coverage in Iolis <http://www.law.warwick.ac.uk/lcc/subjects.html> for an updated list of Iolis lessons for UK law students.

[17] See The CALI Catalog <http://www.cali.org/calitech/catalog.html> for an updated index of links to the CALI Library of Computer-based Legal Exercises, based on the licensed Iolis templates, for use by students in the US.

[18] Moodie, s*upra* note 7.

[19] Migdal and Cartwright, *supra* note 14.

[20] See, for example, R Warner, S D Sowle and W Sadler, Teaching Law With Computers (1998) 24 *Rutgers Computer and Technology Law Journal* 107, at 170. See also R Jones and J Scully, Hypertext within Legal Education (1996) 2 *The Journal of Information Law and Technology* <http://elj.warwick.ac.uk/jilt/cal/2jones/>

[21] A Paliwala, Preserving Educational Values (1995) 4 *Law Technology Journal* 3, at 4.

[22] Moodie, *supra* note 7.

[23] See Dale, *supra* note 6.

[24] R Widdison and J Schutte, Quarts into Pint Pots? Electronic Law Tutorials Revisited (1998) 1 *The Journal of Information Law and Technology* <http://elj.warwick.ac.uk/jilt/cal/98_1widd/>

[25] Dale, *supra* note 6, at 6.

[26] D Laurillard, Rethinking University Teaching: A Framework for the Effective Use of Technology (London: Routledge, 1993) 224.

[27] Paliwala, *supra* note 15.

[28] Dale, *supra* note 6.

[29] For example, the British and Irish Legal Education Technology Association (BILETA), the National Centre for Legal Education (NCLE), the Computer Teaching Initiative (CTI) Technology Centres, and the LCC in the UK; and the Center for Computer-Assisted Learning (CALI) collaboration between the University of Minnesota Law School and Harvard Law School in the US.

[30] See <http://www.viclf.asn.au/html/> for an overview of the Victoria Law Foundation's law courseware project.

[31] See, for example, Grantham, *supra* note 5; R Widdison, Computerising Legal Education: What Next? 14th BILETA Annual Conference, York, 1999: http://www.bileta.ac.uk/99papers/papers99.html

[32] See LCC website, *supra* note 3: heading 'Our sponsors'.