Critical Educational Technology Issues:

Implementing a Vision

for the

21st Century

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Executive Summary

In order to better support the effective use and integration of technology within the curriculum and academic mission of Sherman College, this proposal seeks to establish a full-time Director of Educational Technology position. This proposal recommends enhancements to current online course technology as well as increased support endeavors for faculty. The main goal and purpose of the Director of Educational Technology position is to maximize Return-On-Investment by systematically helping to build effective practices integrating technology into the Sherman College curriculum. Specific recommendations include:

§   Addition of a full time Director of Educational Technology to supervise daily operations and provide direct instructional technology support.
§   Integration of an online course management system to provide instructors with a cohesive set of online course management tools.
§   Allocation of hardware and software to support digital media acquisition and conversion, a necessary and important tool in bringing course materials into the digital realm.

If accepted, this proposal will cause Sherman College to embark on an aggressive plan to address the challenging and diverse needs of its students and faculty in the twenty-first century. This position will allow full-time support to addressing the technological needs of the curriculum while fostering innovative pedagogical tools, effective communication, creativity, critical thinking, and problem solving.

Acceptance of this proposal will also indicate recognition of the fact that Sherman College is lagging in implementation of current, competitive, and needed instructional technology support. Recognition of this fact should point to several key concerns regarding future competitiveness in the recruitment and admission sector. Inability to offer basic educational technology for faculty and students alike will continue to disadvantage Sherman's marketing force and ultimately reflect on the institution's mission as a whole.

Researchers in best practice approaches state:

> If our educational system is to address current needs for effective use of
> technology to support learning, our administration must recognize the
> new tools and strategies for teaching, learning, and assessment, and
> value them as effective models for facilitating improved student learning
> and significant pedagogical reform. With the infusion of technology,
> tools change, learning resources are different, and learning environments
> are transformed dramatically. Supported by modern information technology,
> communication changes and decisions are made very differently. Teachers
> and administrators who understand technology and its roles in schooling
> and in society establish new priorities and highly value new learnings.[1]

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[1] Lajeane G. Thomas and Donald G. Knezek, "Technology Standards for Technology-Supported Learning Environments," in The State Educator Standard, Summer 2002. 15.

Introduction

The academic community of Sherman College is committed to aggressively address the challenging and diverse needs of our students in the twenty-first century. Technology use is a catalyst for changing our institution in ways that better support the acquisition of higher-order skills by all students, as well as supporting faculty in innovative instructional methods. The effective use of technology is an integral component and requires careful preparation. It will serve as a tool that supports quality instruction and improved student achievement.

When referring to the use of technology in schools, it's important to distinguish between two major functions:

- **Information technology** is technology that deals with the management of information not directly related to instruction. This technology can be used for student records, assessment data, scheduling, payroll, finance, etc. This department is also typically in charge of the maintenance of hardware and software.
- **Educational technology**, also referred to as instructional technology, is technology used to support teaching and learning. Keeping in mind that technology is one of the many tools that teachers have at their disposal, it is important to remember that educational technology should add to instruction, not replace it. A classic example of educational technology includes course web pages and use of digital media.

After surveying our instructors and reviewing current classroom technology practices, it is apparent that a full-time person in the position of Director of Educational Technology* would be better able to facilitate the instructional initiatives of integrating technology into the curriculum. This person will be responsible for developing an intense professional development program while supporting the integration of web-based pedagogical tools.

In the past, technology faculty development programs have had a "sink or swim" mentality with concepts being taught in a traditional manner, workshops or sessions teaching a skill or technique. The workshops were useful in delivering training to teachers on how to use a certain technological tool or application but research has shown that very little of this training is being carried over into the classroom. Instructors forget how to use certain aspects of their new learning and/or do not feel comfortable using their new knowledge. Implementing a new and systematic approach will incorporate a formal and informal format. This new paradigm will assess individual teaching styles and identify ways in which technology can enrich the teaching process. Our instructors will increase proficiency in their technological skills and develop strategies that will be integrated into all phases of the curriculum. Confidence levels will increase by the collaborative, reflective, and coaching support. With technology-qualified teachers, our students will improve achievement and successfully enter the global community.

Sherman College faculty survey data** indicates that many areas need attention to not only improve instructional scores, but to bring faculty to acceptable levels of technological proficiency. Survey results also reveal that our physical (hardware) technology needs improved support. The lack of availability of an online course management system falls below standards acceptable for an institution of higher learning. Survey results indicate dissatisfaction with this issue, as well.

Research into 'best practices' of institutions of higher learning reveal that using 'home-grown' applications to support educational technology, while at first appealing for budgetary reasoning, is, in the long run, detrimental to the program as a whole. Home-grown, or self-produced applications are limiting and proprietary in nature, and in the end, produce inefficiency, frustration, loss of productivity and ultimately may cause poor participation and morale among instructors and students alike who demand reliable, realistic, and accessible technology.

Based on these occurrences, this proposal makes the following general recommendations to improve existing computer literacy among faculty and to implement new educational technologies to achieve acceptable standards of an institution of higher learning's place in twenty-first century academia.

- Implement a course management system, i.e. Blackboard, Web CT
- Design and integrate online course digital media on a per-project basis
- Support and train teachers on software, classroom hardware (SMART rooms), online course management, technologically-based pedagogical skills.

This proposal envisions a technology-enriched curriculum that will help our students develop critical thinking and cooperative skills. These skills will be needed for our students to meet the needs of a global society. Our first step is to educate and train our faculty. The professional development programs will give our instructors the support, strategies, and practices to pedagogically embrace technology in the classroom environment.

*Appendix One contains job description for Director of Educational Technology

**Specific data can be obtained by accessing the Sherman Faculty Technology Usage Survey Scores found in Appendix Two.

Rationale/Needs Assessment

Sherman College of Straight Chiropractic currently enrolls 475 students. Our student population reflects a diverse multicultural community of adult learners, with the average student age being 24. Technology in the classroom, while perhaps new to instructors, has been a staple of today's student environment since the 1990's. Students in our age demographic have been involved with computers in learning since their elementary days, and have technological expectations which far surpass the technological offerings of Sherman College.

Computers and technology are ubiquitous in high schools, and most elementary and middle schools throughout the country, as well. To stay competitive in today's collegiate market, Sherman College should plan to aggressively address the challenging and diverse needs of our students through the effective use of technology. A goal should be to increase academic achievement at Sherman College with technology in ways that provide quality instruction while supporting the acquisition of higher-order skills by all students. While supporting the institution's mission of being the leader in bringing straight chiropractic to the world, perhaps academically we should also envision our school as a community of learning where students obtain competitive skills, become life-long learners, and prepare to function effectively in a technological society, which is especially prevalent in the health care professions.

Today, in the 21st century, chiropractic graduates are faced with entering a profession that literally demands and commands office computerization. Documentation standards and protocols, insurance, billing, and patient data is all subject to nearly regulatory digitalization. In the near future, there will be little data that will be handled solely in paper form. For our institution to shy away from encompassing technology during the instructional and learning process sends a less than responsible message to current students as well as prospective ones. It is a disservice to future chiropractors graduating from Sherman College to have missed an educational experience that would have helped prepare them to function effectively in a technological society.

The International Society for Technology in Education (ISTE), in collaboration with a wide variety of curriculum and educational specialists, has developed international standards in technology for teachers and students. These standards were adopted for the K-12 grade levels, and are used internationally to establish policy and curriculum within school districts. Based on these standards, when Sherman faculty are compared in basic literacy skills and technology implementation in the classroom with K-12 instructors, we fall embarrassingly short in every section.

To say that Sherman College's need for an educational technology program and director is overdue, is, frankly, an understatement. To expect existing technology departments to handle an area out of their realm of expertise is detrimental to the academic goals and mission of any college. Obtaining qualified personnel in the area of instruction, personnel who come from an academic background and understand pedagogical aspects of technology and instruction, is crucial to the survival and growth of any institution in the 21st century.

To use technology effectively in the classroom, educators need to be fluent in and fully understand the uses of current technology that support pedagogical and curricular issues. They must enhance their skills through development programs, collaboration with their colleagues, and partnerships with the community. In order to achieve this, there is a need to provide faculty development that enables educators to plan, implement, and revise technology enhanced curriculum. To meet this end, instructors at Sherman College need development to learn how to use new software, integrate it into the current curriculum, and create new, engaging curriculum. There is also a need for faculty development in the area of information sharing and collaborative work with peers. Most importantly, to tie this together and promote cohesiveness among course webpage implementation, there is a need for an online course management system that is available for individual faculty interface.

Sink or swim…in the past, teachers have had to fend for themselves regarding their professional development and online technological needs. It is time for faculty development programs to be designed for more than one size fits all. Sherman College needs to provide a development program that will sustain our teachers in technology and help them develop curriculum with motivating, integrated technology applications and a reliable course management system.* This will enable them to help our students become problem solvers, critical thinkers, decision makers and proficient users of technology.

Having assumed the role of Instructional Technology Facilitator for the past year, my assignment was to create course web pages, initially to house the syllabus for each course, and then, to implement course material online for faculty that were interested in moving forward with a technologically enhanced course. Obstacles that preclude the continuation and growth of this effort are as follows:

- Lack of administration recognition and support for educational technology as a needed and separate department from information technology
- Lack of technology (Course Management System) for instructor's to update their own web pages; edits and uploads must go through me. (We currently have 47 fulltime faculty members.) Cumbersome to faculty who need edits ASAP.
- Previous attempts at installation of an easy Course Management System (CMS) on our servers at Sherman with the Information Services department have failed.
- Faculty frustration at having no simple course management system in place which, in turn, causes apathy surrounding integration of education technology.
- Lack of faculty's time or inclination to self-educate in webpage design.
- Absence of budget, supplies, and support to create digital media course material.

To this end, a simple, flexible, yet robust Course Management System is needed. Best practices among institutions suggest that home-grown solutions, like our current one, are outdated and frustrating, at best. Many institutions have turned to Application Service Providers** (ASP's) to provide for their course management needs. Online course management companies such as Blackboard and Web CT are among the most popular. They, however, are also outrageously expensive. Licensing alone, for Blackboard, starts at $50,000 for small institutions. There are more fees added to licensing, and at this point, Blackboard and Web CT have been ruled out due to their expense.

In the last several years, ASP's have begun marketing more Course and Content Management Systems specifically designed for smaller institutions as well as elementary and high schools. One such company, Edufolio***, (edufolio.com) offers a simple, yet flexible solution to our needs. Edufolio has had recent converts from Blackboard and Web CT in Duke University and UNC – Chapel Hill. This is a very simple and intuitive system to use.

The Edufolio application is housed on the service provider's servers so ease of updating the actual application software is the responsibility of the providers. This is a seamless solution. Use of ASP's are growing as institutions realize the demands on their own Information Technology departments are straining campus-wide service. Applications that require daily maintenance and support from seasoned professionals are now being outsourced, as a rule. Institutions see outsourcing such projects as a positive budgetary move since no additional personnel, servers, software, downtime during learning-curve or upgrades is needed.** Application Service Providers handle all of that. Students and faculty are able to access a reliable application without constant mishap and loss of information. The point person contact for campus support, if needed, would be the Director of Educational Technology.

* Appendix Three contains a relevant article entitled "Designing and Implementing Professional Development" which underscores the necessity for a sustaining and compelling program in this area.

** Appendix Four contains a relevant article from digitaltrends.com which describes the usage and need for Application Service Providers.

** Appendix Five contains Edufolio's product and features list.

Organizational and Management Recommendations

The hiring of a fulltime Director of Educational Technology would require an addition to the technology governance on campus. Ideally, and according to best practices among institutions of higher learning, the educational technology position best fits under the Academic Affairs umbrella. The nature of educational technology is a classroom and instructional endeavor. This is not to say that educational technology personnel don't work in collaboration with information technology resources when applicable; however, educational/instructional technology is mandated by curriculum and faculty/student needs, not by the business and technology division. Put another way, pedagogical issues, whether they be "old-school" or 21st century, are not of primary interest to business and finance, whereas they are the appropriate domain of the academic affairs department.

Budget Proposal

2004 Educational Technology Budget Summary		
Projects	**Description**	**Total Cost**
Director of Educational Technology Salary	Full Time Position Please see job description	$42,000.00
Course Management System	Edufolio	$24,000.00
Software	DVD Studio 2 – 500. Photoshop 7 – 600.	$1100.00
Hardware	Mac Powerbook G4 with service contract (needed for digital media rendering)	$3000.00
Supplies	Storage media: Blank CDs (2 spindles of 100 at $40) = 80. and DVD's, (2 spindles of 50 @ $98) = 196. Media labels (2 packs of 300 @ 50.) = 100.	$376.00
Total	...	$70,476.00

Hardware Considerations

One of the functions of the Director of Educational Technology is to transform current classroom content into digital media where appropriate. The industry standard for achieving this is to use the Macintosh platform rather than the PC. The Mac Powerbook G4 (current specifications to be determined at time of purchase) contains all the hardware tools needed to produce video using digital formats and computer based editing systems. Needs in the digital media area are specific and substitutions are not advisable.

Outcomes Assessment

The goal of this newly created position will be to maximize return-on-investment that Sherman College has made in educational technology resources. The Director of Educational Technology will encourage, support and foster systematic integration of technology into the curriculum.

It is necessary to evaluate educational technology capability relative to the operational needs of the college. The acquisition of technology is not a goal in itself and the evaluation of the effectiveness of this position cannot be solely based upon numbers and types of equipment. The degree and the effectiveness of the integration and utilization of educational technology into the learning environment to facilitate the teaching and learning of course competencies will be used.

Appendix 1

Job Description

Position Title: DIRECTOR OF EDUCATIONAL TECHNOLOGY

Reports To: Vice President for Academic Affairs

Classification: Level II (Exempt)

Primary Function: The Director of Educational Technology will provide vision, leadership, and management for the support of educational technologies into the teaching and learning environments at Sherman College. The Director of Educational Technology will also implement a comprehensive faculty development program to encourage the thoughtful application of technology in the classroom and on the web.

Key Duties:

1. Directly support the development and technical usage of web-based course using learning technology tools based on current instructional design methods.

2. Provide one-on-one and small group consultation with faculty regarding online course development, classroom-enhanced technologies and best practices for teaching with technology.

3. Develop and coordinate comprehensive faculty development program for use of educational technologies in the classroom.

4. Design and develop online and hard copy tutorials.

5. Suggest, create, review, and edit instructor training modules, documentation and materials in a variety of media with regard to online technologies.

6. Develop and create multimedia, including, but not limited to, streaming media (Windows Media Player®, QuickTime®) when and where needed.

7. Monitor emerging technology trends that will affect the academic environment.

8. Initiate new ideas for hardware, software and procedures, as well as review current resources to meet educational technology needs of faculty.

9. Maintain up-to-date knowledge of and best practices.

10. Draft policy with regard to the implementation and use of educational technology

11. Manage budget and staff, if any, of department

Required Knowledge and Skills:

1. Bachelor's degree in education or related field; two-years of experience designing instructional materials in higher education; demonstrated knowledge of and experience with web-based educational technologies.
2. Teaching experience at the college or university level with substantial knowledge of theory, practice and current trends in pedagogy.
3. A clear and balanced vision of how technology can be used in support of teaching and learning.
4. At least two years experience in designing, implementing and managing web site content.
5. Knowledge and experience with streaming audio and visual formats including Real Server®, Windows Multimedia Server® and QuickTime®.
6. Ability to learn new web and authoring technologies relevant for website development.
7. Knowledge of one or more current web markup or scripting languages.
8. In-depth experience with html editors such as Dreamweaver and/or FrontPage.
9. Excellent verbal and written communication skills; ability to interact professionally with a diverse group of users and support staff.
10. Demonstrated public speaking skills.
11. Attention to detail and organization; excellent multitasking skills
12. Proven ability to set and accomplish goals.

Appendix 2

Faculty Technology Usage Survey

31 out of 47 fulltime faculty responded to this online survey administered July 29th – August 7th, 2003. Respondents were provided a link through email with which to log on and complete the survey.

Two questions required participants to between multi-choice answers; there was also a voluntary comments section.

Results are tabulated in percentages.

Question: What technology do you use in your teaching and what technology would you like to use in your teaching?

	I use it now	I don't use it now, but I would like to use it	Not interested
Email	61%	26%	1%
Webpage	26%	61%	1%
PowerPoint	55%	39%	-1%
Internet Search	68%	23%	-1%
Tech classroom	42%	52%	-1%
Web-based Notes	22%	71%	-1%
Web-reference Links	58%	39%	-1%
Forum	1.3%	81%	1.6%
Streaming Media	1.6%	68%	1%
CDs	23%	68%	1%
DVDs	-1%	84%	1%

Analysis: Results from this pool of respondents indicates that the most prevalent technology used in instruction at Sherman is internet searches, second is email usage between instructors and students, and third is the use of online website reference links. Use of PowerPoint ranked fourth.

Faculty indicated a strong desire to use, if not already using, most all of the technological tools listed. Approximately 1% of faculty members surveyed appear to have no interest in including technology in their courses.

Appendix 2, continued

Question: Assuming you would like to use more technology in your teaching than you do now, use a 5-point scale to rate the reasons that are preventing you from doing so.

	Not Important	Less Important	Somewhat Important	Important	Very Important
Lack of training	-1%	-1%	22%	32%	32%
Lack of convenient times for training sessions	-1%	19%	32%	32%	1.3%
Lack of time to learn	-1%	1.3%	26%	35%	22%
Low comfort level with technology	26%	29%	22%	1.3%	-1%
Lack of suitable high tech classroom(s)	-1%	1.6%	26%	32%	1.3%
Lack of interest or support from colleagues or administrators	26%	23%	29%	1%	1%
Lack of technical support	23%	1%	42%	1.3%	1%
Lack of appropriateness to my discipline	26%	23%	39%	-1%	-1%

Analysis: Results from these questions indicate that the respondents consider lack of training, training times, and time to learn the most prevalent reasons why they are not using more technology in the classroom.

Lack of suitable high tech classrooms also ranked as an important factor in their exclusion of technology in their courses. Lack of technical support was significantly high area of concern.

Interestingly, the last question, "lack of appropriateness to my discipline," was not a concern, indicating that faculty are interested in learning the technology and applying it in some form in their instruction.

Faculty Comments:

I use overhead projector, because of location – student HC. I would use smart room if available in the HC.

Make smart rooms available in all classrooms.

More training sessions in computer skills.

Teach us how to use this stuff.

There's a smart-board in the computer lab that I've used once or twice. It's not an improvement over a regular white board for writing on, but it does some cool stuff when you use it as a web-page interface.

I've had significant problems with the computer hardware in the smart rooms. I understand those systems have been replaced, but I haven't had a chance to see if the new setups are more reliable. We need more of the smart rooms, my class couldn't be scheduled in one this quarter.

Find more reliable systems.

I teach my classes in a portable building in which all I can use is a video and it is very difficult to hear one at that!

Need training, and better technology. My office computer is a frustration now. I don't want to add frustration in the classroom or to my students with unreliable equipment.

Assign me a "babysitter" to assist me through the process.

Improve the smart room screen for projecting films. I have been using a television instead, but an improved larger screen would seem more appropriate when classes are large.

Develop extremely simple – step-by-step protocols (manuals) for each the technologies so that one could use them for learning on his/her own time. Time is of the essence and workshops are both time-consuming and too rapid. There is nothing inherently difficult about these technologies except the TIME needed for practicing these skills. I learn better on my own time.

Increase course preparation time. Upgrade office computers.

Increase technology workshops to inform/demonstrate and support staff with incorporating more technology within the classroom. Recognizing and allowing time for the development of instructional materials using current technologies.

Give me time to learn and develop technology.

Give me reliable technology.

More time to do it.

The smart rooms are intimidating only because there's no guarantee that the equipment will work and you waste valuable class time and professional authority in class "mucking" around with it. It is also not conducive to establishing technology protocols when one quarter you may be assigned to the Scallon building and the next quarter to the Taylor building where there are no smart rooms. We need more technology in the Taylor building.

Assign IT personnel to the Taylor building. In case anyone hasn't notices we have classes and a health center that operate on this campus after 4:30pm. Right now it seems as if all roads and funds run to the Scallon building.

Leave time to learn and develop, also inform us of opportunities and programs available. When you're in the trenches day in and day out you don't have time to search for those things.

Make the technology available.

Every faculty member should have his or her own computer. They (the computers) should also WORK!

Technical support. Technology that works.

Additional training and tech support.

Appendix 3

Article: Designing and Implementing Professional Development

Research (e.g., Showers, 1995, Wood & Thompson, 1993, Gusky, 1995) on professional development, has led to some clear findings. When teachers are passive participants in "one shot" in-service training sessions where an "expert" exposes them to new educational ideas, there is little likelihood that it will lead to a significant change in instructional practice. In fact, many teachers (McLaughlin, 1991, Fine, 1994) don't even see a connection between these events and their instructional practice. Some important implementation considerations that need to be acknowledged are the following:

- Professional development is not a one-time event but is instead ongoing and immersed in a strong support group of other learners who help and learn from each other.
- Teachers and administrators must be involved in the planning and implementation of the professional development.
- Providers must incorporate research-based adult learning strategies that include hands-on, concrete activities that directly link to a participant's every day responsibilities.
- On-going support must be built in that allows participants to obtain clarifications and guidance.
- Participant's knowledge and skills are acknowledged and the professional development builds on those skills and knowledge in ways that neither "talk down to nor frustrate" participants.
- Professional development is provided at times when teachers and administrators are able to focus on those tasks.

In addition, research conducted by NCREL (Fine et al., 1994) concluded that a research-based professional development framework can assist school leaders in the thoughtful planning, implementation, and evaluation of professional growth and development experiences. Five components that overlap, repeat, and often occur simultaneously were identified. They are:

- *Building a knowledge base* - Practitioners acquire new knowledge and information and build a conceptual understanding.
- *Observing models and examples* - Teachers study instructional examples in order to develop a practical understanding of the research.
- *Reflecting on practice* - Learners analyze their instructional practice on the basis of new knowledge.
- *Changing one's practice* - New knowledge is translated into plans and actions for instructional change.
- *Gaining and sharing expertise* - Teachers continue to refine their instructional practice and share practical wisdom with their peers.

Appendix 4

Article: Redefining Education

From: Trends shaping the digital economy, www.trendsreport.com, 2000.
Contains explanation and usage of Applications Services Providers (ASP's) in educational setting

Educators, content providers, policymakers and the high-tech industry have been partnering for more than two decades to bring the benefits of computer technology to the classroom. While the integration of technology as a teaching tool has been a gradual process, learners of all ages are reaping benefits at an exponential rate due to the increasing ubiquity of the Internet.

The vision of customized learning anytime, anywhere -- and a resulting education revolution -- has finally arrived. And education will never be the same again.

Nothing will ever replace the roles of teachers, parents, or direct peer contact in the education of students. But software and the Internet have obliterated the confines of the classroom, providing unprecedented access to quality educational resources regardless of the location of the student. The Internet has also brought together widespread communities of learners. This combination has empowered students of all ages to take control of their learning, making the concept of high-quality and individualized lifelong learning a reality.

The evolution of computer technology in the educational environment is revolutionizing educational perceptions, practices and structures. Technology is changing both the process, and the business, of learning.

The revolution marches on.

EDUCATION ANYTIME, ANYWHERE
HOW DO YOU SPELL B2B AND B2C

Already among the largest sectors of the U.S. economy, education presents one of the most dynamic and intriguing markets of the digital economy. In fact, Cisco Systems CEO John T. Chambers makes his confidence in the education technology market clear, "[Education] is the next big killer application on the Internet. It's so big, it's going to make e-mail look like a rounding number."xvi

With education accounting for about 10% of domestic GDP,xvii increasing access to the Internet translates to a substantial and ever-increasing share of the education market for companies offering technology-based education and training products and services.xviii Similar opportunities exist in the world market, including many developing countries that are taking advantage of technology to satisfy their educational needs. For example, the Asian market for online training and distance education is $6 billion and growing at a 25% annual rate.xix

This large and diverse market, combined with rapidly evolving technology, presents a virtually limitless number of e-learning business models. Many companies are partnering with established learning institutions such as schools, test preparation centers, and corporate trainers in the B2B context. Others are pursuing a B2C relationship, competing with established educational entities and striving for a direct relationship with the consumer.

But because learning is a continuous and lifelong pursuit, education technology companies may be able to pursue both models. They are taking advantage of the unique opportunity to translate B2B relationships into B2C customers. Companies that establish relationships with students through their K-12 school environment can build lifelong e-learning and e-commerce customers.

Education technology companies also face the challenge of developing realistic customer-supported revenue models. Companies may charge customers directly through subscription or licensing fees, or rely on indirect revenues through advertising and sponsorships. Whatever the model, companies are also having

to address societal concerns such as privacy, advertising and commercialism.In any case, the Internet's expansion of the school day to the home creates the opportunity for providers to leverage the B2B model to reach the B2C market.

B2B

Among the many B2B models, many companies are providing their own content and instruction to learning institutions via the Internet. K-12 education portals such as bigchalk.com provide direct access to content and curriculum, often customized to meet a school's specific needs and increasingly aligned with state standards. The most comprehensive portals enable schools to communicate with parents, enhance parents' ability to guide their children's studies at home, and provide cost-effective student information management and assessment tools.

K-12 schools, which often face limited IT support budgets, are also primed to take advantage of application service providers (ASPs) and e-Commerce marketplaces. For example, several companies offer online procurement systems for educational software and traditional content, allowing schools to reduce costs through on-line aggregated purchasing, tracking, and authorization. Promises Simplexis.com chairman and former U.S. Secretary of Education Lamar Alexander, "This is probably the most promising area for saving real dollars to ever come along to public education."xx E-learning companies may be best positioned to address these traditional B2B services through complete Internet solutions.

Alternatively, educational and corporate institutions may employ companies as agents to make available their own traditional products and services available to existing students and employees. Traditional training providers are also partnering with companies to expand and enhance services to their corporate clients. Blackboard's latest offering, for example, is a comprehensive and flexible e-learning software platform that provides institutions with online communities, including course delivery and management tools.

B2C

Perhaps the most dramatic change in education is found in the B2C arena. Many companies are combining traditional curriculum of colleges and training providers with the most advanced e-learning tools to create virtual learning and training communities available directly to consumers. Such models directly challenge traditional education, but open the door for individual consumers eager to take control over their own learning experiences. Home-schooled children and their parents are also key beneficiaries. The Internet allows all children access to unprecedented resources, from educational content to customized assessments.

But the most promising aspect of the B2C market may reside with the life-long learning market. Unext.com has licensed curricula from elite schools such as Columbia and Stanford and combined it with the company's own e-learning tools. Offered online to individuals seeking to further their career education, such arrangements enable institutions to reach previously untapped and often ignored markets. Unext.com has leveraged the existing expertise of established institutions and brought it to educational customers that would likely be otherwise unable to benefit. Similarly, Fathom.com brings together the Smithsonian Museum of Natural History, the British Library, Columbia University and others to create a global public library of knowledge and educational offerings. And last year, Jones International University became the first purely online college to gain accreditation from a regional board.

As business models evolve, those that most quickly and effectively respond to the new educational environment are likely to succeed. **Because few technology or education providers yet possess the resources and market access to operate independently, education-industry and industry-industry partnerships are especially critical. Those companies that blend quality content, value-added technology solutions and knowledge of the intricate education market will create the benchmarks for success over the next several years.**

Appendix 5

EDUFOLIO Price Quote, Product and Features List

EDUFOLIO Product Overview

Edufolio is many products wrapped into one integrated package, featuring:

- Accessibility features
- Assessment tools
- Calendar
- Discussion forums
- Email/messaging system
- External web services
- Grading system
- Polls
- Portal-based access
- Portfolio features
- Shared authoring
- Student tracking
- Surveys
- Website builder
- Web-based access

Edufolio is both an LMS and and LCMS

LMS (Learning Management System)

--An LMS tracks users/learners across different types of activities from readings to homework to assessments.

LCMS (Learning Content Management System)

--An LCMS delivers content to learners as they need it. For example, an instructor can create a quiz and let the system know that it applies to the end of a certain unit. When learners arrive at the end of that unit, they will automatically be presented with the quiz.

EDUFOLIO PARTIAL FEATURES LIST

WYSIWYG Editor

Our what-you-see-is-what-you-get text editor looks and acts just like Microsoft Word—so if you have ever used a word processing program before, creating webpages will be a snap. You can insert (and upload) images from your local machine or a disk quickly and easily. Ever tried to make a table in html? With Edufolio, all you have to know is how many columns and how many rows you want. Do you already have something in Word that you want online? You can copy and paste this material onto the website without losing any of your formatting.

Audio/Video Recorder

Students have different optimal learning strategies—a student may learn best by reading, doing, hearing, or seeing. Edufolio makes putting your voice or video on your website easy. Whether you want to give oral instructions to a student, add narration to a slide show, or teach good foreign language pronunciation practices, Edufolio will work for you.

Text-to-Speech

If you don't have a microphone or don't want to record your own voice, you can still "talk" to your students with Edufolio by using our text-to-speech engine. We offer male and female voices in English, French, German, and Spanish.

Slide Builder

Most of us have learned the same way—a teacher in front of the classroom talks as s/he writes on the chalkboard. One of the biggest misconceptions is that teachers can no longer adopt this tried-and-true method in online education. Edufolio allows you to build step-by-step lessons that take a student from A to Z with text and voiceover instruction. You are not limited to simple text—you can use different types of media such as math, graphs, audio, video, or images.
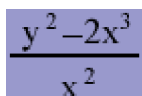
Streaming Audio/Video

You can have some of the world's best content on your website—but it won't do any good unless your students can access it easily. All Edufolio multimedia content is streamed, so even students on 28.8-baud modems won't have to wait for downloads and will be able to access the content immediately.

WYSIWYG Math Editor

Putting mathematical expressions on websites has always been a challenge. Inevitably, many users have started to use machine or "cheater" math for the web. Edufolio doesn't make your student settle for this:

y^2-2x^3/x^2

because you can do this:

$$\frac{y^2-2x^3}{x^2}$$

The math WYSIWYG editor makes it easy to put math (including mathematical graphs) online.

Image/File Upload

Upload images or files to your webpage or module with ease. Simply browse to your content on your local machine and click "upload," and the website does the rest. If you upload a Real video, it will automatically be available as streaming video; if you upload a Flash movie, the site will allow it to display correctly in your module; if you upload a .doc, .xls, .ppt, or any of a host of other files, the site will categorize the file and mark it so that your students know exactly what they are looking at.

Discussion Forums

Use our class-based or website-based discussion forums to continue discussions outside of the classroom and to foster collaborative learning. You can create as multiple forums, and you can track user statistics either individually or as a whole. Special discussion forum features allow you to use the WYSIWYG editor (perfect for copying from Word or inputting accented characters), upload items, or use the math editor to put a math problem into the forum.

Collaborative Learning Tools

Portfolios/dropbox allow students to upload files (documents, presentations, math, etc.) that the instructor and class members will be able to view and comment on.

Text-to-Speech allows students to practice pronunciation in English (ESL), Spanish, French, or German.

Our Voice/Video recorder allows students to record audio and video files that they can submit to the instructor or their fellow students.

Video features

You can use the video tools to broadcast a live class to students, record a class for students to watch at any time, or have online video conferences with up to 25 participants.

Communication Tools

Online learning systems sometimes overlook communication among others, including teachers, students, parents, and administrators. Edufolio avoids this by providing many ways for system users to contact each other. Email generators, discussion forums (mentioned above), real-time chat, and whiteboard features allow users to find their favorite ways to keep in contact with each other.

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ASP (Application Service Provider) Model

Instead of having to download, install, and run a program on your local machine, you can run software remotely using an Application Service Provider, or ASP. Because the software runs on the service provider's machines, you do not have to configure the software for your system, and you can access the software through any computer with an internet connection.

Benefits of an ASP

There are many benefits to using ASPs including cost, user support, reliability, data retention, and accessibility.

- Cost

When clients purchase an on-site LMS/LCMS, they have to purchase servers (generally clustered, to provide backup and redundancy) to run the software as well as a database like SQL Server or Oracle and clustered servers to run them on. Prices can skyrocket--this setup would cost a minumum of $50,000 in hardware and $65,000 in software. With the additional cost of one or two people to run the system, this turns into a major investment. ASPs leverage the power of shared computing so that each user (school or business) pays only a portion of the cost of the data warehouse.

- User Support

An ASP is like a piece of software that is continuously monitored by a staff of experts. These people ensure that the system is running 24/7 and that it is optimized. They also provide user support, and because the software is running on the company's own servers, they can quickly and efficiently address your concerns.

- Reliability

If you have an essential piece of software installed on your computer and it breaks, you either need to get the machine fixed or install your software on a new machine immediately. With an ASP, you simply use another computer with internet access and you're back in business.

- Data Retention

You are protected from data loss with an ASP. Because all of your data is stored on the host's computers, you do not have to worry about user-end data backups. ASPs have redundant hard drives and processors, and the data is also backed up in a different facility.

- Accessibility

One of the most important benefits of ASPs is that they can be accessed from anywhere with an internet connection. You do not have to install software or transfer data you need to each computer you use.

Read Article About ASPs and E-Learning

http://www.aspnews.com/trends/article/0,,10571_1159611,00.html

Sept. 4, 2003

Joy,

It was nice chatting with you the other day about Edufolio and your needs. It is always very interesting to me to talk to people about price, too. For those who know the price of Blackboard, we seem very affordable. But, not knowing the prices, it really does sound like a lot of money.

As I mentioned, we are trying to grow our customer base so are offering reduced rates right now. We also like the idea of getting LCMS software to smaller institutions--a group the market leaders have obviously forgotten as evidenced by their pricing structures.

In any case, if, as we discussed, you will do tier 1 and 2 support*, we can offer you a yearly price of $24,000. That includes the full functionality of the system including audio/video conferencing, live classroom, unlimited courses, etc. It also includes tier 3 support and, of course, all upgrades.

As you can see, I tried to lower the price from what I mentioned on the phone. Let me know if you have any questions.

Regards,
Brandon

Brandon S. Lee, CEO
Terra Dotta

Phone: 919.929.8400

http://terradotta.com
http://edufolio.com

* Tier 1 and 2 support consists of basic help functions, such as "how do I log in?". This is simple, basic user interface information that you would be trained in before system implementation.