CTEDTECH
Connecticut Commission for Educational Technology

Technology and Learning in Connecticut

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Annual Report

Recommendations and Progress
on the Attainment
of Statewide Educational Technology Goals

Report to the Standing Committee of the Connecticut General Assembly

Recommendations and Progress
on the Attainment of Statewide Educational Technology Goals

As required by law, the Commission for Educational Technology shall report annually on its activities and progress made in the attainment of the state-wide technology goals, and provide recommendations to the joint standing committee of the General Assembly having cognizance of matters relating to education and appropriations and the budgets of state agencies, the State Board of Education, and the Board of Governors of Higher Education. Our report of statewide educational technology progress made in the past year as well as recommendations for the immediate future are respectfully submitted here.

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Executive Summary

Progress

Millions of dollars continue to be saved by municipalities through Connecticut Education Network (CEN) Internet connections, E-Rate funding, and through statewide and cooperative purchasing and services.

A vast array of offerings for Connecticut citizens of all ages is available through iCONN, the Connecticut Digital Library, including newly-added digital books and *Discovery Education Science* – online, interactive multimedia resources that engage middle school students in the study of science. Increased online learning opportunities are also available for higher education and adult education students.

The Tech-4-All-CT program continues to provide refurbished computers, software, high-speed Internet connections, and training to low-income families of school-aged children in four Connecticut cities. Over 300 Connecticut families have "crossed the digital divide" thanks to this program.

Through a collaborative effort, network disaster recovery programs have been instituted at several public and private higher educational institutions.

State grants continue to be awarded to school districts for *Computer Assisted Writing and Testing*, allowing the purchase of mobile computer labs and online applications that provide feedback to students (via artificial intelligence) on their writing. Federal grant funds were used to provide hundreds of days of educational technology professional development to teachers throughout the state via the six regional educational service centers (RESCs). The American Recovery and Investment Act (ARRA) "stimulus" funds were provided to the state to distribute to school districts to help them integrate technology into their schools.

Throughout the state, educators in public schools, faculty in higher education, and staff in public libraries continue to explore and implement innovative uses of technology to advance learning opportunities for their constituents. Uses of subject specific hardware, online courseware and applications, Web 2.0 tools, and other technologies are positively impacting teaching and learning happening in Connecticut.

Challenges

CEN Funding: The CT Legislature recognized the importance and value of the CEN to Connecticut educational institutions and libraries, and in 2009 provided sufficient funding to keep it operational. However, the CEN is aging, and essential components will need to be upgraded and replaced in the very near future. Funding has not been available for these critical changes yet, but it must be found soon if the CEN is to continue to provide indispensable connections to schools, colleges and universities, and libraries in Connecticut.

Internet Connectivity: Although the CEN has provided every school *district* with high speed Internet connectivity, a significant number of middle and elementary schools in the state continue to have less than optimal connections to the CEN. Also, though considered individual school districts, charter schools were not included in the original CEN "build" and sixteen charter schools are still <u>not</u> connected to the CEN. A number of libraries also continue to operate with less than optimal CEN connections.

PEGPETIA Grants: The Public Educational and Governmental Programming and Educational Technology Investment Account (PEGPETIA) grant program must, by statute, devote 50% of its funding to educational technology initiatives. However, the statutory placement of the grant program within the DPUC has lead to a grant program that emphasizes the creation of "community access programming" that is delivered via cable and other entities overseen by the DPUC, rather than a more varied set of educational technology initiatives that could directly benefit local schools. The proposals that

have been funded under the educational technology portion of this program have mainly focused on video production and related equipment. This emphasis has created unintended barriers to the funds for many educational institutions that have proposed valuable educational technology projects that do not have this focus. Decisions for funding under the PEGPETIA program have also disallowed any funds for professional development, which is an essential element to the effective implementation of any educational initiative.

During 2009, the PEGPETIA program had significantly fewer dollars to distribute. Funds have been lost through the state's Deficit Mitigation Plan as well as through decreased taxes (which fund the program). Despite the lower amount of available funds, the DPUC has been able to keep the program going and has continued to award grants, though on a smaller scale.

Equity: Educational technology resources and equipment availability vary greatly by school district. Offering educational materials and other resources through the CEN could provide greater equity statewide while offering huge cost savings.

Professional Development: To create our next generation educated workforce, public school teachers and college faculty are in need of more opportunities for learning how to integrate technology powerfully into their curricula. Preservice educators and their faculty also need these opportunities. National research has shown that teacher/faculty professional development and support for using technology in teaching and learning is key to its effective use in the classroom.

Recommendations

Educational technology can create enhanced learning experiences for Connecticut students and increase skills useful in our expanding global economy. With consideration of the difficult fiscal circumstances facing Connecticut at this time, and based on Connecticut's educational technology needs and progress to date, the Commission makes these recommendations:

1. Provide for needed CEN equipment upgrades and continued operations.

2. Support the distribution of statewide educational resources through the CEN.

3. Work with teacher preparation institutions to ensure that all new teachers have skills in teaching effectively with technology.

4. Designate educational technology funds within state supported education programs.

5. Provide support for online courses for students in economically strapped school districts.

6. Fill the position of CEN Content Manager.

A description of these recommendations is included in the full report. A more detailed narrative of the progress made this year toward the accomplishment of state educational technology goals is also provided.

Activities and Progress - Attainment of Statewide Educational Technology Goals

This section of the report describes efforts and progress made in 2009 toward the attainment of statewide technology goals for education. Included throughout this section are highlighted examples of how technology is being used effectively in our schools, libraries, and higher education institutions.

CGS Section 4d-80 lists six statewide technology goals:

1. Connecting all institutions of higher education, libraries, public elementary and secondary schools, regional educational service centers and other parties through a state-wide high speed, flexible network that will allow for video, voice and data transmission.
2. Wiring all school classrooms and connecting them to the Internet and to the state-wide high speed network through wired, wireless, or any other digital transmission technology providing high speed connectivity;
3. Providing access for all public schools, public libraries and libraries at institutions of higher education to a core set of on-line full text resources and to the ability to purchase collaboratively for other collections in order to maximize buying power;
4. Ensuring, in cooperation with the State Board of Education, competency in computing skills by the sixth grade for all students;
5. Ensuring competency in specific computing skills and the integration of technology into the curriculum for all public school teachers;
6. Ensuring that institutions of higher education offer a wide range of course and degree programs via the Internet and through other synchronous and asynchronous methods;

Progress toward the attainment of each of these goals follows.

1. Connecting all institutions of higher education, libraries, public elementary and secondary schools, regional educational service centers and other parties through a state-wide high speed, flexible network that will allow for video, voice and data transmission.

CEN Connectivity

In addition to providing enhanced Internet access and opportunities for virtual collaboration, Connecticut's provision of CEN connectivity to public school districts continues to save millions of dollars statewide each year. Additional savings also have been realized by public libraries.

There are a total of 227 individual CEN connections to Connecticut's public K-12 school districts, including the state's technical high schools. As CET policy dictates, it is each district's responsibility to connect the rest of its school buildings to its local CEN-connected building.

It is important to note that only two of the state's sixteen Charter Schools, The Bridge Academy and Common Ground High School, are now connected to CEN. Additional resources are necessary to complete connections to the remaining sixteen.

Through the "Sponsored Participant Interconnection" policy, adopted by the CET in 2006, CEN has provided connectivity to the following participants: The Gunnery, Suffield Academy, The Ethel

Walker School, The Connecticut Center for Advanced Technology, Choate Rosemary Hall, The Williams School, Pomfret School, Hopkins School, Kent School, and the Connecticut Science Center.

CEN maintains connections to 180 library sites, including all 166 principal public libraries.

There are a total of 53 individual CEN connections to higher education campuses and facilities, including Connecticut's Department of Higher Education, 14 of the state's community colleges campuses, and the Community Colleges Systems Office. In the last year, a new fiber connection was completed to Gateway Community College's Long Wharf Campus in New Haven.

The state filed applications under the Federal e-Rate program for CEN connections to schools and libraries, and received over $3 million in e-Rate discounts for fiscal year 2010.

CEN Upgrades

Although available funds were insufficient to support all needed equipment upgrades and replacement, cost reductions in connectivity expenses allowed for the replacement of some essential Network equipment. CEN staff remain adamant that further equipment upgrades and replacements must be made in the very near future if the CEN is to continue to provide uninterrupted service to its community.

Funding must be made available for CEN Upgrades

Disaster Recovery

CEN completed three initiatives last year relating to Disaster Recovery. First, CEN was able to establish back-up Internet service for Core-CT, the State's financial, human resources, and payroll system, in the event of a primary Internet service outage. Secondly, in collaboration with NEREN (Northeast Research and Education Network) CEN staff developed a disaster recovery service, *Safe Harbor*, for Connecticut's higher education institutions. The *Safe Harbor* program enables Connecticut's colleges and universities to back up data using servers in a facility in Springfield, MA. Currently CEN, Fairfield University, Sacred Heart University, Wesleyan University and Quinnipiac University, have installed equipment at the *Safe Harbor* site. Nine others, including Connecticut College, Rensselaer at Hartford, Saint Joseph's College, University of Hartford, Wesleyan University, the CSU System Office, the University of Bridgeport, Connecticut's Community Colleges, and Charter Oak State College, are preparing to utilize the service as well. Thirdly, CEN acquired a back-up site for its content filtering and DNS services at Three Rivers Community College in Norwich. The Norwich site install has been completed and tested. CEN conducted a live failover test of the site in December.

Content Filtering

Two years ago, CEN implemented a new filtering system called *8e6*. A number of school districts have benefited from CEN's *8e6* license purchase and have decided to invest in their own local filtering appliance. Approximately 90% of the school districts are using *8e6* as provided by CEN, either with their own local device or through our centralized solution. Feedback continues to be positive for the *8e6* filter.

CEN Training

CEN staff continued to offer a variety of training opportunities for IT managers at the local network level. These training sessions are now available via streaming video from the CEN Website. A CEN

wiki was also created and is available for information dissemination, collaborative resource sharing, and online discussions related to CEN operations and support.

2. ***Wiring all school classrooms and connecting them to the Internet and to the state-wide high speed network through wired, wireless, or any other digital transmission technology providing high speed connectivity.***

Connections Beyond Those Provided by the State

The state provides a CEN connection to every school district, but it is the responsibility of the district to provide connectivity from the CEN "drop" to all schools within the district. A significant number of elementary and middle schools (up to 35%) have been unable to complete infrastructure upgrades to ensure optimal connectivity.

In 2007, FY '06 state bond funds totaling $5 million were tentatively awarded through an RFP process (pending final approval and release of funds from the Bond Commission). 47 school districts are awaiting these awards, which range from $6000-$150,000 (average award ~$92,000) to improve local infrastructures and support expanded or enhanced CEN connectivity. An additional $2 million each year was allocated in FY '07 and FY '08 but has not yet been appropriated. This funding would significantly help improve connectivity among Connecticut schools.

Despite limitations locally, the CEN has allowed many districts to achieve enhanced levels of connectivity and realize huge savings by being able to cancel previously held Internet and filtering contracts. Statewide, these savings amount to millions of dollars every year.

As of December 31, 2009, only two of Connecticut's 18 charter schools are connected to the CEN. Additional funding is needed to allow for the remaining 16 connections to be completed.

Wiring

In Connecticut, the level of classroom connectivity through either wired or wireless solutions is not exactly known. Although many schools still rely on "computer labs", the trend is to move Internet-connected computers into classrooms so that they can be used as needed during instruction and for learning activities.

Wireless connection points are becoming more and more prevalent in Connecticut schools, and are being installed as local technology plans direct and budgets allow. Generally, high schools are the first to receive improvements to classroom connectivity, then middle schools, and elementary schools are last to receive enhanced connectivity in their classrooms.

American Recovery and Reinvestment Act Broadband Technology Opportunities Program

In the fall of 2009, the state submitted an application for the American Recovery and Reinvestment Act Broadband Technology Opportunities Program (BTOP). Along with the Governor's Office and with input from several state agencies including the Department of Education, DOIT prepared the application requesting $109,750,451 to enhance broadband access in Connecticut. Specifically, these funds are intended to assist in connecting underserved communities, and target public safety, health, government, and education (through the CEN). The purpose of the CEN portion of the proposed project, which totals approximately $40 million, is to provide improved access to broadband Internet connectivity, including network equipment and user support, to Connecticut's K-

12 school districts, colleges and universities, and public libraries. The proposal seeks to connect sites that do not directly connect to the existing CEN Fiber backbone and face two major limitations: limited bandwidth capacity and lack of fiber redundancy. This project aims to delivery 100 megabits per second service to the community anchor institutions in Connecticut that currently lack this level of connectivity as well as the redundancy necessary to ensure uninterrupted broadband access, including Connecticut's K-12 school districts, colleges and universities, public libraries and public computing centers. In addition, a partnership with Connecticut Public Television will provide significant advantages of lowering costs and providing higher, more stable bandwidth than is currently available to provide health, education and other information to a wide audience. The project would extend 675 miles of new fiber optics, install the necessary hardware to support the 100 Mbps service, including three new hub routers and offer user support to all CEN members via DOITs Help Desk and 24/7 Network Operations Center.

As of the writing of this report, Connecticut's proposal for BTOP funds was still being considered.

3. Providing access for all public libraries and libraries at institutions of higher education to a core set of on-line full text resources and to the ability to purchase collaboratively for other collections in order to maximize buying power.

iCONN Overview

iCONN is part of the Connecticut Education Network. It provides all students, faculty and residents with online access to essential library and information resources. It is administered by the Connecticut State Library in conjunction with the Department of Higher Education. Through iCONN, a core level of information resources including secured access to licensed databases is available to every citizen in Connecticut. In addition, specialized research information is available to college students and faculty.

iCONN began in 2000 when the Connecticut General Assembly provided funding for the purchase of licensed information databases for Connecticut's libraries, schools and colleges. The Digital Library was one of several recommendations of then Lieutenant Governor M. Jodi Rell in the Fall of 1999.

The Goals of iCONN are:

- To ensure universal access to a core level of library and information resources for all residents of Connecticut through their public library, school, college, and from home.
- To help provide necessary information resources to every school in Connecticut so that all students are prepared to function in an information society.
- To provide information resources to the increasing number of students taking advantage of on-line courses at Connecticut's colleges and universities.
- To support the information needs of all Connecticut citizens.

One important component of iCONN is the statewide library catalog and loan system - *reQuest*. Currently, it contains over five million titles and 22 million holdings contributed by 441 libraries. Many public libraries in Connecticut use *reQuest* as their only cataloging system.

iCONN - Cost Savings for Connecticut
Over the next two years, the value of all iCONN databases to local communities will exceed *$81 million* while the cost to provide both iCONN and the statewide library catalog is only about *$5 million*. This huge savings is achieved through statewide contracts and delivery. (Source: http://www.iconn.org/cost_benefit.pdf)

A new strategy for obtaining iCONN databases this year will result in an annual savings of over $100,000 starting in FY 2010. The strategy combined all databases requests into a single bid request. The vendor selected was the least expensive AND was the highest scoring in the qualitative evaluation measures. Obtaining the databases from one vendor is key to the unified search strategy referenced later in this section.

During the protracted period of budget uncertainty, iCONN was maintained at a full service level by securing agreements from all vendors to accept partial payments during summer months and deferring balance of payments. Additionally, iCONN staff successfully secured agreements from some vendors to waive rate increases for the next contract renewal.

To support the library community's efforts to ensure full funding for iCONN, we developed a strong cost benefits statement (http://www.iconn.org/cost_benefit.pdf) and created a prominent link to it from the main keyword search screen.

A common Nelinet account was started (consolidating three accounts into one) for the State Library as a cost savings measure.

iCONN - Budget Status
Current budget holdbacks and cuts will result in reQuest ceasing operation by early spring 2010. This would close the statewide library catalog, and would mean the loss of several other services critical to iCONN's licensed databases: user authentication, hosting the iconn.org domain, 7 x 24 support for outages; training and support pages, and other important services. The loss of *reQuest* would be particularly hard on all those libraries for which *reQuest* is their only catalog, on the 212 libraries and their patrons who use the interlibrary loan system, and on the 198 libraries who rely on *reQuest* as a source of cataloging.

iCONN Usage
In FY2009, there were a total of 9,656,642 page views in iCONN. Of these nearly 10 million views, 30% were from public library patrons, 20% from K-12 schools, and about 50% from college users. The page views total represents a 6.4% increase over the previous year. iCONN reached the 8-year mark in April 2009.

As was stated earlier, *reQuest* contains over five million titles and 22 million holdings contributed by 441 libraries. In FY 2009, *reQuest* was searched nearly 1.7 million times. Over 200 libraries successfully lent 123,227 items through *reQuest*, a 12% increase over the previous fiscal year. Holdings in *reQuest* increased to 22 million items. With continued funding, reQuest will mark two decades of continuous service in calendar year 2010.

iCONN - Increasing Usability and Removing Barriers to Access
A new search strategy was enabled thanks to a single competitively-selected vendor supplying the vast majority of content and by securing that vendor's commitment to develop (at no additional cost)

an iCONN-specific master index to all iCONN content, including Connecticut's digital collections and other content available outside of their offerings.

iCONN staff also coordinated the participation of nine Connecticut libraries in a multi-state inter-library loan pilot project. Other participating states are New Jersey, Kansas, and Wisconsin, along with the Alberta (Canada) Government Library. The pilot began in October and will run for six months. Early results are positive and, pending successful completion of the pilot, the project will be rolled out in all Connecticut libraries as an optional feature of reQuest.

iCONN Content Changes:

This year, iCONN successfully launched Connecticut's first statewide, downloadable audio books service (currently with 1,567 titles), available with public library card number authentication. A detailed tutorial is available to guide users on transferring audio books from their computers to an iPod. The funding originally allocated to this program will allow an additional 600-700 more titles between now and October 2010.

Over 1500 Audio books added to iCONN's virtual collection

As a result of the recent package bid, the following additional content was included:

- Restored *What Do I Read Next?* for all libraries
- Extended access to *Biography Resource Center* and *Discovering Collection* to all academic libraries
- Added 50 e-reference books for all libraries

Consumer Reports, *Scientific American* and *Ranger Rick subscriptions* are no longer available because these titles are provided exclusively by the vendor who lost the bid.

Three digital collections of Connecticut materials were integrated into the master index that iCONN's PowerSearch searches by default:

- *Connecticut History Online* (CHO) (http://www.cthistoryonline.org/) is a digital collection of over 15,000 digital primary sources, together with associated interpretive and educational material. Now in its tenth year, CHO is embarking on a collaboration with the Encyclopedia of Connecticut History Online (ECHO) to serve the needs of scholars, K-12 and post-secondary teachers and students, genealogists, and the general public. It includes photographs, maps, broadsides, oral histories, manuscripts and more. The resources document events, people, and places that are part of the fabric of Connecticut and American social, business, political, educational, cultural, and civic life.

- *Connecticut State Library's Digital Collections* (http://cslib.cdmhost.com/) come from the Connecticut State Library, and the State Archives, and include court documents, law and legal materials, photographs of buildings and structures, farms, roads and bridges, and more. The documents and photographs are representative of the history and genealogy of Connecticut, and the business of state government and range from 1631 to the present day.

- *Treasures of Connecticut Libraries* (http://cslib.cdmhost.com/ctlibs/home.php) is a joint project of the Connecticut State Library and Library Connection Inc. The collections of the Bristol Public Library, Farmington Library, Hartford Public Library, Lucy Robbins Welles Library in Newington, West Hartford Public Library, and the Archbishop O'Brien Library at

St. Thomas Seminary currently comprise the "Treasures" collection. Collection items include a historical atlas, photographs and postcard images. New collections from CT libraries are added throughout the year.

These growing digital collections are a valuable addition to iCONN, which in turn will provide an additional access point and increased visibility for these collections.

Due to these holdbacks we were forced to reduce current expenses in iCONN by cutting some of the databases:

The following databases were eliminated:

For Academic libraries:

- CINAHL Full-text (CINAHL indexing remains)
- Campus Research

For all libraries:

- AP Images
- Boston Globe

The following newspapers were eliminated:

- Los Angeles Times
- Wall Street Journal (though continues to be available to academic libraries)
- Washington Post
- Christian Science Monitor
- New York Times

iCONN Awareness

A variety of efforts to inform the public about iCONN's services occurred during 2009. These included distribution of iCONN and Kids InfoBits bookmarks (depicted at http://www.iconn.org/ICONNBookmarks.aspx); multiple presentations and exhibits at statewide conferences, libraries and schools; publication of an online quarterly newspaper; Webinars

Other

An ongoing online user satisfaction survey was implemented, that is accessible to all users from the main iCONN start page.

4. Ensuring, in cooperation with the State Board of Education, competency in computing skills by the sixth grade for all students.

As with all other state departments of education and local school districts across the United States, the Connecticut State Department of Education is responsible for compliance with regulations included in the Federal *No Child Left Behind* Act. This Act states that schools must provide programs so that every student is technologically literate by the eighth grade. To meet these mandates, our SDE requires that districts describe how student technology literacy and assessment will be addressed. The SDE produced and continues to make available a CD with resources and a variety of examples for accomplishing the attainment and assessment of student technology literacy.

Federal Title IID funds were available to school districts to use for increasing achievement and technological literacy. About 30% of the $1.9 million Connecticut received through the Title IID program was distributed to districts by a federally mandated formula, resulting in $664,000 going directly to school districts to use toward technological literacy and other educational technology

efforts. Additional Title IID funds were made available through the American Recovery and Reinvestment Act in late summer, 2009, however these funds are not being distributed until early 2010 and thus will be included in the 2010 *Annual Report on Recommendations and Progress on the Attainment of Statewide Educational Technology Goals*.

Standards for Students

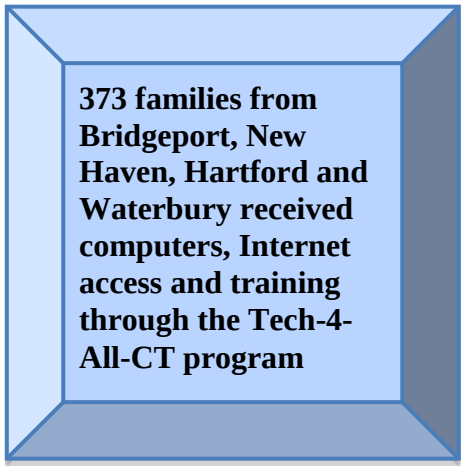
SDE has begun a review of the state's student technology competencies with the purpose of updating them to better reflect current information and technology literacy skills. At this time, school districts are being encouraged to consider use of the International Society for Technology in Education (ISTE) National Educational Technology Standards for Students (NETS-S).

School District Technology Plans

By July 1, 2009, all school districts in the state were required to submit to the State Department of Education 3-year district technology plans that will be in operation through June 2012. In addition to addressing infrastructure and professional development goals and strategies in their plans, districts had to describe strategies for helping all students to be technologically literate, and also how student technology literacy would be assessed. Approval of these plans was conducted by the State Department of Education. Approved plans are required in order to apply for eRate reimbursements.

Tech-4-All-CT

The extremely successful *Tech-4-All-CT* program has been funded by the Connecticut General Assembly for the past two years, and aims to lessen the "digital divide" by providing current computers, Internet access, and training to the homes of students from low-income families. It is hoped that the technology will help level the "learning playing field" by providing participating students with the educational advantages that technology can offer. The program provides training to family members, assisting them in gaining valuable computer skills that enable increased communication with their children's schools and involvement in their children's education.



Specifically, the program provides a computer, monitor, software, training, Internet access, and technical support to families. This enables extended learning experiences for students after the school day, allowing more opportunities for learning content, completing assignments and developing 21st century skills. The provision of training for family members (offered in both English and Spanish) allows them the chance to increase their own knowledge and skills, opening new workforce options to them.

Four Connecticut cities have been targeted in the *Tech-4-All-CT* program – Bridgeport, Hartford, New Haven, and Waterbury. With the program now in its second year, a total of 373 families have participated. This includes 59 from Bridgeport, 76 from Hartford, 127 from New Haven, and 111 from Waterbury. The program is implemented by *Concepts for Adaptive Learning* (CfAL), an independent non-profit organization based in New Haven.

PEGPETIA

The Public Educational and Governmental Programming and Education Technology Investment Account (PEGPETIA) was established by the Connecticut Legislature in 2008. Half of the funds are for the support of local community antenna television, video advisory councils, and public, educational and governmental programmers and studio operators to subsidize capital and equipment costs. The other half of PEGPETIA funds, as stated in Section 33 of Public Act 07-253, are to go to boards of education and other education entities for education technology initiatives. Because of the structure of the grant application and award process, many school systems are not able to successfully acquire these funds. The statutory placement of the grant program within the DPUC has lead to a grant program that emphasizes the creation of "community access programming" that is delivered via cable and other entities overseen by the DPUC, rather than a more varied set of educational technology initiatives that could directly benefit local schools. The proposals that *have* been funded under the educational technology portion of this program have mainly focused on video production and related equipment. This emphasis has created unintended barriers to the funds for many educational institutions that have proposed valuable educational technology projects that do not have this focus. Decisions for funding under the PEGPETIA program have also disallowed any funds for professional development, which is an essential element to the effective implementation of any educational initiative.

The educational technology portion of the PEGPETIA program could be amended so that one entity could acquire programming for all Connecticut educational institutions and deliver it statewide through the CEN.

During 2009, the PEGPETIA program had significantly fewer dollars to distribute. Funds have been lost through the state's Deficit Mitigation Plan as well as through decreased taxes (which fund the program). Despite the lower amount of available funds, the DPUC has been able to keep the program going and has continued to award grants, though on a smaller scale.

PEGPETIA Program funds could be used to acquire statewide educational resources and programming, providing equitable access to these resources at huge cost savings.

5. ***Ensuring competency in specific computing skills and the integration of technology into the curriculum for all public school teachers.***

Technology Standards for Teachers

School districts are being encouraged to consider use of the International Society for Technology in Education (ISTE) National Educational Technology Standards for Teachers (NETS-T). These internationally recognized and accepted standards describe technology and other 21st century competencies that today's teachers must acquire.

Each year, the CEN Website (cen.ct.gov) is infused with significantly more resources for use by educators and students. Using input from Commission members and Advisory Councils, the site has become a resource-rich online presence for the statewide network. Focused efforts have been made to identify, organize, and provide centralized access to free Web-based educational and library-related multimedia resources. Unfortunately, the person responsible for the CEN Website and content delivery left state service in August 2009, and the position has not yet been refilled. This vacancy provides a large void to the CEN community and results in the CEN resources and Website remaining static.

CEN Content
The following are some CEN content highlights that were added prior to the CEN Content Manager position vacancy.

Science Multimedia Resources
Last year, the Commission was able to provide a multi-year subscription via iCONN to *Discovery Education Middle School Science*, an award-winning collection of exemplary, engaging online science materials that include online virtual labs, video clips, simulations, reading passages and other content for all middle school students and teachers. All resources are aligned to Connecticut and national science standards.

These resources are now available to every public middle school student and science teacher in Connecticut until 2012. Also included in the content are web-based resources for student assessment and teacher professional development.

Usage of these materials continues to increase in many schools. Some school districts have even altered their middle school science curricula to incorporate these resources. During 2009, over 4500 teachers had created accounts and used the Discovery Education Middle School Science resources.

In September 2009, nine CT educators (from RESCs and school districts) received intensive training in the Discovery Education Science materials, and are now training other teachers throughout the state. A CT Discovery Educators Leadership group has formed and is meeting regularly, with the goal of assisting teachers in effectively using these resources to advance science interest and understanding among their students. Access to district and statewide user statistics will enable regional trainers to target schools most in need, as well as perhaps gain information on which teachers are most experienced in using the materials, and thus could potentially be tapped to assist with school, district, regional, or statewide training.

Financial Literacy Modules from UConn & CPTV
The Department of Higher Education awarded funding to the University of Connecticut School of Business and Connecticut Public Television to develop a series of interactive Web-based modules on financial literacy. The target audience for the project is Connecticut students in late high school and early college. The format of the modules is an interactive game show containing a series of videos with an engaging cast of characters, faculty-developed reading passages, and quiz questions. Topics include credit cards, cash management, debt management, identity theft, investments, credit scores and net-worth and budgeting. All seven modules were completed by late 2009 and are available at http://flip.ctdhe.org/fico-high.html. The modules include materials in English and Spanish.

Expanding upon the multimedia collections previously assembled, new resources have been added to the CEN web site from providers such as PBS, National Geographic, the National Archives, the U.S. Government, the BBC, and leading universities from around the globe. Resource types include: digital audio recordings of radio shows, concerts, and literary readings; copyright-friendly image collections; interactive timelines; royalty-free music; local and global podcasts; video clip collections; Animations & simulations; virtual tours; 3-D visual renderings; and digital historical primary sources.

Web 2.0 Tools

With today's "Read/Write" Web, content resources are not limited to materials produced by an elite few webmasters. Content resources now include the tools that allow anyone to contribute to the Web. In new sections on the CEN portal devoted to connecting, communicating, and collaborating via the Web, CEN users will find some of the best free tools for working together and generating their own content online.

In the last year newly added resources for Connecticut K-12 teachers and higher ed faculty include: faculty and class blogs; class project pages; digital media for professional development; Google Tools for Educators; educational social networking platforms, as well as research and guidelines on online social and educational networking; and tools and tutorials for creating podcasts and other digital content.

New additions for Connecticut elementary, middle school, high school, and higher education students were also added. These include student news Webcasts, online learning communities, collaborative wiki-based projects, creative programming tools and student project galleries, and audio and video from iTunes U (higher ed & K-12 versions), a virtual learning section that describes the opportunities offered by the Connecticut Virtual Learning Center, Virtual High School, and Virtual Learning Academy among others. Connecticut school administrators can use the CEN to view video of interviews with superintendents recognized nationally for their leadership in school advancement toward 21st-century learning as well as read and participate in blogs by Connecticut principals and superintendents.

Library Resources

A variety of resources for library media specialists and library patrons have been included in the CEN Website. These include: social networking platforms for library professionals; library conference video footage; and library blogs and podcasts.

State and Federal Grants

Connecticut received $1.9 million in the last year through funds from the Federal Title IID *(Enhancing Education Through Technology)* program. The Connecticut SDE distributed these funds through grants for the purpose of technology integration, including technology professional development for teachers.

Approximately one-third of Title IID funds went to Local Education Agencies (LEAs) that were eligible for Title I. The LEAs used the funds for supporting district initiatives for technology-related professional development, data management to inform educational decision making, technology use for the purpose of assessment, and to use proven learning and technology solutions.

Another third provided statewide professional development activities to assist districts in their effort to integrate technology and 21st century skills into the curriculum. This professional development was provided through the RESCs (Regional Educational Service Centers) and included sessions for all educators - administrators as well as teachers. In addition to regional workshops, over 200 days were provided directly to districts to assist them in their technology integration efforts.

The final third of 2008-2010 Title IID funds was awarded competitively to districts for the purpose of developing technology-rich *Assured Experiences* for grades 4-8. (An *Assured Experience* is an activity in which all children in a grade of subject area will be involved.) 13 districts received these grant awards, which totaled up to $65,000 each. The Assured Experiences they create will be made available to all districts throughout the state via the CEN.

Additional funds for Title IID became available to Connecticut in July 2009. These monies allowed for the partial continuation of a previously state-supported program entitled, "Computer Assisted Writing and Testing." that had been eliminated through a budget mitigation plan. This program provides learning benefits through the use of one-to-one technology and artificially intelligent online tools. The program has centered on middle and high school students' technology use, and examines how technology can be used in the teaching and learning of writing. A total of $450,000 was awarded to 9 of the 25 districts that submitted proposals in response to the RFP for grants under this program in 2009.

As part of the American Recovery and Reinvestment Act (ARRA), states received additional funds through the Title IID Enhancing Education Through Technology program. Connecticut received $4.6 million dollars in Title IID ARRA funds. States were encouraged to distribute these funds 100% competitively, but had the option to distribute as much as 50% on a formula (entitlement) basis. The Department of Education decided that in light of the very difficult fiscal year districts were facing, 50% of Connecticut's Title IID ARRA available funds would be distributed directly to districts on a formula/entitlement basis. The federally-required formula, based on Title I student data, provided between $45 and $364,291 to Connecticut school districts for a wide variety of educational technology uses, including a required 25% for professional development. To receive their portion, districts had to complete and submit an application describing their proposed use of these funds. The application was due on December 31, 2009. The remaining ARRA Title IID funds not provided through this formula/entitlement program will be distributed in 2010 through various competitive grants.

The American Recovery and Reinvestment Act program provided significant educational technology funds for CT school districts

iTunes University

In the spring of 2009, the Connecticut Distance Learning Consortium sponsored a statewide contract to access iTunes University (iTunes U), a free hosted service from Apple that allows K-20 institutions to offer easy access to educational content and multimedia objects (like podcasts), any time, day or night. Many of Connecticut's state and private higher education systems, as well as some of Connecticut's public schools, are beginning to explore the use of the Apple's iTunesU technology for distributing multi-media educational content to students.

6. Ensuring that institutions of higher education offer a wide range of course and degree programs via the Internet and through other synchronous and asynchronous methods.

Higher Education and Online Learning

In Connecticut's community colleges, state colleges, and public and private colleges and universities, online learning is becoming more and more prevalent. In some institutions, online course availability has nearly doubled, and many faculty members incorporate online aspects into their face-to-face classes.

The Connecticut Distance Learning Consortium (CTDLC) supports distance education efforts throughout Connecticut's education community. In higher education, there are 25 fully-online degree programs and 13 certificate programs which are being offered by CTDLC members. These programs and their associated courses are all marketed through the CTDLC website (www.ctdlc.org). The 2009 fiscal year saw 3,695 courses offered with 62,423 enrollments. The CTDLC Membership Council meets regularly to address online quality issues, students, services, best practices, and to explore the increasing numbers of online tools designed to support teaching and learning in higher education.

Sample of Educational Technology Initiatives in Connecticut's Higher Education Community

- The **Connecticut Community Colleges** have developed and begun delivering *iTeach Essentials*, a fully-online, 9-week training program for faculty in the Connecticut Community College system who are interested in teaching online courses. Topics include pedagogical and technical best practices of online teaching and classroom management. Two colleges have indicated that as of Fall 2010, they will begin requiring faculty to complete the course prior to being assigned online courses. Over 230 other online professional development courses are available to faculty and staff of the Connecticut Community Colleges.
- **University of New Haven** provides state-of-the-art hands-on trading floor simulation to support instruction in financial investment analysis, operations management, and statistical analysis.
- **Connecticut College's** Digital Enhanced Learning Initiative (DELI) provides a student-centered technology kit to each student in one of 10 courses. These kits include technologies that will enhance the learning of the course content. For example, iPods containing cultural and language materials are included in the elementary Japanese course technology kits.

Technology enhances education in a large variety of ways in CT's higher education institutions.

- **Southern Connecticut State University's** *Center for Adaptive Technology* enables students with physical, visual and learning disabilities to independently access computers and other technology needed to achieve educational goals.
- **Fairfield.University** has implemented an automated classroom lecture recording system that allows faculty members to create podcasts of their class presentations and make them available through iTunesU.
- **Housatonic Community College** hosted a conference in November 2009 that enabled community college instructors to learn how social networking and online interactive technologies can be used to expand the boundaries of instruction beyond the walls of the classroom.
- **Sacred Heart University** and several other institutions are using Student Response Systems to survey students' understanding and provide immediate feedback.
- **St Vincent's College** is utilizing an advanced patient simulator with realistic anatomy and clinical functionality to provide simulation-based education and realistic patient care experiences to students.
- **UCONN's** graduate students in the *New Literacies Research Lab* utilize a variety of Web 2.0 Communication tools to collaborate with colleagues all over the world, and to conduct research on students' uses of technology.
- **Goodwin College** uses GIS (Geographic Information System) and GPS (Global Positioning System) technologies in Environmental Studies courses.

- In late 2009, **CTDLC** was awarded a grant from The US Department of Education's *Fund for the Improvement of Post Secondary Education (FIPSE).* The grant will fund a program designed to improve the retention and graduation rates of adults attending Community Colleges. Along with four institutional partners, including Manchester Community College and Northwestern CT Community College from Connecticut, this three-year grant will fund the creation and implementation of the ***Online Success Center for Adult Learners*** (OSC). Using synchronous, asynchronous and web 2.0 communication tools, the OSC will provide student access to a network of Academic-Success Coaches. The "coaches" will help students articulate and implement personal "Success Plans" and access resources that help adult learners understand the culture of post-secondary education. The OSC will also increase access to academic support through a seamless and transparent connection to CTDLC's online eTutoring program, including an enhancement that provides individualized learning plans which connect faculty, student, and tutor virtually.
- Several courses at **Yale University** are incorporating *Second life*, a virtual world where users create avatars and design and explore environments that can include objects, presentations, historical figures, geological features, simulations and more.

Adult Virtual High School

The Connecticut Adult Virtual High School (CT AVHS) was designed to help adults achieve their high school diplomas, while saving money for school districts statewide. Through grant funding from the State Department of Education's Bureau of Health/Nutrition, Family Services & Adult Education, the CTDLC is able to extend access and savings to the state's Adult Credit Diploma providers with centralized hosting of courses, via the CT Adult Virtual High School. Shared resources include hosting, a 12 x 7 help desk, central administration, instructional design, professional development, and student services. The program is now beginning its eighth year.

The CTDLC provides hosting, management, and technical support for CT AVHS, while the LEAs provide mentoring and advising to their local students, and deliver a web-based *Orientation to Online Learning* course in their classrooms. This course is now a graduation requirement at some of the Adult Education centers.

In 2009 the CT Adult Virtual High School's program offered 24 half credit courses for adult diploma credits, an online GED study course (which was taken by over 500 students) and an online writing lab for student's to receive tutoring. There were nearly 2500 enrollments in CT AVHS in 2009.

CTDLC and Technology Collaboration

Part of the CTDLC mission is to create and support a distance delivery infrastructure - servers, learning management software, instructional design, and technical support personnel - and offer it to higher education, thus saving institutions costly long-term investments. The CTDLC continues to provide these products and services to Connecticut's higher education institutions, state agencies, K-12, and professional education associations. When the legislature first funded the CTDLC, it correctly assumed there would be considerable cost savings if the State invested in the technology and support associated with distance learning in one place rather than duplicating that infrastructure at every college. Over the past several years, the CTDLC has made substantial progress toward that goal by:

Centralized hosting of learning management systems (LMS): This centralized hosting service supports both the Connecticut Adult Virtual High School program and Connecticut

Virtual Learning Center program as well as serves two public school systems and the State Department of Education's Developing Tomorrow's Professionals program. In addition, the hosting service supports eight higher education institutions across three states and supports two Connecticut state agency education programs. By utilizing centralized eLearning services, each of these institutions are able to save money by avoiding additional hardware and staffing costs as well as reduced (Blackboard) or no license cost (Moodle) for the learning systems.

eLearning Services: In addition to hosting learning applications, the CTDLC also provides remote project management and support for local eLearning initiatives as well as online training and course review and design assistance.

Providing a single 7 day/12 hour help desk to over 100 institutions nationally: The cost for this help desk is a fraction of what it would cost an institution if they provided the same service on their campus, and represents a considerable savings versus a commercial help desk solution.

Negotiating reduced pricing on statewide licenses: The best example of the CTDLC technology collaboration was with the *Blackboard/WebCT Vista* license which represented an effort to increase the quality of educational technology while reducing the price. Working with the entire K-20 sector as well as state government, the CTDLC led the effort to purchase the next generation Learning Management System in late 2003. By having the CTDLC hold the license that is used by the University of Connecticut, the Connecticut State University System, and the Connecticut Community Colleges, the state saved over $200,000. This year, the CTDLC negotiated a 5% savings for the three systems plus three other institutions with their Blackboard license renewals.

The CTDLC has also negotiated reduced pricing for statewide contracts and consortial agreements for its members for products including Blackboard (a learning management system), Wimba & Elluminate (web-based conferencing systems), Quality Matters (an online course review process to ensure best practices teaching on line), READI (an assessment of readiness to learn online), and course development tools like Respondus and Soft Chalk.

Creating a collaborative online tutoring program which is shared by 76 institutions in 9 states: By aggregating a small number of tutors from each institution on one platform (eTutoring), students have access to over 70 tutors 24 hours a day 7 days a week. At the same time, institutions save money and exponentially increase their off-site tutoring program by being able to share over 400 tutoring hours a week across 8 subjects.

K-12 and Online Learning

The Connecticut State Department of Education recognizes that online learning is something that now must be available and considered as an option in students' public school experience, and thus, is promoting student participation in online courses in a number of ways. Online and hybrid courses (part taught online, part taught face-to-face) are included in the model curricula being developed under the state's Secondary School Reform initiative. The Department of Education has submitted a request for legislation that will assure that online courses offered to Connecticut students are rigorous, engaging, and taught by qualified teachers skilled in teaching in an online environment.

The state's *Race to the Top* application included provisions for students' participation in online courses and for teachers to learn how to teach effectively in an online environment.

Though no statewide system is available for all students to take the wide range of courses desired, many Connecticut students are taking online courses through national and local providers, including Virtual High School (VHS), Florida Virtual High School (FVHS), APEX Learning, the CT Virtual Learning Center (CTVLC) and others. These courses are offered to students for a variety of reasons: to provide courses in low enrollment areas or courses in which a teacher is not otherwise available (eg, Physics); to provide instruction in courses not offered in a school (eg, Mandarin Chinese); to provide virtual seats to courses in a school with overcrowded classes; to accommodate scheduling conflicts; to provide a way for students to learn while homebound; to provide an alternative way to earn credits in a previously incomplete or failed course (credit recovery); to allow students to earn college credit while still in high school. In some cases, the costs for the courses are incurred by the school district, but in many cases, the student's families must pay for online course tuition. Clearly, this limits who and how many students take online courses in Connecticut.

Some CT schools provide students with opportunities to take online courses

RESC Connecticut Virtual High School Consortium

Through the RESCs, the CT VHS Consortium has been established. This consortium allows reduced prices for districts in the purchase of student enrollments in the nationally-aclaimed Virtual High School (VHS) program. The consortium also allows for students to take courses from VHS even if there is no teacher in the student's home school who is a trained VHS teacher (normally a requirement from VHS).

During 2009, there were over 750 VHS student enrollments, made up of students from 53 Connecticut schools. Most enrolled students were high school students, although several students from middle schools also participated.

Students participated in a wide range of VHS courses, including electives and required courses, and ranging from basic courses to honors and Advanced Placement. Some of the course in which Connecticut students enrolled in 2009 included Music Listening and Critique, Introduction to Physics, Democracy in America, Intro to Environmental Science, Intro to Physics, Intro to Statistics, Intro to Biology, Screenwriting Fundamentals, Psychology, AP Computer Science, Geometry and Algebra Applications, and Algebra II. These courses were taken to augment available school courses, for credit recovery, for home-bound students, to allow access to a course and teacher not available at the student's home school and to provide online learning experiences.

CT Virtual Learning Center

The CT Virtual Learning Center (CT VLC) is a State of Connecticut initiated program offering online courses for Connecticut high school students, managed by the CTDLC. The CT VLC was initially funded in 2007-2008 by the Connecticut Legislature. Since no additional funding was available after that initial year, the CT VLC now offers enrollments on a tuition-per-course basis for all of the State's public and private high schools. Offering online courses for high school students who are enrolled in CT schools, this program provides full-rigor courses designed to engage students by connecting real world applications to learning through problem solving and project-based assignments.

Courses are provided, monitored, managed, and teachers are hired by the CT VLC, while the school that the student attends is responsible for enrollment, providing the necessary support, and awarding credit. Courses are taught by CT certified teachers who work with students for the duration of the course. Teachers and students use a wide variety of online tools to communicate and work through the course materials. 23 courses were offered in 2009.

All CT VLC courses align with CT Frameworks, and are College Board and NCAA approved. A complete list of courses with full course descriptions can be found at: www.ctvirtuallearning.org/courselistings.cfm.

Future Planning

Many states do have their own "online schools", including the largest and longest running, Florida Virtual School. Last year, *Education Week* reported in its annual report on educational technology that 29 states have an online school. Michigan is also noteworthy in the online learning discussion, as their students must complete an "online learning experience" as a requirement to graduate from high school.

Currently, CSDE is having discussions with leaders from the superintendent's association and regional educational technology leaders as to how Connecticut might best proceed in a strategy to make online learning more accessible to all of Connecticut's students. This could include a remake and support of the CT VLC, providing funding or incentives to schools to make online courses available to students (particularly for schools with lower income students), the creation of a statewide online school, and others.

CTDLC Content on the CEN

The CTDLC is one of the major content providers using the CEN. All CTDLC online activities and services are deployed using the CEN. This includes student service applications—ePortfolio and eTutoring—which are being used by multiple institutions in multiple states. These applications have been recognized and funded by the Fund for the Improvement of Post Secondary Education and by the Davis Educational Foundation, which has resulted in their emphasis on quality and their growth in numbers of institutional partners and individual users at those institutions. Both applications are built to provide online student services to multiple institutions by sharing a common application that is built to the participating institutions' specifications.

The eTutoring program continues to grow. The CTDLC now supports two separate consortia, one in the Northeast which we directly administer with 43 participating institutions from 7 states; and one in the Northwest administered by Washington State University with 30 participating institutions in Washington and Oregon. The new version allows both consortia to create and share resources for students, tutors, and administrators. Ohio will be beginning a third consortium in January 2010

In 2009, the CTDLC and 4 institutional partners (University of Hartford, University of Bridgeport, Charter Oak State College, and Central Connecticut State College) were awarded a Davis Educational Foundation grant to create multi-media supplementary materials for English composition and writing-across- the-curriculum classes. These materials will be available for faculty at any CTDLC member institution to use and will be incorporated into the eTutoring resources repository.

Beyond Schools and Higher Education Institutions: Online Education for State Agencies

The CTDLC supports Connecticut state agencies and their efforts to deploy online education in support of their various missions, and this content is being delivered using the CEN.

To provide just-in-time training for health care workers, the Connecticut Hospital Association now offers a self-paced interactive online course. CTDLC helped DPH develop seven courses for their local and nationwide audiences.

The CTDLC also continues to work with the State Police for the fourth straight year to develop and host their online professional in-service training. Currently, almost 1300 State Police officers are enrolled and accessing training modules on the CTDLC servers.

Recommendations

Based on the status of the CEN, educational technology progress to date, State and Commission goals, and with consideration of the state's current fiscal concerns, the Commission for Educational Technology submits these six recommendations:

1. Provide for needed CEN equipment upgrades and continued operations.

2. Support the distribution of statewide educational resources through the CEN.

3. Work with teacher preparation institutions to ensure that all new teachers have skills in teaching effectively with technology.

4. Designate educational technology funds within state supported education programs.

5. Provide support for online courses for students in economically strapped school districts.

6. Fill the position of CEN Content Manager.

A description of each recommendation follows.

Recommendation 1:
Provide for needed CEN equipment upgrades and continued operations.

Certain components of the CEN have been in operation since the Network was first operationalized in early 2001, and this equipment must be replaced in the very near future if the CEN is to continue to provide uninterrupted service to its community.

When the CEN was being built and in its first years of operation, the network was leading the country in innovation. Yet if you look at the CEN today, it is barely on par with other states or falling behind. Without support going forward we will have major challenges maintaining the level of service we provide today.

At least $1 million additional funding each year is needed for a minimal CEN refresh cycle, to assure adequate maintenance of service. The Commission for Educational Technology's Network Advisory Council will be asked to work in collaboration with DOIT to determine most critical needs and their associated costs.

Recommendation 2:
Support the distribution of statewide educational resources through the CEN

Particularly in these difficult fiscal times, it is more important than ever to wisely use the limited dollars available. The state has already realized millions of dollars in saving through shared purchasing and distribution of resources through iCONN, including resources such as Discovery Education Middle School Science, digital audio books, and a large number of online periodicals.

Even small amounts, ranging from $250,000-$500,000 per year, could provide numerous resources statewide.

Recommendation 3:
Work with teacher preparation institutions to ensure that all new teachers have skills in teaching effectively with technology.

A strong teaching force is essential to the strong education of our students. Not only our inservice teachers need to develop and refine skills in using technology effectively, but also our preservice teachers must have these skills. It is recommended that efforts be centered on assuring that teacher preparation faculty are themselves skilled in teaching effectively with technology, and that they in turn help their students (future teachers) to acquire and practice the same skills.

To begin this effort, the Commission for Educational Technology's eContent and Professional Development Advisory Council, in conjunction with Connecticut colleges of education, will be asked to recommend a plan of action to provide a common level of educational technology skills for all teacher candidates. It is suggested that the International Society for Technology in Education National Educational Technology Standards (ISTE NETS) be used as the basis for this common skill level.

Recommendation 4:
Designate educational technology funds within state and federally supported educational programs.

Technology's use in education could be increased by including it in new and existing state and federally supported educational programs. Program creators and implementers should be encouraged to consider how technology could compliment program goals. This includes not only specific technologies, but professional development for teachers in using technologies to most effectively meet program goals.

The Commission for Educational Technology's eContent and Professional Development Advisory Council will be asked to work with the Connecticut State Department of Education (CSDE) and Regional Educational Service Centers (RESCs) to compile a list of educational programs and their funding sources, and then work with CSDE and the RESCs to provide ideas of technology integration to program leaders and grantees.

Recommendation 5:
Provide support for online courses for students in economically strapped school districts.

Online learning is a likely necessity for every student after graduating from high school – whether that learning is a college course, is required for work, or is taken for personal advancement. Students who take an online course before leaving high school will have gained valuable experience that will be useful later. Many students in Connecticut do have the opportunity to participate in online courses, as their districts or parents pay for their enrollment. However for many of our most economically disadvantaged schools and students, this is not an option.

For this reason, it is recommended that support be provided for online courses to students with the greatest financial needs. A scholarship program could be established and managed through CSDE, the RESCs or other entities. The online course scholarship program could be funded by state or federal funds, or through funds donated by businesses or philanthropic entities.

The cost of a full-year online course is approximately $800 per student per course.

Recommendation 6:
Fill the position of CEN Content Manager.

In 2000, then Lt. Governor M. Jodi Rell called for the creation of the Connecticut Education Network (CEN). Though the wires now connect every school district, public library, and higher education institution in the state, without content, the CEN is just connectivity. In 2007, a CEN Content Manager was hired, and she did an exemplary job of coordinating local, statewide, national and international educational technology efforts through the CEN.gov Website. Through the CEN, she was able to provide a variety of valuable resources and connect students and teachers to projects that advanced their learning of key content. Unfortunately, the position of CEN Content Manager was vacated in September 2009, and since that time has remained unfilled. This vacancy has stilted projects underway and stopped the acceleration we were experiencing in the number of teachers using technology to advance learning. At the present time, the Department of Information Technology is awaiting approval to post the job position.

Concluding Remarks

Connecticut should be proud of the educational accomplishments made in the last year through uses of technology. Our public schools, libraries, and public and private colleges and universities have explored and implemented many varied uses of modern technologies, and their students and patrons have benefited.

Still, so much more needs to be done if Connecticut is to prepare all its students with exemplary educational experiences and the essential skills for success in today's world. All of Connecticut's students need access to CEN-connected computers and resources that help them learn. Through purchasing and coordination at the state level, millions of dollars can be saved for these services and resources. Additionally, secondary students, no matter what school they attend or how affluent they are, should have opportunities to expand their learning options through access to high-quality online courses. Finally, teachers and faculty members, as well as the supervisors who support them, must be skilled in using technology as a tool for teaching and learning.

Particularly in these difficult fiscal times, it is more important than ever that we seek creative ways to support technology's use in education. Both public and private funding must be sought, and the reallocation of existing program funds to include greater uses of technology must be examined and considered. Technology must be seen as part of an essential educational infrastructure, and supported accordingly.

CTEDTECH
Connecticut Commission for Educational Technology

2008-2009 Members

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Bart Stanco, Representing Governor M. Jodi Rell

Diane Wallace, Department of Information Technology

Karen Kaplan, Executive Director
Commission for Educational Technology
165 Capitol Avenue
Hartford, Connecticut 06106
860.713.6781