International Review of Research in Open and Distributed Learning

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Volume 4, numéro 1, avril 2003

URI : https://id.erudit.org/iderudit/1072846ar
DOI : https://doi.org/10.19173/irrodl.v4i1.115

Aller au sommaire du numéro

Éditeur(s)

Athabasca University Press (AU Press)

ISSN

1492-3831 (numérique)

Découvrir la revue

Citer cette note

Annis, J., Hensel, T., Lundstrom, P. & Jones, R. (2003). 19. Integrated Course Delivery Packages. *International Review of Research in Open and Distributed Learning*, *4*(1), 1–4. https://doi.org/10.19173/irrodl.v4i1.115

Résumé de l'article

This report contains updates of three products: Elluminate, LearnLinc, and Wimba. Each features audio communication, both asynchronous and synchronous, and has been selected for this report to complement the preceding review of Internet audio products. The three packages also contain integrated applications for online, classroom-like, educational activities and discussions. A fourth service, Ed2Go, offers online tutorial facilities similar to those provided by the Elluminate vendor. The four reviews are offered as examples of the many products now offering integrated applications of this type.

International Review of Research in Open and Distance Learning
Volume 4, Number 1. *ISSN: 1492-3831*

April - 2003

Technical Evaluation Report

19. Integrated Course Delivery Packages

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Abstract

This report contains updates of three products: *Elluminate*, *LearnLinc*, and *Wimba*. Each features audio communication, both asynchronous and synchronous, and has been selected for this report to complement the preceding review of Internet audio products. The three packages also contain integrated applications for online, classroom-like, educational activities and discussions. A fourth service, *Ed2Go*, offers online tutorial facilities similar to those provided by the *Elluminate* vendor. The four reviews are offered as examples of the many products now offering integrated applications of this type.

Trials of Products

The evaluation criteria used in this study were based on criteria outlined in Report #7 in this series: cost; complexity; control; clarity; common technical framework and features.

1. ***Ed2Go*** (Education to Go, Inc.) uses an integrated online delivery browser application to offer over 200 short courses in six week blocks, two lessons per week, six times per year. The *Ed2Go* company targets adult learners engaged in continuing education courses offered by accredited institutions. Registration is straight forward as each lesson is clearly defined, and course layouts are clean and precise. The content of each lesson is accompanied by questions that are delivered while the student works through problems. Quizzes and assignments are also included so that the students can evaluate their level of understanding of the content. Links are provided to related websites, which can sometimes be distracting. An alternative to completing the lesson in a single session is to download the lesson to the student's computer. This saves connection time costs for the student. The instructor is an email away, and each course contains a conference area where the students and instructor can post questions and comments. *Ed2Go* courses can be accessed with minimal system requirements, using all major browsers. Computer programming and Web development courses require the capability of running the software used in the course.

The cost of initiating, developing and delivering online courses for educational institutes can sometimes be prohibitive. *Ed2Go* offers online materials that budget-constrained community colleges may find refreshing. There are no up-front charges with respect to software purchase and hardware installation, although institutions do pay a fee to offer the courses. The institution's responsibilities are to set and collect student fees, market the courses, and register students. At the close of enrolment, *Ed2Go* invoices the college for a "low, per-student fee," a percentage of the actual student fees collected. (*Ed2Go*'s sales representative was unwilling to disclose the exact percentage amount.).

2. Elluminate (formerly known as *TutorsEdge)* offers *vClass*, a license-based virtual classroom that allows live, online teaching and learning. As a teacher-controlled product, it provides synchronous text messaging (public and private), audio conferencing, Web touring (co-browsing), applications sharing polling, and whiteboard functions, all available simultaneously. Only previously identified students are permitted to participate in these sessions. Students are assigned passwords to gain access to a session, and throughout the session the software identifies who is speaking, typing a message, or using the whiteboard. A hand-raising feature can be used to sequence the order of student questions or comments; and *PowerPoint* presentations and gif and jpg images can be integrated. Although the product is primarily designed for full teacher/ moderator control, the administrator can assign moderator privileges to any or all participants. Individual work areas (whiteboards) can be assigned to participants, allowing them to work individually or collaboratively. The clear audio works over low bandwidth, allowing both students and moderator to interact while using all of the product's features. The product also includes a graphing calculator, and advanced polling methods. *Elluminate* offers the option of recording live sessions for subsequent playback.

Elluminate provides support for both *Windows* and *Mac* platforms, and makes relatively low demands on system requirements. *Elluminate's* minimum PC requirements are a *Pentium II* with a speed of 266 Mhz, and 64 Mb of RAM. Its minimum *Mac* requirements are a *G3* with 233 Mhz and 64 Mb RAM (operating system 9.0-9.2) or 128MB RAM (OS X). The software requires a preliminary installation of *Java Web Start*. Technical support is provided online via a toll-free number. A customer support webpage provides a useful link to a Java applet for testing the kind of connection that can be established for users behind a firewall. The vendor also provides *vTutor* - online tutorial services involving 50-minute live, instructor-lead tutorial sessions for students on weekdays. Homework help is also available through *vTutor*, whereby students can receive assistance from qualified instructors by visiting the *Elluminate* website.

The download and installation of *Elluminate* on *Pentium ll* computers, each with 64 Mb RAM, took approximately 25 minutes via a 56K modem connection. The system resources required to use *Elluminate* left approximately 53 per cent free on the computers of both evaluators. The product provided clear audio on a dial-up connection. No difficulties were encountered in connecting into the virtual classroom or maintaining the connection throughout our five test sessions. Users, and others with whom they communicated using the software, had no difficulty connecting and communicating with one another while using the range of software features. [The *Elluminate* license fees vary between situations, and are not included here for the sake of consistency within this set of reviews. *JPB, Series Editor]*

3. LearnLinc is a *Windows*-based application integrated with *Microsoft's SQL Server*, and is usually sold as a concurrent user server. Each distributed server can support up to 200 participants. The *LearnLinc* environment provides synchronous and asynchronous communication capabilities, and applications sharing. Synchronous communications include two-way video, streaming video, unicast and mulit-cast audio-conferencing, and real-time recording and editing of audio and video for synchronous or asynchronous playback. The environment featured in the current evaluation consists of 16 remote electronic classrooms connected through the public Internet to a *LearnLinc* server and to university instructors working in dedicated studio spaces.

The product is well structured, intuitive, and easy to navigate and use. Although is susceptible to network congestion, it has a consistent, stable and functional interface. When a student clicks on the 'raise hand' button, the instructor can give the student control of the classroom, including course content, a shared pointer, and audio conferencing. Two 'floor control policies' are available for classes: instructor-led and open discussion. While the instructor is leading the class, one or more assistant instructors can monitor text chat, hand raising, and feedback. This is a useful feature, especially in classes involving a large numbers of participants. Instructors can also organize breakout groups.

LearnLinc's question and answer (Q&A) applet can be used to ask multiple-choice and true/ false questions. Questions can be pre-determined or composed during the class, and the results are indicated in a percentage format that may be shared, or not. A feedback applet enables continuous polling. The text-chat tool (public and private) includes cutting and pasting functionality and can generate printed transcripts during the class. There are no spell-checking or formatting functions with the text-based tools. Instructors use the 'glimpse' applet to grab a screen capture of any student's desktop, monitor the status of an individual student's work, and thus correct problems as they arise. Latecomers are automatically synchronized with the current content of a session. Instructors and students may use the browser to lead other members of the class to different websites (co-browsing). . Objects and text from any *Windows*-supported application can be pasted into the product's shared whiteboard. Whiteboard contents can be saved as text, whiteboard files, or printed. There is a viewer for uploaded *PowerPoint* presentations. The *PowerBoard* toolbar contains navigation controls for moving through the presentation, as well as a full set of markup tools for highlighting items as they are presented. Mark-up tools were a heavily used feature in our tests.

LearnLinc includes a step-by-step procedure for configuring the audio component under varying hardware and software conditions. *LearnLinc's* client/ server architecture is designed to enable computers to connect to a server with modems at lower bandwidths, which can make audio-conferencing problematic. The system is sensitive to latency, and can suffer from synchronisation problems. A cable or DSL modem provides the bandwidth required to handle audio-conferencing. Ideally, clients and servers reside on the same local area network, such as a corporate Intranet, or have the ability to connect to a high-speed research and education Internet such as Canada's CA*net 4, or Internet II in the US. *C* lient software requires a one-time download followed by an automated installation. The standard classroom client is contained in a 2 Mb file.

3. Wimba comprises a set of vocal, bi-directional streaming Web applications, which allow Internet users to listen to, send, download, and manage vocal messages at times convenient to them. A range of related products is available. *EduVoice* tools, including *Voice Direct*, which allows real time online vocal lectures or discussions. *Voice Boards* allows students to listen to, record, and post messages in a threaded message board. *Voice Email* permits course participants to send and receive voice emails. *Voice Presentation Publisher* allows educational course developers to voice annotate course content, including *PowerPoint*.

Wimba for WebCT is a special edition of *EduVoice*, allowing students to use *Wimba* voice tools without having to leave the familiar *WebCT* interface. *Wimba for Blackboard* allows users to create and manage voice boards, voice email, and voice authoring within the *Blackboard* course environment. *WebLab* is a Web-based language laboratory, authoring and interacting environment, designed to teach oral language skills, and to make asynchronous vocal interaction available over standard modem connections. *Wimba Voice-Enabling* software comprises two Java applets, which can be inserted into a specific voice-based application development project for integrating PCs, Personal Digital Assistants (PDAs), or fixed mobile phones. *Wimba* options can be obtained via the vendor's server, or by purchasing the company's server technology, the *Voice Management Server* (VMS). To support these products, *Wimba* provides consulting and custom development services for clients wishing to build their own voice applications.

Our tests of the *Wimba* products involved accessing the demo versions of the various products available on the *Wimba* website. These were user-friendly and easy to access, and yielded high audio quality. *Wimba* runs on both *Windows* and *Mac* platforms. Its minimal requirements over low-speed Internet connections (28K minimum) are: *Windows 98* with *Internet Explorer* 4.0 (plus *Java VM* 5.0), *Netscape 4.1*, or AOL 4.0. A privacy policy applies to the storage of client messages on the *Wimba* server, and access to messages is restricted, depending on the *Wimba*/

client arrangement. The company gives assurance that the record of personal messages and email addresses on its servers is not used or sold for bulk mailing.

Conclusion

The abundance of integrated programs and delivery tools is a result of the exponentially growth in the number of distance education tools. Both private and public institutions are saturating the market with numerous online courses and training programs. Tools of the trade include both synchronous and asynchronous components. *Ed2Go*'s offerings are an example of a well-developed system of online courses of this type. The other three products reviewed illustrate the fact that the design of a controlled virtual 'space' for text chat messaging (synchronous), conferencing (asynchronous), and audio/ video chat can be an important ingredient of online course delivery.

Elluminate, *LearnLinc*, and *Wimba* differ greatly in the extent to which they place control over these features in the hands of the teachers and students. Each of these products has unique characteristics, and places different demands on the computer systems that host them. Integrated packages of this type require more bandwidth than applications containing fewer features (e.g., chat and audio tools only). Accessing such packages through the Internet, especially at busier times of day, involves occasional audio dropout and loss of synchronization with shared applications. In the selection of an ideal package for specific educational situations, these factors must be carefully weighed against other product options.

In a market with an increasing range of freeware providing such collaborative functions, the significant license costs of these four products mitigate against their current widespread use in distance education. Otherwise, *Elluminate*, *LearnLinc*, and *Wimba* could each be an asset in online educational settings where synchronous and asynchronous communication with audio needs to be fused. [Since the fees of these commercial products are negotiable for the different situations in which they are applied, readers should seek private quotations directly from the vendors. *JPB, Series Editor.*]

The next report in the series includes an updated review of online whiteboard applications.

> ***N.B.*** Owing to the speed with which Web addresses are changed, the online references cited in this report may be outdated. They can be checked at the Athabasca University software evaluation site: http://cde.athabascau.ca/softeval/. Italicised product names in this report are assumed to be registered trademarks.
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