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A Continuum of CAL: Integrating IOLIS, Web and Toolbook to Make IT Easy for Legal Faculty to Author

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Abstract

The adoption of IOLIS by the Center for Computer Assisted Legal Instruction (CALI) in the United States has opened up new opportunities for law faculty to explore computer-based teaching. CAL materials can be created in a much shorter time and CALI is hoping to inspire hundreds of individual explorations among faculty. In addition, CALI has developed tools to allow the delivery of IOLIS-based lessons on the Web and on the Apple Macintosh. CALI has also written a conversion tool to convert IOLIS lessons into Asymetrix's Toolbook to allow faculty to create even more sophisticated interactions that IOLIS does not support. Finally, CALI is working with various entities to convert old multiple choice exams and bar exam questions into IOLIS format to be used by faculty as starting points for new CALI lessons.

Introduction

For the past 18 months or so, CALI has been directing considerable effort to create easily accessible avenues into the creation of computer-based teaching materials for law school faculty.

Writing computer-based instructional materials can be quite difficult. In the past law faculty were required to obtain expertise as a programmer, graphic artist and interface-designer. Alternatively, they were required to assemble a team with all of this expertise. CALI has created materials using these different approaches. A quick look back of CALI's history is very illustrative in putting our current and future plans into perspective. The table below represents a simplified look at CALI's approach to authoring over the last decade and a half.

80's

Authoring Model: Faculty/Programmer teams
 # Authors:10-15
 # Lessons:30-40
 Primary Software: Pascal - custom programmed

early 90's

Authoring Model: Partial self-authoring
 # Authors:3-5
 # Lessons:5-10
 Primary Software: Hyperpad & Toolbook, programmer/faculty teams

Present

Authoring Model: Self-authoring with CALI tools
 # Authors:75-100?
 # Lessons:> 100?
 Primary Software: IOLIS

Future

Authoring Model: Self-authoring with CALI content and individual customization
 # Authors:multiple hundreds? thousands?
 # Lessons:thousands?
 Primary Software: IOLIS/Webolis & Toolbook

The faculty/programmer teams of the 80's were quite successful for their time. The tools were all programmed from scratch as there were no "authoring" systems to start with. A very small number of faculty were engaged in this activity. In the early 90's, authoring systems such as Hypercard for the Macintosh, HyperPad for DOS-based computers and

Asymetrix Toolbook were available for individuals who wished to explore computer-assisted instruction. HyperPad was a Hypercard-like program with a scripting language and powerful hypertext capabilities and is no longer commercially available. Toolbook is a powerful yet complicated software to master. CALI attempted, several times, to create an authoring environment that was more accessible to faculty who did not desire to learn the intricacies of scripting or user interface design with limited success. Authoring programs were created in HyperPad and Toolbook called LessonBuilder and distributed to a small number of faculty. CALI also has provided technical support to many authors who were essentially working on their own. In some cases, authors assembled their own teams by hiring students with research assistant money to help with the technical side of their projects. In 1993 and 1994 CALI obtained grant funding from the National Center for Automated Information Research (NCAIR) and West Publishing and awarded nine grants of \$15,000 to individual faculty and teams to create innovative computer-based instructional materials. Only one of those projects has been published to date, though several are very near to publication. Again, the number of authors engaging in authoring was quite low.

IOLIS: Simple Authoring for Law Faculty

Now we come to present time. Since IOLIS was first made available, over 500 copies have been distributed to faculty interested in authoring their own materials. There are dozens of projects in progress and CALI has specifically commissioned another half-dozen authors to create materials in using IOLIS. As further incentive, CALI has sponsored a lesson writing competition among students, faculty and law librarians with the winning entries receiving cash prizes. The deadline for this year's competition is March 1 and we expect upwards of 25 entries compared with last year's 9 entries.

The reasons for our apparent success at this time were not completely unexpected. First, more faculty have computers on their desks and in their homes and these faculty are knowledgeable with word processing, email, and the World-Wide-Web. Computer literacy among faculty is much higher than it used to be. IOLIS is very simple to learn and use. The learning curve is quite short when compared to commercial authoring systems like Asymetrix's Toolbook or Macromedia's Authorware which require months or years to master.

For CALI, 1997 will be the year we call "The Democratization of Computer-Assisted Instruction". Simple computer instructional authoring is now accessible to anyone with a computer and the desire. IOLIS is free for any faculty member at a CALI-member law school in the United States.

IOLIS has enough legs to allow the creation of fairly sophisticated tutorials. It depends on how well the author can structure the content, not on programming talent or artistry. It opens the door to exploring the computer as a teaching tool. With the technical difficulty of authoring addressed, faculty can devote their efforts to deciding what material to cover, how to cover it, and in what sequence. This is no simple matter as there is no general agreement on how best to teach, much less how best to teach with the computer. To a very large degree, law faculty in U.S. law schools each create customized course information for their students. CALI supports individual faculty explorations into teaching models for the computer. We hope to usher in an era of hundreds of these individual explorations using IOLIS and other tools that are described later in this article. We don't claim to know the best way to teach with the computer, so we must create opportunities for each faculty member to individually explore these new tools themselves. The process will be one of gradual refinement and improvement. As proven methods and approaches become clear, we will promote them and adjust the tools to embody these advances. A key point of CALI's mission is that each new faculty member shouldn't have to start from scratch.

Teaching is as individual as the teacher and no two approaches are exactly alike. The computer lessons created by faculty should have the capability to be as individual as they are in their teaching styles. As a starting point, the authoring tools should be easy enough to use so that all faculty can use them. IOLIS is a good start.

There is another important reason for IOLIS to be so important to CALI's mission. The content that faculty create with IOLIS is stored in a general purpose database that is completely separate from the software used to create it and view it. This is unlike Toolbook or Authorware where the content is inextricably tied to the authoring software. To convert lessons in Toolbook to another platform requires re-programming the material from scratch. This is not so with IOLIS and leads me to my next point to discuss.

WEBOLIS: CALI Lessons on the World-Wide-Web

CALI has developed a Web-based authoring and lesson-delivery system that will use the same data format as IOLIS. The product is tentatively titled "WEBOLIS" (meaning Web-based IOLIS) and will allow lessons authored in IOLIS to be delivered over the web. In addition, faculty will soon be able to connect to the CALI web site and create IOLIS lessons via a series of Web-based forms.

Faculty can start by creating small, 10-15 question assessments or mini-tutorials on the CALI website. They can make

these available to students without any intervention from CALI and they can evaluate the impact of their work on their students by viewing student feedback or scores on the questions. Feedback on student answers to questions has been available in many CALI lessons for over a decade, but it was inconvenient and difficult to access the data. With Webolis, feedback can become nearly instantaneous. This makes it possible to prototype sections of a lesson via the web and after accumulating enough questions, publish them as an entire lesson with CALI. Alternatively, faculty may never formally publish their lesson, but just use the tool within the confines of their own class. We envision that the authoring landscape will be filled with hundreds of mini-tutorials that are self-authored and essentially self-published by the authors themselves. After a process of refinement and peer review, some of these lessons "graduate" to be published by CALI or possibly by commercial publishers.

Webolis uses the same content format as IOLIS. This means that mini-tutorials created with Webolis can be downloaded and further developed on the faculty member's computer using IOLIS. This also means that lessons created with IOLIS can be uploaded and made available for Web delivery. The portability of the content of IOLIS lessons make this possible. There are other CALI initiatives that hinge on portable content.

MAC-OLIS: CALI Lessons on the Apple Macintosh

CALI is currently developing a "viewer" for the Macintosh that will allow lessons created with IOLIS or Webolis to be delivered on stand-alone Macintosh computers. Although Mac-using law schools and students are in the minority, they represent a significant number of users and we would like to be able to reach them with as much of our material as possible. A Macintosh-based authoring system is a possibility in CALI's future, but CALI is a small outfit with extremely limited resources for all of the projects it would like to tackle.

Beyond IOLIS: Portable Content Creates Opportunities

With IOLIS, faculty can create fairly sophisticated lessons and with Webolis and Macolis, these lessons will soon be deliverable across the Web and on Macintosh computers. The IOLIS model for computer-based education, however, is limited by its page metaphor and the interactions programmed into its page types. There will be situations where IOLIS is not appropriate for the type of interactions that a faculty member may want. One solution to this problem is to create a conversion utility that will convert IOLIS lessons into Asymetrix Toolbook. We have this utility today! This is a one-way conversion since Toolbook uses a proprietary data format, but once in Toolbook, the author has all of its scripting and multimedia capabilities. This leverages CALI's extensive experience with Toolbook and offers a path to authors willing to invest in learning Toolbook. In this scenario, IOLIS becomes a rapid prototyping tool for the creation of more sophisticated materials. Again, the faculty/author does not have to start from scratch and previous work done in IOLIS is accessible.

Content is King but Where Do You Start?

As mentioned before, once you remove the technical hurdles, you still have to grapple with devising the appropriate content that will be delivered via the computer. Course syllabi and teaching notes are an excellent start, but are there any opportunities for CALI to assist faculty with content? We think there are. CALI is working with the Institute for Law School Teaching at Gonzaga University Law School to convert their collection of multiple choice exams into an electronic test bank - again in IOLIS format. Under our arrangement, they would distribute electronic versions of exams that they now distribute by fax and photocopying. These would only be available to law faculty (not students) to use to create new exams. Multiple choice exams are not dissimilar from simple CALI lessons and old exams are excellent fodder for creating lessons.

Similarly, we are also working with the bar exam administrators from several states to obtain obsolete bar exam questions (and model answers) to be converted into IOLIS format and distributed to faculty as launching points for creating new lessons. Both of these projects are only in the embryonic stages as yet. Doubtless there are other sources of undeveloped content that we can exploit and as we identify them and create alliances, we will bring them to our member's attention. We know we are heading towards a convergence of "questions asked to teach" and "questions ask to test". It's all a big continuum in the scope of legal education and it behooves us to understand our activities relative to the spectrum of all activities that encompass legal education. We hope to explore electronic exam making and taking in the very near future.

Furthermore, CALI intends that its library of materials act as a high-quality "starter" set for faculty to customize locally to their own needs. CALI is in the process of securing sufficient intellectual property rights to its materials and commissioning the creation of new materials. The goal is have a set of materials that span the legal education curriculum and to make these lessons available to faculty, along with software tools like IOLIS, to allow them to add, delete or refine them for their own students. Once in place, using Webolis and IOLIS, an ongoing process of refinement, improvement and innovation in electronic teaching tools will occur.

Donald Trautman CALI Lesson Writing Competition

To create incentive for new and innovative material, CALI sponsors a yearly competition with divisions of entry for law faculty, law librarians and law students. Cash prizes of \$2000, \$1000 and \$500 for the best, new computer lesson written by a faculty member and law librarian. Winners in the law student division will receive \$100, \$500 or \$250. The competition is modeled on legal writing competitions commonly sponsored by bar associations and other professional organizations. Entries are judged by a panel of faculty from the CALI Board of Directors.

Conclusion

The tools used to create and deliver CAL are changing quite rapidly. In a recent conversation with an author, he lamented that he has had to learn 6 different authoring systems in the past 12 years. As the pace of development continues, new and more sophisticated authoring systems are likely to be developed. In the past however, upgrading to a new authoring system required reprogramming the lesson's content from scratch. CALI's current and future plans are to keep the content portable so that it can be used in new development systems and be delivered on new platforms. Finally, in the future, the delivery of most, if not all CALI materials will be web-based. The Web offers a centralized delivery model that allows for a continuous publication cycle rather than the periodic cycle for diskettes or CD-ROM. The Web also allows for instant feedback and the possibility of inter-student interaction in the same lesson.