



The Impact of Synchronous Online Learning in Academic Institutions: Customer Experiences from K12 and Higher Education

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Introduction

While formal research results regarding the benefits and impact of synchronous online learning have not been widely available to date, Elluminate has collaborated with hundreds of academic institutions that have changed the way they teach with live eLearning and web collaboration technology. This white paper documents the experiences of a wide variety of these academic institutions that have benefited both academically and financially from the implementation of this enabling technology. In addition, this paper discusses current issues in academia and examines some of the most recent independent research about the benefits and impact online learning in general and synchronous technology in particular are having worldwide.

In his book, "The World is Flat: A Brief History of the Twenty-First Century," New York Times columnist Thomas L. Friedman discusses a global, web-based playing field and the sharing of knowledge and work in real time, without regard to geography, distance, or even language. Disney was right: it's a small world after all. And as a result, academic institutions are going online, changing the way they teach in response to how today's students learn.

According to a recent article in the Wall Street Journal by Daniel Golden, higher-education enrollment in the U.S. is virtually stagnant, while online enrollment is skyrocketing. In addition, the article, "Online University Enrollment Soars as Quality Improves: Tuition Funds Other Projects," states that the recent repeal of a federal rule requiring colleges to provide at least half of their instruction on campus will further boost online enrollments. Boston-based market research firm Eduventures concurs, estimating that by early 2008, 1 out of 10 college students will be enrolled in an online degree program.

The Sloan Consortium 2005 Survey of Online Learning concludes that the breadth of online college courses may soon rival traditional face-to-face offerings. The survey results show that:

- 65% of schools offering face-to-face graduate courses also offer them online.
- 63% of schools offering face-to-face undergraduate courses also offer them online.
- Among all schools offering face-to-face master's degree programs, 44% also offer them online.
- Among all schools offering face-to-face business degree programs, 44% also offer them online.
- The overall percent of schools identifying online education as critical long-term strategy grew from 49% in 2003 to 56% in 2005.

Susan Patrick, president and CEO of the North American Council for Online Learning (NACOL), believes online learning is more than a trend. It's revolutionizing global education, and those countries with strong eLearning strategies will advance to help prepare students to reach their full potential in a digital age. Today's students want more options when it comes to education, and online learning is providing new opportunities for universal access to the best possible education for all students, regardless of ability, background, income level, or geography.

Author of "The Synchronous Non-interactive Fallacy," Wesley Fryer wonders why so many college professors suffer under the delusion that students should want to come to class when the instructor drones on in lecture, without any opportunity for interaction. And while UCLA economics professor Lee Ohanian believes that too much technology leads to a passive learning environment, Fryer feels that this perception is really a problem of pedagogy, not technology.

In "Digital Natives, Digital Immigrants," Marc Prensky states that students have changed radically and are no longer the people our education system was designed to teach. Today's average college grads have spent less than 5,000 hours reading but over 10,000 hours playing video games. Computer games, email, the Internet, cell phones, and instant messaging are an integral part of the lives of these "digital natives." As a result, teaching methodology and content must change, according to Prensky.

Issues in Academia

The Eduventures Higher Education Survey on Leadership, Innovation and Technology 2005 lists the top five overall strategic objectives for higher education. They are:

- Improving student learning outcomes
- Attracting and retaining faculty
- Improving fundraising
- Improving student retention rates
- Improving the use of data for strategic decision support

At Elluminate, we believe that these key objectives are similar to those in the K12 arena as well. What's more, we would also add five additional universal goals, including:

- Leveraging limited teaching resources
- Increasing enrollment and student satisfaction
- Facilitating internal and external collaboration
- Providing universal access for all students
- Increasing productivity for faculty and staff

We also believe it's no coincidence that live eLearning and web conferencing technology can play a key part in helping all levels of academia realize these goals.

Post-Secondary Online Educator's Summit

In 2005, Elluminate held a Post-Secondary Online Educator's Summit that focused on identifying issues related to distance learning at the higher-education level as well as discussing potential solutions. Again, we believe that the issues identified below apply to K-12 as well as the higher education environment.

- **Reliable connectivity worldwide.** Current congressional and state government reports indicate that the lower two quartiles of the population are being left behind in terms of access to higher education. They qualify for admission but can't afford to go. In addition, broadband access remains at only 10-15%. Technology providing affordable, reliable connectivity regardless of location is needed.
- **Faculty training and support.** Training and support are crucial to any academic technology endeavor. Teachers must have a basic level of skills to feel comfortable moving into the online environment, along with access to shared content and best practices. The passion and enthusiasm of colleagues, like mentoring programs, can motivate change. Building online teaching and course development into faculty job descriptions and providing training will enable educators to develop these new skills.
- **Cooperation and collaboration.** There are two types of institutions: big fish and small fish that learn to swim together. Students can now enroll in a distance education program with a few clicks of the mouse. But they can also change institutions just as easily. This new reality is forcing educational administrators to focus on strategies to keep existing students and attract new learners. A new model of "coopetition" would enable competing institutions to cooperate in appropriate areas, such as content development and instructional design activities.
- **Student/learner satisfaction.** This area of concern includes completion rates, learner outcomes, and student retention. Content is content. It's the support structure and overall interaction with the institution that drives student satisfaction. Removing the roadblocks to student access and learning will help ensure success.

- Distance learning can be an isolating experience. As a result, transitioning from simply delivering courses to providing a total experience is key. Creating online communities will help foster a sense of connectedness. What's more, distance-learning institutions must be thought of as real schools, not second-tier alternatives.
- Campus as culture rather than entity. The concept of a resident-based campus is changing as institutions go digital and virtual. As a result, students and faculty are no longer place-bound but recognize more of an organic entity. At the same time, the current structure of individual departments and measuring success by faculty productivity no longer fits. Culture modification is required to facilitate a more interdisciplinary collaboration.
- Revenue generation and return on investment. Revenue generation is a relatively new concern for educators who are often not experienced in business strategies. With ever-decreasing budgets, academic institutions must balance important educational impacts with bottom-line revenue implications. In the brave new world of online learning, educators need to understand and plan for revenue strategies and consider the return on their technology investment.

In summary, summit participants believe that it's time for academia to blend pedagogical structure with sound business decision-making. It's also time to change mindsets and approaches to move online education from current trend into the mainstream.

The Need for Synchronous Interaction

While current research shows that online learning can be as effective as a traditional classroom, we believe that adding synchronous interaction on its own or in a blended environment provides significant advantages.

For many educational institutions, the majority of distance courses use asynchronous tools, possibly in conjunction with synchronous text chat or streaming video. With asynchronous distance education programs, students often experience a feeling of isolation. Throughout their program, students work primarily on their own, having little contact with other students and instructors. For many, this isolation can be a serious detriment to learning. Studies indicate that interactions between students and instructors as well as student-to-student interaction greatly enhance distance education by improving student attitudes and motivation, increasing completion of coursework, enabling better performance on tests, and facilitating greater retention. Moreover, the increased interaction provides a sense of community for the students.

Research in distance learning continues to emphasize the importance of interaction for effective learning and teaching. Historically, technologies that increase interaction have been expensive, difficult to use, and not often utilized. With the advances of technology and the ubiquitous nature of the Internet, distance learning is changing. It is now easy and cost-effective to incorporate interactive instruction using a new model of distributed learning that combines asynchronous online learning with online synchronous solutions.

Synchronous collaboration software, such as virtual classrooms, allows for real-time interaction with students and instructors. A model that combines both asynchronous and synchronous learning to bridge students, instructors, and educational content in vibrant online learning communities is the ideal solution. The desired outcome of using these synchronous communication tools is to add value of real-time interaction rather than just static content.

Synchronous interaction has many benefits to students and instructors, including the following:

- Provides immediate instructor and student feedback
- Replicates the physical classroom model
- Reduces the feeling of isolation
- Provides a forum where students can collaborate at any time
- Fosters a sense of community with the learners
- Motivates students and helps them structure their time
- Increases students' technical aptitude

However, even programs that have used synchronous models have not often used voice as part of the learning model. Often this is because teleconferencing between students and instructors is troublesome and quite expensive. However, new solutions feature built in Voice Over Internet (VoIP), which does away with the need for a telephone, enables interaction over an Internet-connected computer equipped with a microphone and speakers (or headset). This added voice component provides:

- Increased human interaction that improves results
- Increased meaning and understanding
- Increased sense of community
- Effective and efficient communication vehicle
- Flexibility in responding and interacting
- Multiple methods to interact with students with differing learning styles

In all levels of education, the trend for distance learning programs is to provide a blended approach, which combines synchronous and asynchronous experiences in an attempt to leverage the benefits of both modalities.

Academic Benefits

In his article, "Reconnecting the Classroom: E-learning Pedagogy in US Public High Schools," Georgetown University's David Huffaker discusses the impact of Internet-based eLearning, including active engagement, social learning, continuous feedback, and real-world applications. Huffaker says that eLearning applications can be personalized for the individual learner's needs, provide communication tools that foster collaborative work, and offer anywhere/anytime transfer of information. He advocates that we "lose the 'E' in eLearning" to make it the norm, redefining how education is designed and bringing students and teachers closer together using the technology that manifests in society.

According to Graeme Wilson in "The Impacts of Synchronous Activities Upon Online Learners," the virtual classroom provides a number of beneficial impacts. These include the sense of community developed by teachers and students, the ability to share and collaborate with peers, improved communication and immediacy of response, a positive influence on students' self-esteem and self-confidence, and increased motivation. In addition, Wilson found that the synchronous classroom was a great equalizer for students of all abilities, removing some of the prejudices students had experienced in a face-to-face classroom and allowing students to move at their preferred pace.

At Elluminate, we believe the academic benefits of synchronous online learning include:

- Creating effective distance learning
- Extending the traditional classroom
- Building user communities
- Enhancing professional development
- Leveraging limited teaching resources
- Facilitating faculty, staff, and administrative communication and collaboration
- Enhancing infrastructure support

Creating Effective Distance Learning

Live eLearning enables academic institutions to deliver real-time, instructor-led classes to students regardless of their geographical location and with all the advantages of traditional face-to-face classrooms. Students in a blended approach with asynchronous and synchronous content have been proven with many customers to have better grades as well as higher course completion rates.

Alberta Distance Learning Centre

A world leader in distance education that uses both print and online courseware, Alberta Distance Learning Centre (ALDC) plays an active role in the education system, with a special focus on ensuring equity of educational opportunity for all students, regardless of circumstance or location. The center provides direct service to some 18,000 new and continuing students every year, making it the largest school in the province. In 1996, ADLC began operation of a virtual school and also offers contracted online teaching services to schools that wish to increase the courses available to their students.

In 2000, the ADLC received research funding to study the impact of adding a synchronous component to their asynchronous online courses. They compared the completion rates over a 3-year timeframe of delivering asynchronously against their first year of adding a synchronous component for 2-4 hours per week in each subject. As shown in the following table, with the addition of synchronous tutorials, the number of students completing the course has, on average, doubled.

Subject	Asynchronous Completion Rate	Asynchronous and Synchronous Completion Rate
Chemistry 30	42%	88%
Math 31	48%	85%
Physics 30	41%	94%
Applied Math 10	57%	88%

Center for Distance Learning and Innovation

A division of the Newfoundland Department of Education, the Center for Distance Learning and Innovation provides access to educational opportunities for students, instructors, and adult learners throughout Newfoundland and Labrador, especially those in isolated, rural areas. After adding live discussion and dynamic interaction to its asynchronous WebCT course content, the organization found its students in the province are doing as well, if not better, than Canadian students enrolled in traditional, face-to-face learning.

Los Angeles Unified School District

To graduate, high school students in California must pass Algebra 1 as well as the California High School Exit Exam (CAHSEE). The second largest school district in the United States, Los Angeles Unified School District launched its Los Angeles Virtual Academy (LAVA) in 2004 to provide online instruction, including algebra tutoring and exam preparation, that enables equity and access to a quality education for all district students.

The portal uses a blended onsite/online learning model that incorporates the live virtual classroom as well as the Blackboard learning system. High school students taking algebra credit recovery via LAVA have a higher passing rate than the overall district-wide rate, indicating that online learning can be just as effective as the traditional classroom.

Mount Saint Vincent University

More than 4,500 women and men from across Canada and around the globe take advantage of Mount Saint Vincent University's distinctive undergraduate and graduate programs and creative learning approaches. At the end of the school's pilot project using the live virtual classroom, it conducted a student survey in which over 90% of students surveyed said they would take another course using the product, and 100% of IT students agreed that the live eLearning interface is very intuitive, making it easy to use during online classes. The survey also showed that the majority of students preferred a blended approach over any single type of learning environment, as shown below.

Learning Environment	Percentage
Blended	68%
Face to face	17%
WebCT	10%
Video	3%
Virtual classroom	2%

Note that of those who preferred a blended learning environment, 35% preferred a combination of WebCT and the virtual classroom.

Rocky View Virtual School

A full-time, accredited virtual school for K-12 students in Alberta, Canada, Rocky View Virtual School (RVVS) provides access to all core subjects and a wide variety of complementary subjects, including second languages. The RVVS program works by combining asynchronous and synchronous delivery to engage students, instructors, and parents. Students are expected to become familiar with a variety of software in order to complete the program. Creating electronic slide shows, text documents, and participating in synchronous and asynchronous group work situations are all a part of the RVVS Program.

In this example, content for a Physics 30 class was offered asynchronously through WebCT, with 2-3 hours of optional synchronous tutorials offered each week.

Physics 30	Course Mark	Final Examination Mark	Course Completion
Asynchronous and synchronous participation	59.0	56.6	100%
Asynchronous participation only	49.9	41.6	32%

These results show that:

- The average course mark for those who completed both synchronous and asynchronous course content increased by almost 10% when compared to those students who only completed the asynchronous course content.
- The final exam mark of those students participating in synchronous sessions increased by 15% over students not participating in synchronous sessions.
- 100% of the students who attended synchronous sessions completed the course, compared to just 32% of those who did not participate synchronously.

Sunchild E-Learning Community

Sunchild E-Learning Community is an organization dedicated to the academic achievement of the Canadian Aboriginal community, delivering education via the Internet to First Nation high school students in both urban and rural areas of Alberta, Canada. Sunchild needed an eLearning model that could duplicate a classroom environment as well as provide students in remote areas with access to experienced, qualified instructors.

Using synchronous online technology, Sunchild provides superbly qualified instructors and a multi-dimensional, flexible environment that suits the learning style of First Nation students. As a result, Sunchild has realized an 80% success rate with diploma achievement, a dramatic increase from the 17% graduation rate of the traditional Aboriginal education system. Also, since they implemented their interactive eLearning model, the community has graduated more students in the last 3 years than in the previous 40 years.

Extending the Traditional Classroom

Live eLearning and web collaboration technology can also be used in conjunction with onsite activities in the traditional classroom environment. This enabling technology can connect online and onsite students, enable instructors to present engaging content onsite and remotely, leverage teachers between physical schools, record content for students who miss a class or need help preparing for exams, and bring in remote lecturers and experts.

The Argyll Centre

One of 210 schools in the Edmonton public school system, the Argyll Centre offers programming to over 5,000 students in grades 1 through 12 a variety of programs that operate outside the traditional structure of a classroom environment. In looking at the business of education, which is student achievement, the school conducted two internal research projects where its staff looked at the effect of synchronous participation on high school and junior high student achievement levels.

The research found that when young people are interacting online with an instructor or one other, achievement goes up, more than if students were in a text-based or asynchronous environment. And while the school has not done any structured research at the elementary level, administrators believe that grade school students are improving reading and oral competencies with the use of synchronous online learning.

Babson College

Initially, Babson wanted to expand its Fast Track MBA, adding a synchronous component to the existing in-person and Web-based training via the college's Blackboard Learning Management System. Instructors liked the live eLearning technology because it didn't get in the way of teaching, and students liked how the product allowed them to meet without an instructor present.

Today, students who can't come to class because of other responsibilities or inclement weather can attend via the virtual classroom. In addition, Babson is using live online learning in Olin 101, a new eLearning room for blended onsite/online classes that includes an audio system at every seat and the instructor workstation. For Babson, the new technology doesn't decrease the student experience in any way, and it doesn't create additional work for those using or maintaining it.

Centre for Distance Learning and Innovation

Leadership at the Centre for Distance Learning and Innovation looked at each of its courses and made a pedagogically sound judgment about what percentage should be taught using synchronous versus asynchronous technology. For language courses, it made sense that the majority of the course was taught using synchronous online learning because interaction is key. For social studies, students and teachers use the synchronous tool about 30% of the time to present information and share thoughts, with the rest of the time spent individually reading and reviewing documents and books via WebCT. For math and science courses, it's about 50-50 blend of asynchronous and synchronous content.

Mount Saint Vincent University

A small university with a global outlook, Mount Saint Vincent University (MSVU) fosters academic excellence and educates the leaders of tomorrow. Along with using synchronous online technology for virtual office hours and lab sessions and to add real-time interaction to distance learning, MSVU also launched its first fully blended onsite/online course, connecting students on a global level from such widespread locations as Chicago, Kuwait, Bermuda, and Jordan.

Additionally, there have always been a number of international students in the university's IT program. Now if they have to go home for a semester, they don't have to give up their studies. In another example, a spreadsheet application course is taught in the traditional classroom during the day and live online in the evening. The two classes are virtually identical and offering a choice between online or onsite delivery provides flexibility and interactivity for busy students.

Building User Communities

Nothing enhances learning better than peer-based discussions and mentoring. With live eLearning and web collaboration technology, students can collaborate on projects, provide peer mentoring, and create online communities to discuss a variety of topics.

ArchNet

Developed at the MIT School of Architecture, ArchNet is a global online community for architects, planners, urban designers, landscape architects, and scholars with a special focus on the Islamic world. Five design schools from around the world participated in an ArchNet design competition, using live eLearning technology to share information and work together. The competition included a series of recorded lectures as well as daily sessions during which students presented ideas and received critiques. At the end of the competition, the schools presented their final designs online in the last phase of what was truly a global collaboration.

BCcampus

BCcampus, an online educational service provider, implemented live eLearning as part of the online community and professional development services it provides for 26 post-secondary public institutions throughout British Columbia. For the past two years, BCcampus has contracted with the Learning Times Network to provide online community services and through them has implemented an affiliated network of five communities, all of which have an embedded virtual classroom/conference room available for synchronous interaction and collaboration. The online communities of practice include:

- EdTech Online Community for faculty and online education technology specialists, including instructional designers, media developers, and others, to share best practices
- Learner Online Community for BC public post-secondary students taking online courses via the BCcampus portal
- Research National Research Cluster for a group of three university research alliances in Kamloops, St. Johns, and Waterloo
- BC Learning Marketplace and Expo for K-12, post-secondary, and corporate education technology users and providers to showcase achievements and promote related products
- BC Council on Admissions and Transfer for supporting the project work associated with creating transfer courses for credit between institutions

FableVision

FableVision CEO and acclaimed author Peter H. Reynolds believes that technology, media, and storytelling combined are great tools to engage all children, especially those who don't feel plugged into school. That's why a key part of his mission is to reach as many students as possible while juggling numerous creative projects in his FableVision studio. The virtual classroom offers a flexible environment where Reynolds can do just that as well as a wide variety of features that facilitate authentic learning for children worldwide. For Reynolds, technology, like live eLearning, is part of the answer, providing the means to migrate powerful ideas in powerful ways.

University of Iowa

With the objective of expanding interaction and collaboration on a global level, the University of Iowa selected live eLearning technology to facilitate international occupational and environmental health training and research with countries in Central and Eastern Europe, many of which have slow and unreliable Internet connections. With the new technology, collaborator countries can participate fully in sessions regardless of their location and create recordings that can be used worldwide to address common environmental problems. In addition, the university is introducing the synchronous online technology to the World Health Organization to help strengthen its global Collaborating Centers in Occupational Health network of 70 locations in 32 countries.

University of Pittsburgh Center for Injury Research & Control

University of Pittsburgh Center for Injury Research & Control (CIRCL) realized the need for a multi-purpose tool for teaching within and outside the university and for collaboration with colleagues on a local, national, and international level. Using live eLearning technology, CIRCL now reaches a wider audience, providing blended classes for onsite and remote audiences and enabling participants to focus on collaboration for frank, instantaneous, high-quality interaction.

Enhancing Professional Development

With synchronous online learning technology, academic institutions can offer opportunities for instructor collaboration and professional development, helping to recruit and retain qualified instructors. Remote experts can address staff to keep them up-to-date on new technologies, policies, strategies, and teaching methodologies. Instructors can use their time more effectively by attending sessions without traveling and even play back recorded sessions at their convenience.

New York State Teacher Centers

The New York State Teacher Centers, 427 sites that provide professional development for 239,000 teachers throughout the state, wanted to deliver online professional development courses for instructors. Synchronous online technology enables mentoring for center directors and the delivery of online courses that train teachers on the technology they need to handle their official reporting responsibilities. And because it doesn't require a steep learning curve, the live online environment became a useful and popular tool in just months, providing both technological and emotional support for instructors.

Pennsylvania Department of Education/Chester County Intermediate Unit

The two organizations first used live eLearning for the Pennsylvania Technology Leadership Academy for school board directors and business managers. Funded by the Pennsylvania Department of Education (PDE) and developed by the Chester County Intermediate Unit and PDE Office of Educational Technology, the academy provides learning activities focused on the importance of technology in K-12 education, including a variety of interactive webinars. Each webinar had between 30 and 40 attendees from around the state, with presenters from other states as well. Going online eliminated travel costs for both attendees and presenters, making the technology very cost effective to use.

Sloan Consortium

An association of 700 institutions and organizations of higher education engaged in online learning, Sloan Consortium wanted to add synchronous interactivity to its asynchronous online research workshops, hoping to attract a wider audience, nationally and internationally. The blended environment worked well for one workshop's 369 attendees, who participated from 44 states and 9 countries. Sloan-C is planning a similar workshop with 430 people already on a waiting list.

Leveraging Limited Teaching Resources

Live eLearning technology enables academic institutions to teach across geographical boundaries. For example, if there are too few students to justify a class at a single campus, the technology can be used to broadcast the class to remote students at other campuses, schools, or around the world.

Stockton City Learning Centre

Part of the British Department for Education and Skills Excellence in Cities program, the Stockton City Learning Centre (CLC) helps improve educational standards in inner city areas throughout the country and is in the process of rolling out live eLearning to all the schools in the area. What's more, the organization provides evening homework drop-in sessions and opened an online Virtual Learning Environment for anywhere, anytime learning with live and recorded lessons used as standalone sessions or as part of a course.

In addition, the UK's Advanced Skills Teachers are highly respected and are held to rigorous assessment standards. Using synchronous online technology, the ASTs can conduct master classes and work with schools that aren't quite up to speed without traveling from their own schools, for a significant savings in time and travel expenses. The Stockton CLC is also moving toward having its expert teachers in the secondary schools provide a variety of language courses for students in the primary schools, again without leaving their own schools.

Sunchild E-Learning Community

In remote areas of Canada, it's difficult to get experienced, qualified instructors to come and work with First Nation students. The Sunchild eLearning model was designed to solve this problem by finding a way to duplicate the classroom environment over the Internet. As a result of providing the virtual classroom, Sunchild is able to hire qualified instructors who can teach from wherever they reside, reaching students throughout the province to duplicate any instructional experience.

In addition, a very important part of the Sunchild eLearning model are the key teachers, First Nation people who work as facilitators on site at each reserve to mentor students and help them deal with social and academic issues. The synchronous technology also helps the key teacher communicate with the instructional teacher, acting as a go between for the students to help with any problems they may be having.

Facilitating Communication and Collaboration

According to the 2006 Horizon Report, a collaboration between The New Media Consortium and the EDUCAUSE Learning Initiative, social computing is the application of computer technology to facilitate collaboration and working in groups. The report goes on to explain that dynamic knowledge creation and social computing tools and processes are becoming more widespread and accepted. No longer in their infancy, tools for working collaboratively at a distance are easier to use and more commonly available. As the tools have matured, the practice of online communication and collaboration has increased as well.

Web collaboration technology provides an enhanced meeting environment with voice over the Internet that eliminates long-distance and teleconferencing charges and reduces travel costs. With the proliferation of multi-campus institutions with satellite campuses, rising travel costs, and tight budgets, the advantages of virtual live meeting technology become greater. Many institutions are using web conferencing for executive council and committee meetings.

Alaska Online

The virtual classroom/conference room has become the main collaborative environment for managing projects and supporting project stakeholders at the Alaska Online consortium, a web-based K-12 program. The information sharing and collaborating helps to create a community of partners that is very important to the success of Alaska Online's projects. The ability to review work results in a positive environment, overcoming the issue of distance, is critical to project success. The synchronous technology also helps the organization's board of directors work together. With board members scattered throughout the state, it's an economic and time saving venue for board meetings and committee work.

Alberta Online Consortium

An advocate for online educators throughout the province, the Alberta Online Consortium (AOC) develops courseware and learning objects, conducts research, and provides professional development for its academic, corporate, government, and foundation members. Live eLearning and web conferencing technology enables the AOC to facilitate collaboration and project management with team members throughout the province and Canada. In addition, the real-time web conferencing tool helps AOC board members work together efficiently and economically. And because the technology supports a training construct as well as providing a collaborative environment, AOC can also use it to provide professional development for instructors.

British Columbia Ministry of Education

At the British Columbia Ministry of Education, synchronous online learning is used in two primary ways. The Distributed Learning Unit in the ministry's Information Department uses the learning and collaboration technology to increase communication, host online meetings, and promote the spirit of eLearning. In a 3-month period, the ministry held 44 meetings with a total of over 800 participants, saving a significant amount in travel costs alone. In another area, a new electronic student information system was implemented. The implementation team used the technology to train the trainers in 45 districts throughout the province, again saving both the ministry and the districts time and money.

California State University Northridge

Part of the 23-campus California State University system and one of the largest higher education institutions in the state, California State University Northridge (CSUN) is a vibrant, diverse university community of nearly 30,000 students and 5,000 faculty and staff. Recently, CSUN held a meeting of the Provost's Council, which included all the deans of the school, using web collaboration technology. In addition, there are plans to hold meetings for all the CSU campus provosts remotely using the collaborative environment.

Los Angeles Unified School District

Leading Los Angeles Unified School District executives would travel as much as 3 hours round trip for executive meetings that would only take 1-2 hours. Today, school executives can meet for an hour online and even include a brief presentation from a math/science visualization application, all without travel. The organization saved onsite refreshment costs for the meeting as well.

Pennsylvania Department of Education and Chester County Educational Agency

One of 29 regional educational agencies in the state, the Chester County Intermediate Unit works with the Pennsylvania Department of Education (PDE) and 12 local school districts that represent over 64,000 students and 6,000 educators. Adding interaction to meetings and online learning activities was key for both organizations. With synchronous online technology the organizations eliminated travel costs for attendees and presenters for their Pennsylvania Technology Leadership Academy for school board directors and business managers. For the PDE, this interactive online environment allowed participants in a statewide strategic planning process workgroup to meet even when faced with a sudden winter blizzard.

Enhancing Infrastructure Support

Academic institutions can use synchronous learning technology in many other ways, including internal training, research, help desk support, and online library resources.

Training

Many schools and other academic organizations use live eLearning to provide remote training for software applications and learning/content management systems, policies and procedures, best practices, and more. The technology can even be used as part of new student orientation. All the advantages of saving travel cost and time through remote, virtual meetings are realized with synchronous online training.

The British Columbia Ministry of Education is charged with implementing the BC Electronic Student Information System, a significant effort that involves training district trainers to train end users in all 60 districts as well as more than 300 independent schools on the new system. In a province the size of BC, time, distance, and cost are huge issues. In addition, as a result of millions of dollars in budget cuts, money for travel and training has been significantly decreased. Web-based learning technology enables the ministry to train in the districts without expensive, time-consuming travel.

Research

Universities and graduate programs can use synchronous learning for sharing research drafts and papers within multi-campus institutions and between other institutions, bringing in subject matter experts. Sharing computer applications, electronic manuals, technical material, and more with associates is a significant benefit to researchers, making remote meetings more effective than mere telephone or video conferencing.

Northern Arizona University is one of the fastest growing research universities in the United States. There, researchers collaborate with colleagues at other Arizona schools and around the country. They are constantly on the phone, emailing documents back and forth, and working on presentations. With web conferencing technology, researchers can do their collaborative work in real time, regardless of location.

The Sloan Consortium is an association of about 700 institutions and organizations of higher education engaged in online learning. The organization used a blended environment of asynchronous and synchronous technology to attract and connect more than 350 attendees worldwide for an interactive online research workshop to disseminate information about the most important issues in online learning today. Post-workshop surveys showed the asynchronous and synchronous environments met the attendees' needs in different ways.

The Canadian Institute for Distance Education Research (CIDER) is an initiative run by Dr. Terry Anderson, Canadian Research Chair at Athabasca University. CIDER fellows from across the country meet online every two weeks to present and discuss research findings in a collegial forum.

IT Helpdesk

As software releases are rolled out, IT helpdesk personnel can train new users remotely, taking over their desktop, and showing them how to do something rather than just telling them. In addition, the helpdesk staff can create recorded sessions to provide a resource library or an audit trail as they make desktop configuration changes.

One of 210 schools in the Edmonton public school system, the Argyll Centre offers a variety of programs that operate outside the traditional structure of a classroom environment to over 5,000 students in grades 1 through 12. Along with using live eLearning for online courses and staff meetings, collaboration, and professional development, the school also uses it for remote troubleshooting.

At the Argyll Centre, help desk technicians can use the tool to remotely take over students' computers to solve problems, rather than making home visits or having them bring in their machines. Prior to classes, the help desk also works with the online students to help them get familiar with the live, online environment. In addition, the school has a number of students in other countries, like China, and synchronous technology enables the technicians to get students up and running more rapidly than in previous years."

eLibrary

The virtual library reference desk is another valuable use of synchronous online learning technology. Library staff can conduct web tours and allow participants to navigate within each URL to experience campus library resources firsthand. Students and faculty can also share the results of eLibrary research with their remote counterparts, facilitating group project work.

Mount Saint Vincent University (MSVU) recently provided students at Bermuda Collage with the opportunity to experience a live tutorial that introduced MSVU library academic research resources and taught students how they could apply the resource to specific course-related research problems. While on-campus students have long had the benefit of library instruction sessions tailored to their course assignments, the efforts of librarians and instructors at MSVU allowed that basic academic service to reach students as far away as Bermuda.

Financial Benefits

While there are a wide variety of benefits associated with using a synchronous online learning solution, there are also significant hard dollar savings and revenue that can be achieved as well, including:

- Return on investment
- Cost savings
- Revenue generation

Return on Investment

Today, academic institutions are required to balance educational outcomes with the financial bottom line, including demonstrating a rapid return on their technology investment. Doing more with less has become a way of life for academia as it has in the business world. At the same time, schools are operating in an increasingly competitive environment and global marketplace. Synchronous online learning is a cost-effective solution that provides universal access with lower total cost of ownership and strong ROI.

Centre for Distance Learning and Innovation

To overcome budgeting concerns, the starting point for the Centre for Distance Learning and Innovation (CDLI) was a need to provide a high-quality level of service to distance education students. To begin, the organization stated the required outcomes and looked at the various ways of achieving them, including face-to-face classes, as well as asynchronous, synchronous, and blended distance classes. CDLI found that the blended model provided a sweet spot that optimized appropriately for both budget and student achievement. For the virtual synchronous environment, any additional costs are offset by greatly reduced travel, increased availability, and scalability that enables broader coverage.”

Illinois Virtual High School

An Internet educational service that delivers a wide range of high school content online to students throughout the state, Illinois Virtual High School (IVHS) conducted a pilot program using a virtual conference room for one of its bi-annual informational meetings, virtually eliminating travel for the 45 attendees. IVHS also offers a virtual meeting service to any organization that conducts statewide meetings for educators, enabling the school to get maximum use from its technology investment. At the same time, by using the virtual classroom/ conference room as an example of the high-quality experience it provides, IVHS hopes to get more schools interested in participating in its programs. For one such meeting, the school saved the state of Illinois over \$5,000 in travel costs. From a broad perspective, the more money IVHS saves the state, the more money there is available for education in general.

University of California College Prep

University of California College Prep (UCCP) Online provides Internet-based college preparatory courses to high school students who otherwise would not be eligible for admission to the University of California and other top universities. Since the availability and quality of college prep courses varies widely between school districts, there is an arbitrary barrier to higher education for many students in California, especially those in rural and low-income areas. UCCP's CyberMentor Program teams up high school students with advanced level University of California undergraduates for tutoring and mentoring activities with a goal of academic excellence. The cybermentors also act as advocates for the students, helping them communicate concerns and solve problems.

Cost Savings

Live eLearning and web collaboration technology mirrors the interaction of the traditional classroom session or face-to-face meeting, while eliminating the need for expensive teleconferencing and travel. A single teacher can be leveraged to reduce the need for additional hiring, a regularly scheduled conference call can be replaced with an Internet-based meeting, and a remote subject matter expert can address a class online from across the globe without traveling a mile. The possibilities are almost endless.

Alaska Online

A Web-based K-12 program that provides access to high-quality education for students statewide, Alaska Online shares a joint virtual classroom license with the University of Alaska Center for Distance Education in Fairbanks. While the K-12 classes meet during the day, the university holds most of its classes in the evening, which maximizes the use of the software. Sharing the cost of the license enables both academic institutions to make the best use of the available seats

British Columbia Ministry of Education

The British Columbia Ministry of Education supports school districts throughout a very large province. As a result, staff members travel frequently, sometimes spending \$400-500 for a 1-2 hour meeting. About 20 districts have purchased live eLearning and web collaboration technology to save money and reduce staff downtime. In addition, the technology enables the ministry to provide training for its new electronic student information system without expensive, time-consuming travel. During the 3-month pilot, the ministry held 16 online meetings, with an average of 5 attendees per meeting. Ministry travel costs for those meetings would have been \$8000, with an estimated total saved in travel costs for all participants of \$40,000.

Illinois Virtual High School

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Iowa Central Community College

In 2003, Iowa Central Community College received federal funding to explore ways to make its expensive fiber optic system, Iowa Communications Network (ICN) more cost-effective and to serve a larger student population in rural areas. Synchronous online learning technology enables the school to mirror what it does on the ICN at less cost. In addition, Iowa Central can offer blended courses that meet live online on some days and over ICN on alternate days, allowing the college to more fully utilize both mediums, reduce costs, offer more courses, and meet the needs of students who want to take classes remotely.

University of Hawaii

In 2002, the College of Education was established at the University of Hawaii to address a statewide teacher shortage and now provides about 50% of instructors needed in the state. While the college has a hybrid distance education program in which students and faculty travel three weekends every semester for face-to-face time, paying instructors to travel was expensive. In addition, the University of Hawaii system also uses interactive television, which is difficult and costly to expand. In an effort to shift from travel to online meeting, they are getting together virtually to eliminate a single weekend of travel this semester, which represents about \$4,500 in savings.

Recently, the university also used web collaboration software for a meeting that regularly required faculty and students to travel to Oahu for a half-day meeting before school began and then return to the other islands and mainline only to come back later when school started. The meeting was held online, saving \$4,800 in travel costs.

Revenue Generation

Along with reducing costs, increasing revenues also contributes to achieving a rapid return on an institution's investment in synchronous technology. As outlined in earlier examples, synchronous interaction adds significantly to the learning experience, including increasing completion rates, which leads to increased revenue. At the same time, use of the technology can also expand reach, often on an international level, which translates to an increase in enrollments and subsequent revenues. What's more, offering convenient, flexible distance education programs that include opportunities for student-student and student-instructor interaction can provide significant competitive advantage to those institutions trying to attract new and returning students as well as retain existing students.

Mount Saint Vincent University

In today's changing academic environment, Mount Saint Vincent University (MSVU) wants to keep current students involved and bring former students back to education. That's why the institution is always looking for ways to upgrade and expand the education experience, especially for those who are at a time in life when they can't go back to school full time. MSVU's goal is to provide what it calls multi-mode facilitation tools like teleconferencing, television, and live eLearning to enable students to move forward in their careers and in life.

Ohio State University

Ohio State's Non-Traditional Doctor of Pharmacy (NTDP), an online professional doctoral degree program for working pharmacists, needed a more reliable, interactive way to interact than WebCT text messaging or Office Hours Live audio chat. The university selected synchronous online technology because it supports a classroom orientation, making it very easy for students to interact, collaborate, and work as a team, with or without an instructor. In fact, the NTDP received the Excellence in College and University Distance Education National Award from the American Distance Education Consortium for demonstrating an impress impact in reaching a diverse audience.

Penn State University

Penn State's online MBA program provides distance education programs for more than 23,000 students from all 50 states and 44 countries. The university's challenge was to find a synchronous tool to support its asynchronous, web-based courses, facilitate small group discussions, and enable faculty to hold tutoring sessions and keep synchronous office hours. Penn State determined that live eLearning with Voice over IP was the most appropriate solution, enabling the MBA program faculty to hold virtual hours, interact with students on assignments, and present just-in-time course material to small groups.

Tennessee Tech University

Serving more than 9,200 students throughout the state, nation, and many other countries, Tennessee Tech wanted to add dynamic interaction to supplement its WebCT eLearning environment. Today, the university offers online courses synchronously or asynchronously as well as those that use a combination of the two environments. The school also uses live eLearning for a course taught in conjunction with Dohto University, its sister institution in Japan, which enables students from both cultures to achieve an unprecedented level of cooperation and interaction.

University of Pittsburgh Center for Injury Research & Control

Once the Center for Injury Research & Control (CIRCL) integrated its synchronous online seminars into its website, the organization was able to reach a wider audience, those that didn't even know this type of content was available. Now, CIRCL is expanding its coursework in the injury research area and will conduct blended classes in a more traditional distance learning format, where students meet online and less often in the onsite classroom, for its normal university classes as well as for extended classes offered with or without credit to students around the world.

Conclusion

The real-world examples discussed in this white paper demonstrate that synchronous online learning continues to have a significant impact on academic institutions and provides a wide variety of benefits—both academic and financial.

Along with a wealth of anecdotal evidence, our customer examples show:

- An overall average completion rate for blended courses using synchronous and asynchronous technology of 91%, compared with an average completion rate of just 44% for asynchronous-only courses
- An average increase in course and final exam grades for blended courses of 12.5%, when compared with asynchronous-only participation
- A high school graduation rate increase of more than 60% for online eLearning over the traditional face-to-face classroom
- A user preference for a blended learning environment of 68%
- A significant number of organizations savings thousands of dollars in travel costs by using live online technology for teaching, learning, and meeting

A survey at a recent academic conference showed that 50% of the attendees anticipate adding synchronous eLearning solutions in the next year. At Elluminate, we envision the classroom of tomorrow where technology is an integral part of the learning environment. In this classroom without walls, educators present exciting content, record content for easy access worldwide, and engage students to create a dialogue across borders. In addition, instructors invite guest lecturers and remote experts and extend the classroom beyond its physical boundaries to leverage limited resources and provide access for all, regardless of ability, background, income, or geography. It remains our mission to promote and provide the enabling technology that can make the classroom of tomorrow a reality today.

For more information about Elluminate and its products and services as well as for detailed case studies of the examples provided here, please visit <http://www.illuminate.com>.

Elluminate Needs Your Help

Has your academic institution conducted any research about the impact and benefits of synchronous online learning? Have you compiled any statistics about the results you've achieved by implementing this technology in your organization? We'd welcome the opportunity to include your results in a new white paper that provides additional data collected from a variety of formalized studies and surveys. If you have information to share, please email research@illuminate.com.