

# Mid-Pacific ICT Center Quarterly Newsletter

This work is supported, in part, by the National Science Foundation under grant DUE 0802284. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect those of the National Science Foundation. MPICT is hosted by the CNIT Department at City College of San Francisco.



2010

Newsletter

Quarter 4

## San Francisco Winter ICT Educator Conference

January 6-7, 2011, MPICT is again co-hosting its Winter ICT Educator Conference in downtown San Francisco, together with the [National ICT Center](#). Joining us in hosting this event are the [Boston-area Advanced Technological Education Connections \(BATEC\)](#), an NSF ATE funded Regional Center, like MPICT, and the [Center for System Security and Information Assurance \(CSSIA\)](#), an NSF ATE funded National Resource Center.

More than 180 attendees are expected, including community college faculty in ICT related programs, college administrators, representatives of industry and others.



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## Digital Literacy/ ICT User Proficiencies

To be a successful student, employee, employer, enterprise owner or citizen in 21<sup>st</sup> century information and knowledge economies, it is increasingly important to understand and be able to use information and communications technologies (ICT) – at least as an ICT User.

In our society today, most people need basic knowledge and skills in ICT, much like most people need at least basic knowledge and skills with written and conversational English, with mathematics and science, and with other basic education components.

Increasingly, in recognition of that fact, citizens, educators, businesses, government organizations, students and public interest groups are calling for “Digital Literacy” or ICT User proficiency policies, standards, resources, programs and assessments.



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## Building ICT Pathways From K-12 to College

To be successful in the modern world, as a student, worker or citizen, most people need at least basic competencies with Information and Communications Technologies (ICT). How do they get that?

Ideally, that would begin in K-12 educational systems for young people. They would have access to current ICT equipment, software, services and instruction, and they would be taught to use and maintain it all safely, productively, efficiently and ethically. Unfortunately, many K-12 systems are tragically underfunded and do not have adequate ICT infrastructure or instruction. Because ICT is not adequately defined as part of high stakes testing, which drives much of what is taught and emphasized in school, many schools do not teach ICT.

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The Winter Conference will begin each day with keynote presentations at the Microsoft's Market Street facility. Thursday will feature Jim Spohrer, Director of IBM University Programs World Wide, on "The Emerging Pervasive Networked Computing Explosion and its Impact on Society, ICT Workforce and Technician Educators." Thursday features HI-TEC 2009 Educator of the Year Mike Qaissaunee on "Teaching and Learning: The Widening Gap Between Faculty and the Digital Student."

Around 10am each day, we migrate to the City College of San Francisco Downtown Campus, on the corner of 4<sup>th</sup> and Mission Streets, for breakout sessions, meals and social events. At least two of at least five simultaneous sessions will be hands-on or interactive in college computer labs, where participants will be able to engage with ICT technologies.

The theme of this year's Winter Conference is "Improving ICT Education in Challenging Times." Even in difficult times, we can improve ICT education if we come together and share successful practices, ideas and resources we don't all take advantage of.

Presentations from business and industry include:

- Adobe Systems: Adobe Resources in Education
- Apple Computer: iOS Development (Hands-on)
- Cengage Learning: Password Attacks and Defenses by Mark Ciampa
- Cisco Systems: Teaching ICT with Simulations, Performance Assessment, and Games by Dennis Frezzo and Techniques to Define, Align and Adopt STEM Curriculum
- CompTIA: Top IT Skills Needed in 2011 and Beyond
- EMC Academic Alliance: Partnering to Bridge the Storage Knowledge Gap
- IBM: Courses and Instructor Support for CCs in DB2 for the Workplace
- International Computer Driver's License: Digital Literacy Global Standards for Education and the Workplace
- Juniper Networks: Exciting Academic Alliance Updates
- Microsoft: Bringing Mobile Phone Development to the Classroom
- Oracle Academy: How to Effectively Partner With Industry to Advance Workforce Development
- VMware IT Academy & Virtual Labs with NETLAB+ by NDG
- WhyITNow: Progress Through Partnerships
- World Organization of Webmasters: Web Professional Education and Training Best Practices Roundtable

Presentations from ICT Educators include:

- @One Project - Technology Training and Certification
- Applying Lab-Centric Pedagogy to Enable More Interactive Computing Courses from U.C. Berkeley
- Best Practices for Synchronous Online Instruction by CCC Confer
- Blending Online Communities & National Resource Repositories CADRE
- Bridging with Bootcamps - High School ICT Pathway Creation
- Bringing Back Pen-to-Paper Personalization in this Digital Age
- Don't Let the Experts Tell You Powerpoint Sucks
- E-Books, the iPad and the Self-Publishing Revolution
- Ethical Hacking: BackTrack 4 and Metasploit (Hands-on)
- Getting Started With IPv6 (Hands-on)
- Improving Student & Educator Outcomes with Online Collaboration Tools
- Introducing Microsoft's MTA classes and certifications
- IT Education in a Mobile Society
- NuMediaCareers: Online Industry/Education Collaboration for Next Generation Digital Media Professionals
- OpenGeo for Educators: Opensource GIS
- Scenario Based Learning - a Reflection and Conversation
- Share and Share Alike: Finding and Authoring Open Textbooks
- Teaching Students Windows 7 Tips, Tricks and Hints (Hands-on)
- Teaching Voice Over IP on the Cheap (Hands-on)
- The MOUSE Squad of CA Student Tech Leadership Project
- The Power of Podcasting
- Using OPNET IT Guru for Computer Networking Ed (Hands-on) CSU-MB
- Visualization of Data
- What National Science Foundation grants have in common with other federal grants. (Grant writing workshop)

Presentations on Improving Diversity in ICT Education include:

- Accessibility And Course Design Considerations For Instructors And Course Designers Using MOODLE by S.F. State University
- STEM Girls Grow Confidence With Technology
- Using Surveys to Improve Retention of Female Students by the Institute for Women in Trades, Technology and Science
- Workshop on Perkins Grants by the California Joint Special Populations Advisory Committee

Presentations from NSF Funded Centers and Projects include:

- Emerging Technological Broadband Developments - National ICT Center
- Improving Student and Educator Outcomes with Online Collaboration Tools by MPICT
- Security Education using Virtualized/Remote Labs by CSSIA
- Self- Managing Student Teams by the Experiential Learning Center
- SIGITE IT Model Curriculum by BATEC
- Transforming Education Through NSF Funded Computational Thinking by the Sacramento Regional CPATH Team

Come join us; it's going to be great!

If you can't be there in person, be there online. Most sessions will be available in real time, and many will be archived. Learn more at:

[www.mpict.org](http://www.mpict.org).



People studying social equality and factors for success in modern life have identified an important issue frequently called the "Digital Divide." Access to information and communications technologies and an ability to use them productively is an essential modern capability. Those with ICT access, knowledge and abilities have significant advantages over those who do not.

- Students with digital access and abilities can efficiently obtain and complete school assignments through digital media, have immediate access to vast arrays of information and tutorials through the Internet and libraries, can connect easily in various ways with other students to resolve questions about (missed) assignments and support and collaborate with each other, use electronic productivity tools, present their work professionally and impressively, and can share their work easily to demonstrate abilities...
- Job seekers with ICT access and abilities can search online employer and job opportunity sites efficiently, prepare and send professional resumes and electronic job applications efficiently, network with friends and peers to share opportunities and support each other in finding work, refer prospective employers to online portfolios that demonstrate abilities, easily acquire and share reference letters, and have essential ICT User level workplace skills and knowledge required or valued in most positions today.
- Workers with digital access and abilities can increasingly (at least sometimes) work from home to better balance work and family, frequently better add value to employer enterprises and advance faster in their careers, interact with employer HR, information and productivity systems competently, and have valued workplace skills.
- Citizens with ICT access and abilities can efficiently learn about and apply for government services and programs, learn about and participate in political processes, buy and sell goods and services efficiently online, manage banking and other financial assets and relationships efficiently, access and learn about almost anything anywhere, communicate easily with many people in many ways, and obtain important information quicker...



The Digital Divide is the separation between advantaged, digital "Haves" and disadvantaged, digital "Have Nots." As a society, we are all better off if all of us are or at least have the opportunity to be digital "Haves." We all realize benefits of more productive citizens, organizations, systems and services.

This is consistent with egalitarian values and principles at the core of American social organization, and Americans frequently agree with this in principle. Even the greediest and most conservative of business people agree they would benefit if they could market and sell to all Americans inexpensively through the Internet.

Eliminating the Digital Divide requires:

1. "Digital Access" - available, affordable and adequate access to ICT equipment, software, networks and services, for everyone,
2. "Digital Literacy" - adequate knowledge and skills to use ICT productively, for everyone,
3. Comprehensive plans to achieve these goals that are widely understood and agreed to,
4. Adequate resources and efforts to implement those plans, and
5. Competent leadership and management to see those plans executed competently.

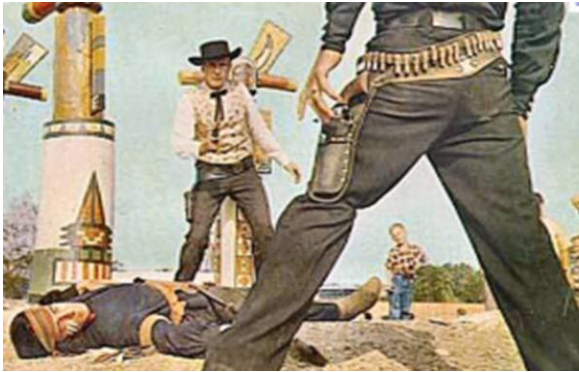
Ideally:

1. The U.S. Federal government would convene a "blue ribbon" working group or task force of experts from diverse employers, ICT industries, academia, public interest groups, government agencies, standards bodies and other interested parties to study these issues and goals comprehensively, strategically and quantitatively, and publish its findings, definitions, recommendations and plans for achieving these goals and realizing these benefits for our society, country and economies.
2. Those findings would inform educational standards, strategic government policies and rules, assessment strategies, and national "broadband" plans to eliminate the Digital Divide and move the country forward strategically in the 21<sup>st</sup> century.
3. Those would be applied and implemented comprehensively, efficiently and consistently, addressing K-12 educational systems, higher education systems and the general public.



It has been claimed that the U.S. is the only "first world," industrialized nation not making any significant effort to do this.

Frequently, the way we do things in the U.S. is through a wild-west, "ready, shoot, aim" free-for-all, where anybody who wants to aggressively tries to assert leadership and exploit a situation for profit. People get confused by proliferate competing terminology, assertions, solutions and products, many of which ultimately fail, leaving their adopters stranded. We ultimately end up having spent much more aggregate time and energy producing lower quality solutions that are imperfectly and inconsistently implemented at maximum cost to society, without meeting society's needs. Many other countries agree on a social goal, plan carefully, and efficiently execute in a coordinated manner to realize optimal benefits for society.



As time passes, the U.S. slides in relation to other global citizen states in measures of "broadband" availability, adoption, speed and quality, in educational system and student performance, and in economic performance, social function and status.

Eliminating the Digital Divide, providing adequate Digital Access and achieving Digital Literacy, or ICT User Competency, for all, are important, strategic issues that deserve comprehensive, consistent and high quality solutions here in the U.S.

Clearly, community colleges deserve a major, strategic role in plans and implementations to improve Digital Literacy, expand Digital Access and reduce the Digital Divide. California Community Colleges, for example, are the largest higher education system in the nation, serving nearly 3 million students per year at an extremely affordable \$26 per unit for credit and \$0 for non-credit courses. Community college student populations are extremely diverse, serving students from high school to retirement ages, from every racial and ethnic background, in every socio-economic niche and strata, with many different educational backgrounds, from all genders, and with many different educational and life goals. Community colleges can help our society reach digital literacy goals and implement solutions to achieve digital literacy.

Most community college faculty are community-minded, professional and accomplished teachers. We just need to know what to teach.



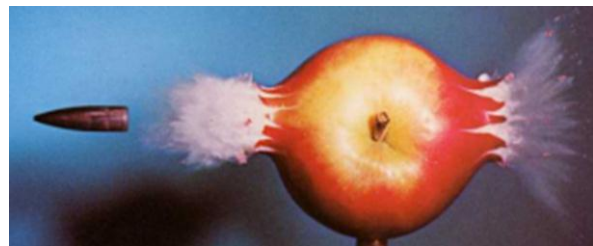
Community colleges relatively nimbly develop and adapt ICT related programs that:

- Teach ICT User level knowledge and skills for everyone – Digital Literacy
- Teach ICT knowledge and skills for those entering the ICT workforce, including many who enable User Digital Access
- Prepare students for advanced degrees through affordable transfer pathways, some of whom advance ICT fields through ICT research and development
- Help all kinds of people, including working professionals with advanced degrees, learn and keep up with rapidly changing ICT technologies

However, different community colleges often teach these topics differently, covering different material, and naming and packaging ICT related academic credentials differently, diluting the value of those credentials for all.

What should we be teaching as basic ICT User knowledge and skills, or Digital Literacy, for everyone? How should we assess that? How can we certify those knowledge and skill sets in a way that is widely recognized and valuable to students, employers and educational systems? Done right, there is vast potential demand for these courses and credentials.

Watch out, here come some bullets!



Some "Digital Literacy" definitions emerge from traditional definitions of "literacy," or "information literacy," frequently generated by library-based organizations and efforts. For example, in 2000 the Association of College and Research Libraries defined "Information Literacy" as a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." That definition was also endorsed by the American Association for Higher Education in 1999 and the Council of Independent Colleges in 2004. They agreed an information literate person is able to:

- Determine the extent of information needed
- Access needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

“Information Literacy” definitions and goals existed before widespread availability of computer systems, when we relied on libraries, card catalogs, books, magazines, newspapers and journals for information. Now that much of that has been moved to networked, computer-based systems, information literacy requires ICT User knowledge and skills. “Digital Literacy” definitions exist which are generally traditional “Information Literacy” with “in digital environments,” apparently added more or less as an afterthought.

In 2007, the National ICT Literacy Policy Council was formed by the National Forum on Information Literacy ([www.infolit.org](http://www.infolit.org)) to serve as the certification board for U.S. ICT literacy standards. They adapted information literacy into recommendations for national ICT literacy standards as:

- **Define:** Understand and articulate the scope of an information problem in order to facilitate the electronic search for information.
- **Access:** Collect and/or retrieve information in digital environments. Information sources might be Web pages, databases, discussion groups, e-mail, or online descriptions of print media.
- **Evaluate:** Judge whether information satisfies an information problem by determining authority, bias, timeliness, relevance, and other aspects of materials.
- **Manage:** Organize information to help you or others find it later.
- **Integrate:** Interpret and represent information, such as by using digital tools to synthesize, summarize, compare, and contrast information from multiple sources.
- **Create:** Adapt, apply, design, or construct information in digital environments.
- **Communicate:** Disseminate information tailored to a particular audience in an effective digital format.

[Educational Testing Services \(ETS\)](#), which administers the SAT test, among others, adopted these as the basis for its iSkills certification test, which has since been discontinued.

California has a Digital Literacy initiative created by [Executive Order S-06-09](#), which created a California ICT Digital Literacy Leadership Council, informed by a Digital Literacy Advisory Committee (which MPICT has recently joined) that uses a closely related definition in its [Pathways Report](#):

BASIC ELEMENTS OF DIGITAL LITERACY		
Elements	Definitions	Competencies
Access	Knowing about and knowing how to collect and/or retrieve information	Search, find, and retrieve information in digital environments.
Manage	Applying an existing organizational or classification scheme.	Conduct a rudimentary and preliminary organization of accessed information for retrieval and future application
Integrate	Interpreting and representing information - summarizing, comparing, and contrasting.	Interpret and represent information by using ICT tools to synthesize, summarize, compare, and contrast information from multiple sources.
Evaluate	Making judgments about the quality, relevance, usefulness, or efficiency of information.	Judge the currency, appropriateness, and adequacy of information and information sources for a specific purpose (including determining authority, bias, and timeliness of materials)
Create	Generating information by adapting, applying, designing, inventing, or authoring information.	Adapt, apply, design, or invent information in ICT environments (to describe an event, express an opinion, or support a basic argument, viewpoint or position)
Communicate	Communicating information persuasively to meet needs of various audiences through use of an appropriate medium.	Communicate, adapt, and present information properly in its context (audience, media) in ICT environments and for a peer audience.

A [series of videos](#) has recently launched advocating for California's Digital Literacy efforts.

When MPICT asks community college faculty in ICT related programs about teaching Digital Literacy with this definition, they don't know quite what to teach, or how to consistently assess or certify it. They are happy to infuse these skills into other courses, but they teach ICT technologies, and ICT technologies are not adequately defined or specified in this digital literacy definition.

MPICT's Advisory Panel agreed these “Information Literacy” skills are important for their workforces, but so are ICT User technical knowledge and skills that are not addressed. Asking people why they do not adopt ICTs, few say it is because they do not know how to conduct and present research. Rather, they say it is because they don't understand or are intimidated by the technologies, or they do not understand their benefits or can/will not afford them.

Perhaps the leading technical ICT User certification in the U.S. is [Certiport's IC3](#) (Internet and Computing Core Certification), which is focused on hardware, software and online knowledge and skills and has a test and certification vehicle recognized across the country.

Internationally, the leading technical ICT User certification is the [International Computer Driving License](#) (ICDL), the European Computer Driving License (ECDL) in Europe, with a similar technical focus. They are offered in 148 countries through 41 languages.

Community College faculty in ICT related programs understand how to prepare students for these. Commercial certification tests have fees, a barrier to some, but many already see the value of certification tests offered by organizations like Cisco, CompTIA, Microsoft, ISC2 and many others.

Interestingly, ETS has rebranded its iSkills offering as [iCriticalThinking](#). On the [iCriticalThinking data sheet](#) is:

**What is missing from Digital Literacy?**

Almost all industry coursework and certifications associated with Digital Literacy focus on two “strands” of knowledge and capability:

**Foundational Concepts** – The fundamental underlying principles of computers, networks and the Internet

**Current (or Contemporary) Skills** – The ability to use current hardware and software to perform useful functions

An emerging yet equally important third tenant of Digital Literacy is:

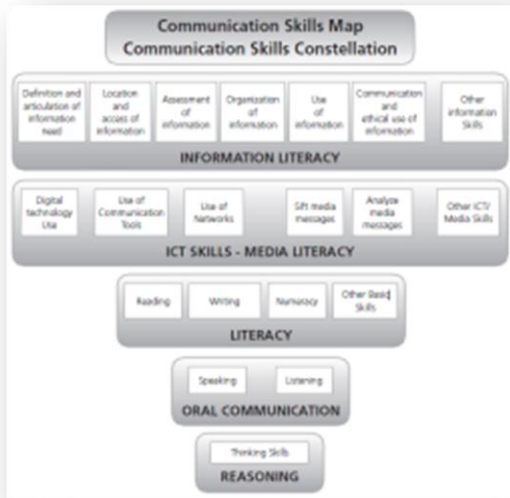
**Critical Thinking Ability** – A set of higher-order thinking and reasoning skills required for understanding and solving problems.

This third tenant is the basis for the *iCritical Thinking* exam.

ETS now partners with Certiport to offer certification of both technical ICT Literacy and these Critical Thinking skills. This more comprehensive solution can serve as national standards, curriculum and credentials for Digital (Information + ICT) Literacy.

Even the combined Certiport IC3 and ETS iCriticalThinking credential does not capture all an ICT User needs to be able to know and do to be successful in modern knowledge, information and innovation economies. A U.S. Digital Citizen still needs to be able to speak and write English, do math, understand scientific thinking, work in teams, understand how government, society and organizations work, be able to problem solve and add value.

To really understand what a Digital Citizen needs to be successful, we need a larger and more comprehensive framework. For example, in 2008, the United Nations Educational, Scientific and Cultural Organization produced the following framework for Information Literacy. To be information literate, you need thinking, basic, communication, ICT, media and information literacy skills.



A leading educational reform effort in the U.S. is the [Partnership for 21st Century Skills](#), a business and industry led effort to improve education in America driven by organizations like Apple, Cisco, Dell, Disney, ETS, HP, Intel, Microsoft and Oracle. Its mission is "To serve as a catalyst to position 21st century readiness at the center of US K12 education by building collaborative partnerships among education, business, community and government leaders."

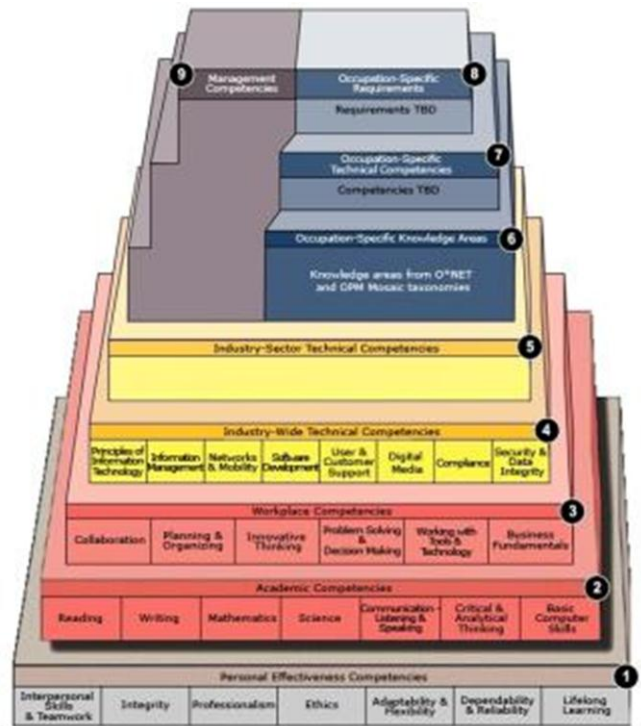


Its Framework presents a holistic view of 21st century teaching and learning combining 21st century student outcomes, a blending of specific skills, content knowledge, expertise and literacies (the arches of the rainbow), with innovative support systems (the pools at the bottom) to help students master the multi-dimensional abilities required of them in the 21st century.



Its Information, Media and Technology Skills include [Information Literacy](#), [Media Literacy](#) and [ICT Literacy](#) – all necessary.

A few years ago, the IT Association of America (which has since been consumed by [TechAmerica](#)) produced in conjunction with the U.S. Department of Labor the following IT Employment Competency Model, which is still available on [CareerOneStop](#) and is an excellent discussion tool for IT worker competencies:



This is a thorny field. What we really need is a comprehensive set of definitions and solutions we can all line up on.

MPICT is grappling with these issues on behalf of community college ICT related programs in its region.

There are many misunderstandings and different beliefs about kids and ICT. Some have access to great ICT infrastructure at home, carry smart phones, and are more technically sophisticated than their teachers. Some are just assumed to be. Just because a kid has 500 friends on Facebook and sends 3,500 text messages a month does not mean he or she knows how a computer works, can fix it when it breaks, update software and systems, hook it up to peripherals like printers and scanners, connect it to the Internet or other computers, navigate the Internet safely, or use ICT productively. Many kids do not have access to ICT infrastructure at home. Many do not have access to adequate ICT resources at school and may not be taught how to use them even if they exist. As discussed in the Digital Literacy article, our society needs consistent and adequate methods of conveying essential ICT knowledge and skills to all students.



Another issue, though, is how we as a society attract and prepare young people to participate in the ICT workforce. For those with an interest in “computer stuff,” especially for those without access to ICT infrastructure at home, how do they learn more about ICT, build passion for ICT fields and cultivate those interests in school? There are simply no ICT related courses in many schools. In others, there may be only a stale programming course in a no longer relevant programming language, which is almost guaranteed to alienate students from the field for life. Many teachers’ discomfort with “technology” is transferred to students, alienating them.

As a society, we need to provide adequate ICT infrastructure in all schools, teach ICT literacy to all students, from K-12 through graduate schools, and have more advanced ICT course options for students interested in ICT. Until we do, however, there are opportunities for community college ICT related programs to help local high schools better serve students interested in “computer stuff” and develop a pipeline from high school to college to the ICT workforce.

Most community colleges have computer labs, great Internet connections, and ICT related programs and courses. MP ICT would like to encourage and support community college administrators and ICT related program chairs and faculty in working with local high schools to develop ICT pathways, from K-12 to college to work.

Worst case, a truly motivated high school student with support could navigate local exception processes to take a community college ICT course, even without formal supporting relationships.

#### Articulated Courses:

Better, community colleges and high schools can work together to create and articulate high school and community college ICT courses. These are typically taught and funded by high school/Regional Occupational Program (ROP) teachers. Students pass community college course or industry exams to earn college and high school credit, and students do not have to pay community college enrollment fees. These can be established for any course offered at both the college and high school, but they may be easiest to set up through industry academy courses and certifications, like Cisco Academies, Microsoft Academies, and CompTIA.

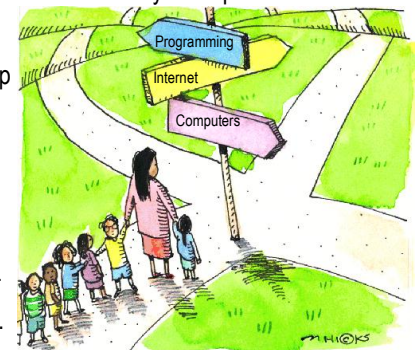
#### Dual or Concurrent Enrollment:

In dual enrollment arrangements, a high school teacher often qualifies as community college faculty and offers the college course at the high school, paid by the high school/ROP or community college. In concurrent enrollment arrangements, community college instructors deliver the course at a high school or community college site, as long as enrollment minimums are met. Students outside the high school may be allowed to attend. High school students get college credit.

There are many variations on how this works locally, but every community college has a CTE or Tech Prep Coordinator adept at navigating these arrangements locally. It all begins with community college faculty, chairs and CTE Coordinators getting together with high school administrators and teachers to talk about possibilities and finding common ground. That common ground is often agreement that we need a way to attract and serve high school students interested in ICT, so they become excited, grow and find a pathway forward into ICT higher education and the ICT workforce.

One of MP ICT’s Regional Partners is delivering interactive, real-time college ICT courses to local high school students in high school computer labs through the Internet! Another offers summer camps and programs for high school students, a computer recycling program in which college students refurbish donated equipment and donate it to needy K-12 schools, is working on getting high school ICT courses to meet California A-G requirements and has co-developed high school ICT curriculum. Try ICT open houses!

There are many ways for community colleges to help high school students find their way into ICT educational and career pathways. If you have ideas or interest in exploring possibilities, feel free to contact MP ICT for help at [info@mpict.org](mailto:info@mpict.org).



## Spring 2011 Interactive Online Courses

MPICT has been working with individual community college ICT instructors to use online collaboration platforms, like [Webex](#) and [Adobe Connect](#), to deliver interactive online ICT courses, expanding and improving student and course outcomes.

In California, [CCC Confer](#) provides free access to the [Elluminate](#) platform and other value added services, which can be used for free, interactive online office hours, department meetings, remote guest lectures, conference calls, and, for some superstars, even simultaneous course delivery to in-person, online and asynchronous student groups. This has tremendous potential for positively improving ICT education in our region. We encourage ICT programs to make any and all use of these amazing platforms.

Learn more about how to teach in this way [here](#).

See and refer students to courses offered in this manner [here](#).



## HI-TEC Conference in San Francisco in July

The [2011 High Impact Technology Exchange \(HI-TEC\) Conference](#) will be July 27-28, preceded by two days of pre-conference workshops, July 25-26 at the Hyatt Regency San Francisco, at the end of Market Street, across from the Ferry Building.



HI-TEC is a national conference hosted by National Science Foundation Advanced Technological Education Centers and Projects from around the country to profile and enable good work in "Educating America's Technical Workforce."

MPICT co-chairs the event, and we would like to encourage a strong track in information and communications technologies throughout the event. If you would like to propose a presentation at the conference, please go to [www.highimpact-tec.org/call-for-proposals](http://www.highimpact-tec.org/call-for-proposals) or contact MPICT at [info@mpict.org](mailto:info@mpict.org). We are also interested in providing field trips to Bay Area/Silicon Valley ICT companies. We welcome business and industry sponsorships for this event, which may reach 800 participants this year.



## MPICT Piloting Cisco Capstone Exchange in Paris

This Spring, MPICT will pilot a scenario-based learning, capstone project course, as a collaboration between City College of San Francisco, Ohlone College, Foothill College, Santa Rosa Junior College, Cabrillo College, Truckee Meadows Community College and [Centre des Formations Industrielles \(CFI\) – Gambetta](#) in Paris, France, which is San Francisco's Digital Sister City.



Twenty-four U.S. students and their French counterparts will work together in teams across distance, time zones and cultures to solve real world-like challenges, using online collaboration and communication tools, CCC Confer, NETLAB and Packet Tracer.

Twelve U.S. students will travel to Paris for 12 days, where they will present final projects, visit industry sites and shadow their colleagues in their jobs. CFI is like an American community college, except it is managed by the [Paris equivalent of the Chamber of Commerce](#), and students rotate between the classroom and workplace internships.