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COMMUNITY COLLEGE DISTRICT

Education Master Plan  
Information Submission Form

The GCCCD is starting a year-long process to develop an Educational Master Plan that will serve as the blueprint for our future. The Educational Master Plan is a long-range, comprehensive document intended to guide institutional and program development at both the college and district levels. The priorities established in the Educational Master Plan will serve to guide College and District decisions about growth, development and resource allocation.

As the first step in this planning process, everyone in the GCCCD community (faculty, staff, students and community members) are invited to identify and submit information sources to be reviewed for the trend analysis in one of six taxonomy areas - society, technology, economy, environment, politics, and education. We are not asking you to do new research - only to identify information you already have or that you encounter during the search period (March 21 - April 25) and bring it to the attention of the Scan Teams for review.

Please feel free to submit as many of these forms as you would like. Please answer the following questions for each submission:

1) What is the document we should review? :

2) Author:

3) Source:

4) Which of the following taxonomy areas does it fit into? (Please select only one):

- Society
- Technology
- Economy
- Environment
- Politics and Legal Issues
- Education

Other:

5) Relevance:


6) Page / Section:

7) Add Attachment/Hyperlink Here:

To attach a document use **Tools-Comments and Markups-Attach A File As A Comment**

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Since so many students use their phones, etc for Internet use - this is a little info about Blackboard and mobile device use.



### Mobile today

- Sidekick™ | Blackberry™ | Pilot™ | PDAs
- Netbooks | Notebooks | Laptops
- Smartphones | Mobile Phones
- Media Players | iPod™ | Zune™ | Archos™
- eBook Readers | Nook™ | Kindle™
- Tablets | iPad™ | Streak™ | IdeaPad™
- Handheld Gaming | Nintendo DS™ | PSP™

**Bb**  
Blackboard

5

## More Than Half of Cell Phone Internet Users Go Online Daily From Their Mobile Device

Frequency of cell phone internet use among those who go online from a cell phone (% of adult cell phone internet users)

Legend: April 2009 (light blue), September 2009 (medium blue), May 2010 (dark blue)

Frequency	April 2009	September 2009	May 2010
Several times a day	24	37	43
About once a day	12	15	12
3-5 days a week	10	9	8
1-2 days a week	15	13	9
Every few weeks or less	39	25	27

Source: Pew Research Center's Internet & American Life Project, April 29-May 30, 2010 Tracking Survey. N=2,252 adults 18 and older; n=772 based on those who use a cell phone to access the internet.

**Pew Internet**  
Pew Internet & American Life Project

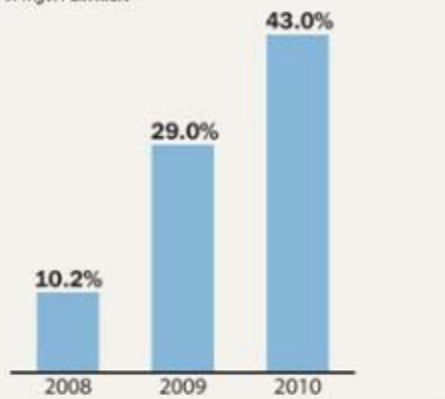
**Bb**  
Blackboard

6

# Students Online

## Percentage of Students Who Use Mobile Devices Daily to Access the Internet

Chronicle of Higher Education  
1/23/2011



SOURCE: EDUCAUSE CENTER FOR APPLIED RESEARCH

**By 2015, 80% of people accessing internet will be doing so on a mobile device**  
(Horizon Report 2011)



# Mobile Computing Power



PDP-11  
16 MHz Processor  
4 MB Memory

% Increase in 25 years  
6,150 % Processor  
8,000 % Memory



iPhone 4  
1 GHz Processor  
32 GB Memory



## How Blackboard Mobile Learn Supports Teaching & Learning:

### Challenges of modern education:

- **Struggle to meet the needs and expectations of millennial students**
  - Expect instant and on-the-go access to everything happening in their lives and the world around them
  - Want to be able to do everything from their mobile device

Communication	Social Networking	Other
Email	Facebook	Games
Text Message	Twitter	Web Browsing
Instant Message	FourSquare	Navigation

- **Need to keep students engaged**
  - Engaged students are more invested in the classroom, more likely to capitalize on resources provided by the institution, and ultimately perform better academically

## How Does Mobile Align To Strategic Objectives?

- What if you could increase brand awareness with a custom app branded to your institution and available worldwide in the leading app stores?
- What if you could increase student retention through modules that keep students apprised of and engaged with campus events, news and athletics?
- What if you could foster student engagement by allowing participation with courses from virtually anywhere?
- What if you could improve graduation rates by enhancing communication and collaboration with faculty inside and outside the classroom?



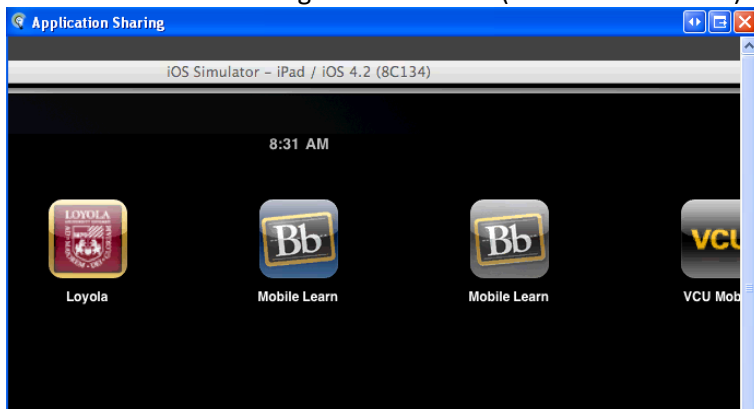
## Blackboard Mobile Central and Mobile Learn



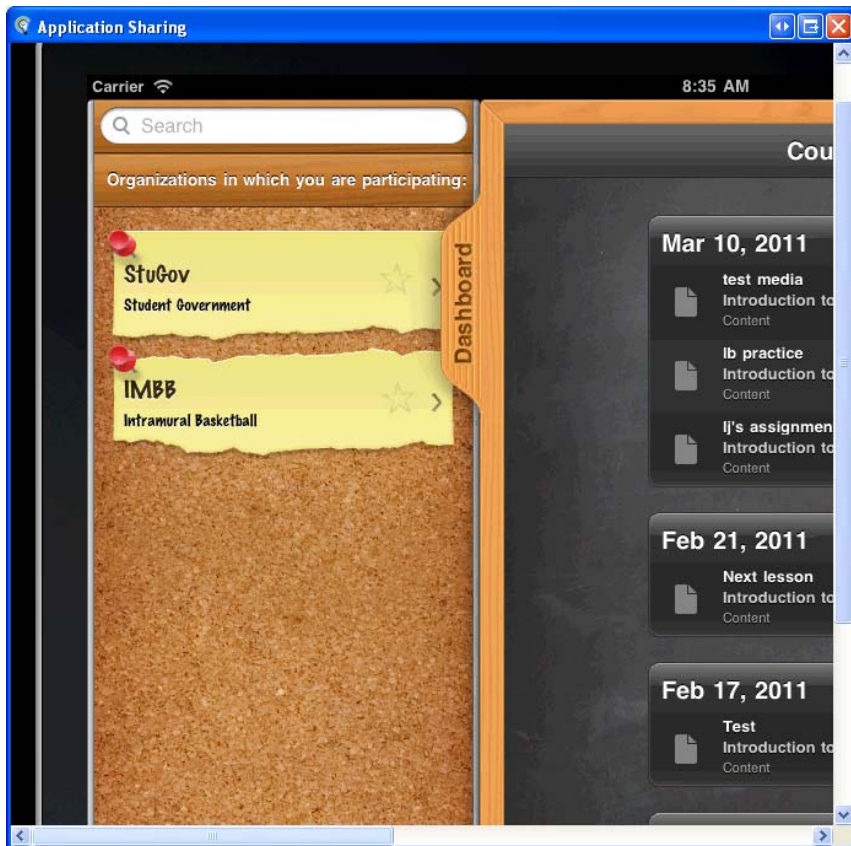
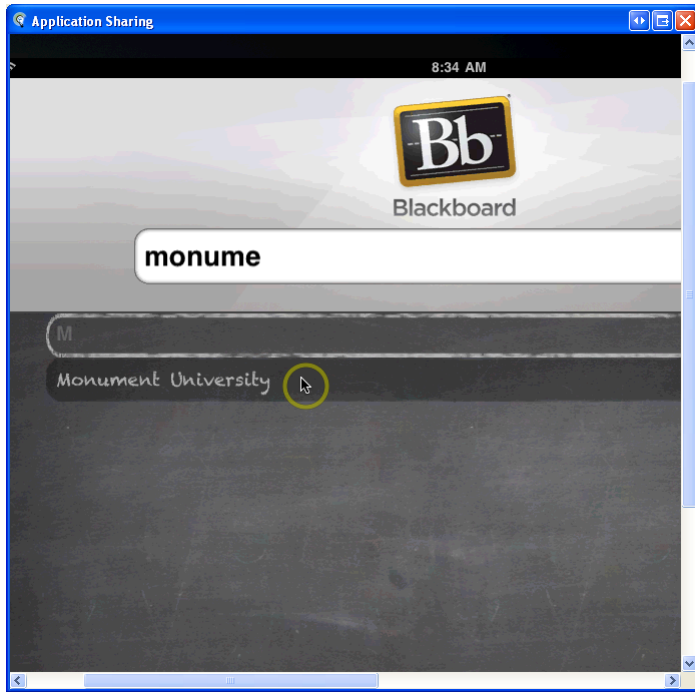
## Mobile central

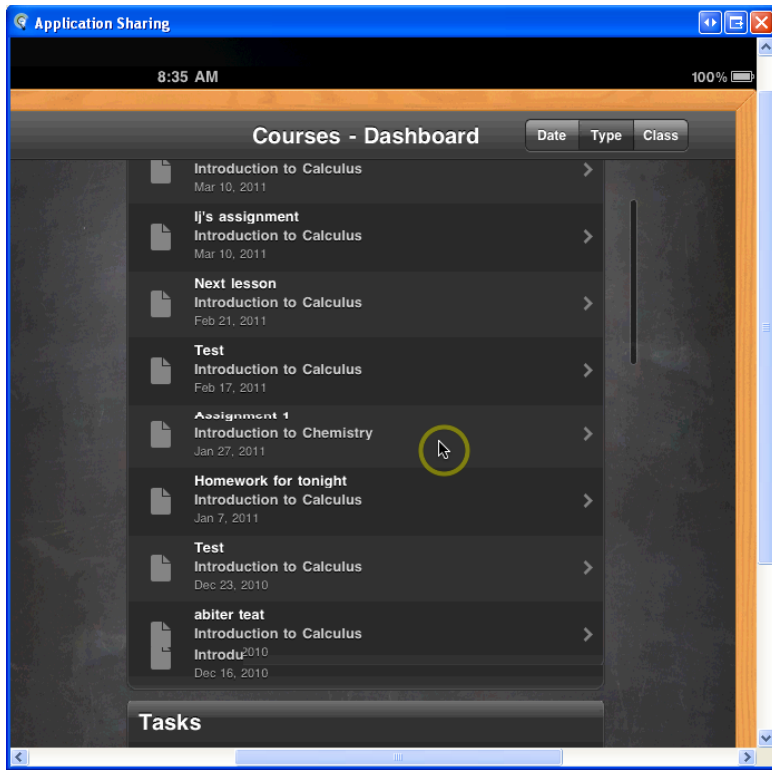


Mobile learn – free version only for Sprint 3g and IOS devices on wifi (ipad, itouch, etc)  
Paid version for IOS on 3g and all carriers (cost based on FTEs)



Screen Shots:







# Take Your Campus Mobile in 3 Steps (NAHE)



Take Learning Mobile Today  
**No Cost Blackboard  
Mobile Learn**

Clients licensing Blackboard Learn – ANGEL Edition 7.4 SP10 are eligible for No-Cost Blackboard Mobile Learn for ANGEL. Register with the MLCS and instantly your students and instructors can access their Blackboard courses and organizations on their mobile devices.



Engage Your Campus  
**Blackboard Mobile  
Central**

Extend mobile to your entire campus with Blackboard Mobile Central. This stand-alone app gives your community on-demand access to essential campus information, and can be licensed and implemented in a matter of weeks.



Integrate Classroom & Campus  
**Blackboard Mobile  
Campus**

Create a unified mobile experience with Blackboard Mobile Campus. With a licensed version of Blackboard Mobile Learn bundled with Blackboard Mobile Central, you get a custom-branded app with all of the services your community needs, all in one place.



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Please feel free to submit as many of these forms as you would like. Please answer the following questions for each submission:

1) What is the document we should review? : 2011 Distance Education Accessibility Guidelines

2) Author: Distance Education Accessibility Guidelines Task Force

3) Source: California Community Colleges

4) Which of the following taxonomy areas does it fit into? (Please select only one):

Society

Technology

Economy

Environment

Politics and Legal Issues

Education

Other:

5) Relevance: To ensure we are planning appropriately in terms of providing accessible distance education

6) Page / Section:

7) Add Attachment/Hyperlink Here: <http://www.cccco.edu/SystemOffice/Divisions/AcademicAffairs/DistanceEducation/Regu>

To attach a document use **Tools-Comments and Markups-Attach A File As A Comment**

**Submit** this document by scrolling to the top of the page and clicking on the Submit button at the top right corner. You cannot print once the document is submitted.

Questions: lynne.davidson@gcccd.edu Research, Planning and Institutional Effectiveness



# **DISTANCE EDUCATION ACCESSIBILITY GUIDELINES**

For Students with Disabilities

*Distance Education Accessibility Guidelines  
Task Force*

*Issued: January 2011*

# Distance Education Accessibility Guidelines Task Force

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# Distance Education Accessibility Guidelines

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*For Students with Disabilities*

## **Executive Summary**

This document has been thoughtfully prepared as a resource for supervisors of Disabled Students Program and Services (DSPS), Assistive Technology Specialists, Alternate Media Specialists, Distance Education Coordinators, instructional designers, faculty, ADA/504 Coordinators, trainers and administrators. It is the intention of the California Community Colleges Chancellor's Office that these guidelines will provide an extensive revision to the 1999 *Distance Education: Access Guidelines for Students with Disabilities* and an expansion of the guidance provided in the interim document, *Distance Education Guidelines, 2008 Omnibus Version*.

Since 1996, the California Community College system has been striving to fulfill its obligations to assure accessibility and usability of all college offerings, including those provided through Distance Education, for people with disabilities. These 2010 *Distance Education Accessibility Guidelines* were developed in response to the results of a 2007 statewide needs assessment study appraising the resources needed to ensure that online distance education delivered in the California Community College system is accessible. The needs assessment was conducted after a recommendation by the High Tech Center Training Unit Advisory Committee, with the support of the Educational Technology Advisory Committee (ETAC), and following observations by the High Tech Center Training Unit (HTCTU) that efforts being made to ensure accessibility of distance education offerings varied significantly by local expertise, capacity and the level of resources available to the college. Since the publication of the 1999 *Distance Education: Access Guidelines for Students with Disabilities*, there has been explosive growth in the number of distance education courses provided by the 112 California Community Colleges and concomitant growth in the technologies available to faculty in developing exciting and interesting course offerings, including information and communication technologies, course delivery systems and assistive technology. Despite the pace and complexity of technological advances, faculty and the overall institution have responsibility to ensure that distance education course materials and resources are accessible to students with disabilities.

These updated accessibility guidelines are intended to align with current technological access issues that colleges face in the delivery of distance education courses, while

## *Distance Education Accessibility Guidelines*

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offering practical solutions and strategies to address these accessibility challenges. The guidelines reflect the concept of Universal Design, a holistic approach to designing inclusive environments; new state regulations regarding distance education; a re-evaluation of the global standards on access; the many new technologies in use today; and many of the barriers unintentionally created by these technologies. An historic overview and conceptual framework help to structure the discussion before the document delves into legal requirements, access guidelines by media categories and by disabilities, and frequently asked questions. However, in the face of a rapidly changing technological world, this document should be considered dynamic with the promise of future updates a given.

To successfully meet the legal requirements of accessibility, instructors and instructional designers will often require training and guidance. The intent and focus of the guidance provided in this document is not to simply promote avoidance of emerging tools and technologies that may be more difficult to make accessible. Rather, it is our goal to offer guidelines for overcoming the barriers to accessibility within the context of robust, media-rich, and dynamic distance education courses. Faculty are encouraged to use their preferred pedagogically sound instructional methods, such as captioned media and, when necessary, seek guidance and support on their individual campuses to ensure accessibility.

The task force, convened to update the 1999 *Distance Education: Access Guidelines for Students with Disabilities*, brought together campus experts in distance education, web accessibility, curriculum design, instructional technology, new and emerging assistive technologies, DSPS program management, as well as, Chancellor's Office staff to accomplish this goal. Draft documents were reviewed by DSPS Regional Coordinators, the High Tech Center Training Unit Advisory Committee and the Educational Technology Advisory Committee, with feedback incorporated into the final document. Relevant Office for Civil Rights (OCR) cases were reviewed, as well as the proposed updates to Section 508 of the Rehabilitation Act (29 U.S.C. § 794d.).

It is hoped that through the implementation of guidance provided in this document, the utilization of Universal Design principles, and with our growing understanding of the barriers presented to students with disabilities, we can ensure that all distance education courses, resources and materials are designed and delivered in such a way that the level of communication and course-taking experience is equal for students with or without disabilities.

### **Background**

In March 1996, the U.S. Department of Education, Office for Civil Rights (OCR) conducted a statewide compliance review under Title II of the Americans with Disabilities Act (ADA) of 1990. The review was to examine whether students with visual impairments, particularly blind students, were accorded an equal educational opportunity by California Community Colleges or whether they were being discriminated against on the basis of their disability.

As an outcome of this review, OCR offered nine suggestions for addressing areas of concern identified by the review. Among the suggestions/concerns voiced by OCR was the need for development of system-wide access guidelines for distance learning and campus Web pages.

In responding to OCR's suggestions regarding development of system-wide access guidelines for distance learning and campus Web pages, in a letter dated March 13, 1998, then Chancellor Thomas Nussbaum replied:

*"We concur with the strategies related to this issue. I will immediately direct that the Chancellor's Office Task Forces related to distance learning as well as California Virtual University have persons on them to specifically address access issues for persons with disabilities... To assure that the*

*necessary guidance to colleges is available, I will specifically ask Vice Chancellor of Educational Services and Economic Development, Rita Cepeda, whose staff oversees the distance learning issues, to develop in cooperation with the DSP&S Unit and the High Tech Center Training Unit (HTCTU), guidelines for distance learning to assure it is accessible to and usable by persons with disabilities."*

***The 2010 Distance Education Access Guidelines are intended to align with current technological access issues that colleges face in the delivery of distance education courses and to be more useful to the 112 California Community Colleges than the previous guidelines.***

The 1999 *Distance Education: Access Guidelines for Students with Disabilities* were the result of Chancellor Nussbaum's directive.

In January 2007, HTCTU's Advisory Committee submitted a request to the Chancellor's Office, asking the Disabled Students Program and Services (DSPS) Program to conduct a system-wide appraisal of the resources needed to ensure that online distance



## *Distance Education Accessibility Guidelines*

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education delivered in the California Community College system is accessible to all students. That communication eventually led to a competitive Request for Proposals (RFP) process for a statewide needs assessment study. One of the outcomes from the resulting study, completed by MPR Associates, Inc., was a recommendation to update the 1999 *Distance Education: Access Guidelines for Students with Disabilities*, so that they will be more aligned to current technological access issues that colleges face in the delivery of distance education courses and, thus, more useful to the 112 California Community Colleges.

On July 9, 2007, regulations regarding the standards and criteria for distance education courses were approved by the Board of Governors. Regulations regarding distance education attendance accounting standards were approved by the Board on June 16, 2008. Earlier changes to regulations regarding the rules for immediate supervision and control within distance education were approved on January 15, 2002. All three sets of regulations and guidelines were combined in the 2008 Omnibus Version of the *Distance Education Guidelines* to provide an all inclusive reference on distance education related regulations. Through collaborative work between the Chancellor's Office DSPS Program and the Educational Technology Advisory Committee, language was included in the release of the new Distance Education Guidelines, which states, in part:

*"...The following are a few general principles that should be followed in ensuring that distance education courses are accessible to students with disabilities. They embody the general concepts of the law but do not provide a detailed legal analysis of the ADA requirements. Persons utilizing this document who are unfamiliar with the ADA and section 508 may wish to consult district legal counsel or the college ADA Coordinator or DSPS Coordinator for further information. **A separate and more detailed set of revised guidelines on accessibility and distance education will be issued by the Chancellor's Office at a later date....(bolded for emphasis).**"*

The eleven general principles that follow that paragraph can be found in the *Basic Requirements* section of this document and were closely considered when developing these new *Distance Education: Accessibility Guidelines*.

These actions and events, combined with less formal, but equally important, feedback from the field opining that the *Distance Education: Access Guidelines for Students with Disabilities* needed to be updated to a more useful and relevant document, all resulted in the Chancellor's Office committing to update the 1999 version of the guidelines. A new task force, consisting of campus experts in distance education, web accessibility, curriculum, instructional technology, new and emerging assistive technologies, DSPS program management, as well as Chancellor's Office representation, was convened to

accomplish this goal. The following guidelines are the result of the work of the *Distance Education Accessibility Task Force*.

Highlights of the changes to the original guidelines include the addition of a *Conceptual Framework* section that includes a discussion of the relevance of Universal Design, a *Frequently Asked Questions* section, a new vision of the guidelines with a focus on newly defined categories of delivery and references to new and emerging technologies that were not in existence in 1999, and the release of the document in an accessible, easily searchable, user-friendly, electronic online format.

### **Conceptual Framework**

In updating these guidelines, it was essential to communicate them in the context of standards that exist in the public arena. As with the 1999 *Distance Education: Access Guidelines for Students with Disabilities*, the Task Force followed the principles developed by the World Wide Web Consortium (W3C). In this update, Web Content Accessibility Guidelines (WCAG) 2.0 specifically were utilized.

The W3C is an international community. Member organizations, a full-time staff, and the public worked together under a clear and effective consensus-based process with a goal of providing a shared standard for Web content accessibility that meets the needs of individuals, organizations, and governments internationally.

Web Content Accessibility Guidelines 2.0 provide definitions and requirements essential to making web content accessible. Several layers of guidance are offered, including overall *principles*, general *guidelines*, testable *success criteria* and a rich collection of *sufficient techniques*, *advisory techniques*, and *documented common failures* with examples, resource links and code.

The use of WCAG 2.0 will make content accessible to a wider range of disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these. Following these Guidelines will also make Web content more functional to users in general.

Under each of the principles are Guidelines and Success Criteria that help to address these principles for people with disabilities by defining conformance to the WCAG 2.0 Guidelines. A Success Criterion is a testable statement that will be either true or false when applied to specific Web content. "Understanding WCAG 2.0" provides detailed information, including intent, the key terms that are used in the Success Criterion, and how the Success Criteria in WCAG 2.0 help people with different types of disabilities.

## Distance Education Accessibility Guidelines

WCAG 2.0 only includes those Guidelines that address issues that significantly block access or interfere with access to the Web for people with disabilities.

**Principles** - There are four principles that provide the foundation for Web accessibility: *perceivable, operable, understandable, and robust*. The Guidelines and Success Criteria are organized around the following four principles, which lay the foundation necessary for anyone to access and use Web content. Anyone who wants to use the Web must have content that is:

1. **Perceivable:** Information and user interface components must be presentable to users in ways they have the ability to comprehend (it can't be invisible to all of their senses), e.g.:
  - Provide **text alternatives** for non-text content.
  - Provide **captions and alternatives** for audio and video content.
  - Make content **adaptable**; and make it **available** to assistive technologies.
  - Use **sufficient contrast** to make things easy to see and hear.
2. **Operable:** User interface components and navigation cannot require interaction that a user is unable to perform, e.g.:
  - Make all functionality **keyboard accessible**.
  - Give users **enough time** to read and use content.
  - Do not use content that may cause **seizures**.
  - Help users **navigate and find** content.
3. **Understandable:** Information and the operation of user interface cannot be beyond the users' comprehension, e.g.:
  - Make text **readable and understandable**.
  - Make content appear and operate in **predictable** ways.
  - Help users **avoid and correct mistakes**.
4. **Robust:** Content must be **robust enough** that it can be interpreted reliably by a wide variety of user agents, including assistive technologies, e.g.:
  - Maximize **compatibility** with current and future technologies.

**If any of the four principles are not met, users with disabilities will not be able to use the Web.**

### **Universal Design**

Throughout the community college system, distance education continues to grow to include more infrastructure, course offerings, and services. With this growth comes the responsibility to reach and accommodate more students, including those with disabilities.

To meet the challenge of access, educational research has come to acknowledge the concept of Universal Design as a paradigm shift, representing an all-inclusive approach to designing barrier-free environments. The term, originally borne in the field of architecture, has found its place in the educational arena, where the design of curriculum and course materials allows us to rethink the design, preparation and delivery of instruction.

***Universal Design incorporates those accessibility features into the beginning stages of course design. This is a proactive approach to building broad usability for many and alleviates the need for numerous individual accommodations.***

In architecture, we have seen the acceptance of new standards that allow for broader usage and thus avoid unintentionally designed barriers. In education, we see the same unintentionally designed barriers in online courses that need to be redesigned based on individual students' requirements for access. If principles of Universal Design were instituted from the beginning, accommodations required for students with disabilities because of inaccessible environments could be ameliorated. In education, the core designers of curriculum are faculty. Faculty must be provided with the opportunity to understand and implement Universal Design, which will create improved accessibility for students with disabilities.

Since the publication of the 1999 *Distance Education: Access Guidelines for Students with Disabilities*, approaches to training have gradually increased access, but the task is not complete. Building universally designed courses is a joint responsibility between faculty, trainers, distance education coordinators, access specialists, alternate media staff and administrators who make the commitment through institutional support.

Students need options and flexibility for expressing and demonstrating what they know. Accessibility can be thought of as an "add on" or reactive approach to an inaccessible environment. However, Universal Design incorporates those accessibility features into the beginning stages of course design. This is a proactive approach to building broad usability for many and alleviates the need for numerous individual accommodations.

## *Distance Education Accessibility Guidelines*

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In the 2008 revision of the system-wide Distance Education Guidelines, (Guideline section 55202) it states that “*course quality depends upon the full involvement of the faculty in the design and application of DE courses.*” Full engagement begins when faculty present their DE addenda to campus curriculum committees, stating which methods of instruction they will use to teach a course. This is an opportunity for full inclusion, redesign, change and commitment to all students.

### **Legal Requirements**

Both state and federal law require community colleges to operate all programs and activities in a manner which is accessible to qualified individuals with disabilities (also referred to in federal law as “qualified handicapped persons”). (29 U.S.C. § 794, 20 U.S.C. § 1405, 42 U.S.C. § 12101, Gov. Code § 11135.) The operative federal laws referenced above are commonly referred to as Section 504 of the Rehabilitation Act of 1973, and Title II of the Americans with Disabilities Act of 1990. (29 U.S.C. § 794, 42 U.S.C. § 12101.) As the system develops its capacity for creation of technology-based instructional resources and the delivery of distance learning, it must proceed with the needs of all students in mind, including the unique needs of students with disabilities. Title II recognizes the special importance of communication, which includes access to information, in its implementing regulation at 28 C.F.R. 35.160 (a). The regulation requires that a public entity, such as a community college, take appropriate steps to ensure that communications with persons with disabilities are as effective as communications with others.

The United States Department of Education, Office for Civil Rights (OCR) is responsible for ensuring that all educational institutions comply with the requirements of all federal civil rights laws, including Section 504 of the Rehabilitation Act and Title II of the ADA. As a result, the opinions of OCR are generally afforded considerable weight by the courts in interpreting the requirements of these laws. OCR has had occasion to issue several opinions applying the requirements of the Section 504 and ADA regulations to situations involving access to distance education and/or computer-based instruction.

In responding to a complaint by a student with a disability alleging that a university had not provided access to the Internet, OCR noted that:

*“[T]he issue is not whether the student with the disability is merely provided access, but the issue is rather the extent to which the communication is actually as effective as that provided to others. Title II [of the Americans with Disabilities Act of 1990] also strongly affirms the important role that computer technology is expected to play as an auxiliary*

## Distance Education Accessibility Guidelines

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*aid by which communication is made effective for persons with disabilities.”*

[\(OCR Docket No. 09-95-2206, January 25, 1996\)](#)

Adding additional clarity to the meaning of "effective communication," OCR has held that the three basic components of effective communication are: "timeliness of delivery, accuracy of the translation, and provision in a manner and medium appropriate to the significance of the message and the abilities of the individual with the disability."

[\(OCR Docket No. 09-97-2145, January 9, 1998\)](#)

OCR also points out that the courts have held that a public entity violates its obligations under the ADA when it only responds on an ad-hoc basis to individual requests for accommodation. There is an affirmative duty to develop a comprehensive policy in advance of any request for auxiliary aids or services.

Finally, in considering the magnitude and responsibility of this task, OCR states: “[T]he magnitude of the task public entities now face in developing systems for becoming accessible to individuals with disabilities, especially with respect to making printed materials accessible to persons with visual impairments, is comparable to the task previously undertaken in developing a process by which buildings were to be brought up to specific architectural standards for access. Buildings in existence at the time the new architectural standards were promulgated are governed by "program access" standards. However, buildings erected after the enactment of the new architectural standards are strictly held to the new standards on the premise that the builder is on notice that such standards apply. One who builds in disregard of those standards is ordinarily liable for the subsequent high cost of retrofitting. Similarly, from the date of the enactment of Title II onwards, when making purchases and when designing its resources, a public entity is expected to take into account its legal obligation to provide communication to persons with disabilities that is "as effective as" communication provided to non-disabled persons. At a minimum, a public entity has a duty to solve barriers to information access that the public entity's purchasing choices create, particularly with regard to materials that with minimal thought and cost may be acquired in a manner facilitating provision in alternative formats. When a public institution selects software programs and/or hardware equipment that are not adaptable for access by persons with disabilities, the subsequent substantial expense of providing access is not generally regarded as an undue burden when such cost could have been significantly reduced by considering the issue of accessibility at the time of the initial selection.”

[\(OCR Docket No. 09-97-2002, April 7, 1997\)](#)

There are also state laws and regulations which require community colleges to make their distance education offerings accessible to students with disabilities. Government Code section 11135 *et seq.* prohibits discrimination on various grounds, including

## ***Distance Education Accessibility Guidelines***

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mental or physical disability, by entities receiving funding from the State of California. The Board of Governors has adopted regulations in Title 5, California Code of Regulations, section 59300 *et seq.* to implement these requirements with respect to funds received by community college districts from the Board of Governors or Chancellor's Office. These regulations require community college districts and the Chancellor's Office to investigate and attempt to resolve discrimination complaints filed by students or employees.

In addition, the Board of Governors has adopted Title 5 regulations setting forth the general requirements applicable to all independent study courses (section 55300 *et seq.*) and those requirements specific to distance education courses (section 55370 *et seq.*). Section 55370 expressly states that the requirements of the Americans with Disabilities Act are applicable to distance education courses.

## **Title 5, California Code of Regulations on Distance Education**

The Board of Governor's approval of distance education regulations for the California Community Colleges permits colleges to explore and develop educational initiatives using advanced communication and computing technologies to address student access issues related to geographical, cultural, disability or facility barriers.

Ensuring that distance education courses, materials and resources are accessible to students with disabilities is a shared institutional responsibility. Faculty need to receive appropriate training in order to ensure that they understand what constitutes accessibility, and institutions must provide faculty with both the necessary training and resources to ensure accessibility. The

Americans with Disabilities Act of 1990 (42 U.S.C. 12100 et seq.), Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. § 794d), and California Government Code section 11135 all require that accessibility for persons with disabilities be provided in the development, procurement, maintenance, or use of electronic or information technology by a community college district using any source of state funds. (See Legal Opinion M 03-09.) Title 5, section 55200 explicitly makes these requirements applicable to all distance education offerings.

The remainder of this document sets forth guidelines developed by the Chancellor's Office to address specific issues community college districts will face in meeting their legal obligation to make distance education courses accessible to students with disabilities. These guidelines are not legally binding on districts, but the Chancellor's Office will apply these guidelines in determining whether a district has met its obligations under Title 5, sections 55370 and 9300 *et seq.* Districts which follow these guidelines will generally be regarded as having met those obligations. Districts which do not follow these guidelines will bear the burden of demonstrating that they have achieved compliance with their legal obligation to provide access to distance education for students with disabilities by other means.

***“.....It is unacceptable for universities to use emerging technologies without insisting that this technology be accessible to all students.” OCR ‘Dear Colleague’ Letter (2010)***



## Basic Requirements for Distance Education

- One of the primary concepts of distance education (DE) is to offer students *learning anytime, anywhere*. Therefore, all DE resources must be designed to afford students with disabilities maximum opportunity to access distance education resources *anytime, anywhere* without the need for outside assistance (e.g. sign language interpreters, aides, etc.).
- Distance education resources must generally be designed to provide “built-in” accommodation (i.e., closed or open captioning, descriptive narration) and/or interface design/content layout, which is accessible to “industry standard” assistive computer technology in common use by persons with disabilities.
- Whenever possible, printed information should be provided in the alternative format preferred by the student (i.e., Braille, audio tape, large print, electronic text, MP3, DAISY). When choosing between possible alternative formats or methods of delivery, consideration should be given to the fact that methods which are adequate for short, simple or less important communications may not be equally effective or appropriate for longer, more complex, or more critical material. (Example: Use of a telephone relay service may be an acceptable method for a faculty member to respond to a brief question from a deaf student during his/her office hours, but would not be appropriate as a means of permitting that same student to participate in a class discussion in a course conducted by teleconference.) Issues concerning accommodation should be resolved through appropriate campus procedures as defined under Title 5, section 56027.
- Adoption of access solutions which include assigning assistants (i.e., sign language interpreters, readers) to work with an individual student to provide access to distance education resources should only be considered as a last resort when all efforts to enhance the native accessibility of the course material have failed. This is particularly true since, for several years, colleges have

***Distance education courses, resources, and materials must be designed and delivered in such a way that the level of communication and course-taking experience is the same for students with or without disabilities.***

## ***Distance Education Accessibility Guidelines***

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received funding to assist them in providing access to distance education. In the event that a student files a discrimination complaint, a district relying on the use of readers or interpreters to make a distance education course accessible will bear the burden of demonstrating that it was not possible to build in accessibility.

- Access to DE courses, resources and materials include the audio, video and text components of courses or communication delivered via existing and emerging technologies. Access includes the audio, video, multimedia and text components of Web sites, electronic chat rooms, e-mail, instructional software, CD-ROM, DVD, laser disc, video tape, audio tape, electronic text and print materials. Where access to Web sites not controlled by the college is required or realistically necessary to completion of a course, the college must take steps to ensure that such sites are accessible or provide the same material by other accessible means.
- Distance education courses, resources and materials must be designed and delivered in such a way that the level of communication and course-taking experience is the same for students with or without disabilities.
- Any DE courses, resources or materials purchased or leased from a third-party provider, or created or substantially modified “in-house” after August 1999, must be accessible to students with disabilities, unless doing so would fundamentally alter the nature of the instructional activity or result in undue financial and administrative burdens on the district.
- In August 1999, the Chancellor’s Office began requiring that the curriculum for each DE course and its associated materials and resources be reviewed and revised, as necessary, when the course undergoes curriculum review pursuant to Title 5, sections 55002 and 55206, every six years as part of the accreditation process. Thus, this process should now have been completed for all distance education courses.

***If a college has not yet reviewed its distance education courses to ensure accessibility, it should do so immediately.***

If a college has not yet reviewed its distance education courses to ensure accessibility, it should do so immediately. However, in the event that a student

## *Distance Education Accessibility Guidelines*

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with a disability enrolls in an existing DE course before this review is completed, the college will be responsible for acting in a timely manner and making any requested modifications to the curriculum, materials or resources used in the course, unless doing so would fundamentally alter the nature of the instructional activity or result in undue financial burden on the district.

- In the event that a discrimination complaint is filed alleging that a college has selected software and/or hardware that is not accessible for persons with disabilities, the Chancellor's Office and the U.S. Department of Education, Office for Civil Rights will not generally accept a claim of undue burden based on the subsequent substantial expense of providing access, when such costs could have been significantly reduced by considering the issue of accessibility at the time of initial selection.
- In all cases, even where the college can demonstrate that a requested accommodation would involve a fundamental alteration in the nature of the instructional activity or would impose an undue financial and administrative burden, the college must provide an alternative accommodation which is equally effective for the student if such an accommodation is available.
- The college is responsible for assuring that distance education courses, materials and resources are accessible to students with disabilities. All college administrators, faculty and staff who are involved in the use of this instructional mode share this obligation. The Chancellor's Office will make every effort to provide technical support and training for faculty and staff involved in the creation of accessible distance education courses, resources and materials.

## **New and Updated Laws and Regulations Relating to Distance Education**

### **Proposed Changes to ADA – Website Accessibility**

On July 26, 2010, the U.S. Department of Justice, Civil Rights Division released an Advance Notice of Proposed Rulemaking, formally stating the Department's consideration to revise the Code of Federal Regulations, implementing Titles II and III of the Americans with Disabilities Act. These changes, if enacted, would establish specific requirements for state and local governments and public entities to make their websites accessible to individuals with disabilities. The next step in the process is for the Department to solicit and collect public comments, with a deadline of January 24, 2011. The Chancellor's Office will continue to track these developments closely and if the ADA is in fact amended to provide standards for website accessibility, these guidelines will be updated accordingly, as they affect public institutions such as community colleges, and the accessibility of the websites used in the delivery of distance education.

### **Section 508 Update - 2010**

In March 2010, the U.S. Access Board released a draft document updating its standards for electronic and information technology in the Federal sector covered by Section 508 of the Rehabilitation Act. As part of this effort, it is also updating guidelines for telecommunications products subject to Section 255 of the Telecommunications Act. This document features a new structure and format that integrates the 508 standards and 255 guidelines into a single document referred to as the "Information and Communication Technology (ICT) Standards and Guidelines." Requirements have been reorganized according to functionality instead of product type since many devices now feature an array of capabilities and applications. The draft includes proposed revisions to various performance criteria and technical specifications that are designed to improve accessibility, add clarity to facilitate compliance, address market trends, and promote harmonization with other global guidelines and standards.

### **Digital Millennium Copyright Act**

There are new exemptions to the anti-circumvention provisions of the Digital Millennium Copyright Act (DMCA) that will now allow professors and students to decrypt and excerpt copyrighted video content for lectures and class projects. The rule changes were recently issued by the U.S. Copyright Office, which issues new rules every three years or so since Congress incorporated anti-circumvention rules into the DMCA when it was passed in 2000.

## *Distance Education Accessibility Guidelines*

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The new exemptions will allow professors in all fields and “film and media studies students” to hack encrypted DVD content and clip ‘short portions’ into documentary films and “non-commercial videos.” The agency has not defined short portions. This means that any professor, in any field, can legally extract movie clips and incorporate them into lectures, as long as they are willing to decrypt them. Programs known as ‘DVD rippers’ are available to handle decryption. Additionally, professors are now permitted to use ripped content in non-classroom settings that are similarly protected under “fair use,” such as presentations at academic conferences.

These new exemptions provide an opportunity for professors to compile clips from disparate sources onto one contiguous media file. Ripping portions of disparate sources into one compilation often results in an uncaptioned compilation that will need to be made accessible. There is still an instructional need to continue providing accessible media for persons with disabilities requiring access in online courses. Work with your faculty resource areas for support in understanding the copyright policy on your campus.

### **Access Guidelines for Media Categories**

In general, all electronic information can be placed in one of the following categories:

- Text
- Image
- Audio
- Video
- Complex

While the first four categories are hopefully self-explanatory, 'complex' media encompasses any kind of electronic information that includes interactivity with the end user, as well as electronic information that is a combination of multiple media types.

When considering issues of accessibility with any digital media, it is always important to understand the playback context in which the student will open the media.

#### **Media Type – Text**

Text is the most common form of digital information and most Assistive Technology (AT) applications can access digital text documents. Because of this, text is often thought of as the base-level digital format for providing access to information.

#### **Access Challenges**

Text requires formatting to make it more readable and useable, and this applies to accessibility as well. Applying styles to text, such as 'Index,' 'Heading 1' and 'Heading 2,' will also provide digital formatting for non-visual users.

Access to information in general, and to educational information specifically, is increased when effective navigation structures are provided. By organizing the content and applying styles, the end user is allowed a means to efficiently navigate and interact with the material. The overall usability of the information is increased for all students, regardless of disability.

#### **Solutions/Best Practices**

Digital text comes in a variety of formats, and it is common to denote the type of file format with a three- or four- letter extension following a period, indicated here in parenthesis after each file type.

A range of accessibility and usability potential exists among the digital text varieties, running from simple to powerful. Current digital text categories can be organized as follows:

- **Plain Text (.txt), which is, quite literally, plain text with no formatting**

- **Rich Text Format (.rtf) documents**
- **Proprietary document formats like Microsoft Word (.doc or docx) and InDesign (.indd), etc.**
- **HTML (.htm or .html)**
- **PDF (.pdf)**

There are many digital file formats that use digital text, but not all file formats will open interchangeably without owning the proper application. Because of this, a key consideration for accessibility is to use a non-proprietary file format, or ensure that the necessary technology to open the file is also available to the student.

Of all the digital text formats, properly formatted HTML is a preferred option for access, usability, and content design. HTML provides a high level of access and usability while being freely distributable, easy to create, and able to be viewed with many free applications, as well as many portable devices.

### **Media Type – Images**

Images have a unique power to instill emotions and affect attitudes in ways that textual information cannot. Images take advantage of our visual ability to decode complex and sophisticated information, allowing us to quickly comprehend and organize data in various ways. It is easy to see how digital images can be a tremendous asset in designing and delivering Web-based instruction.

### **Access Challenges**

Ensuring that images are accessible requires providing a textual equivalent. However, when an image is worth a thousand words, this task can be a bit daunting. Remember to let the context define the textual description. An image may be expressing radically different information, depending on the intent of the message being conveyed.

Consider the role of the image in the bigger message, and determine the significance of the image in communicating that message. The more critical the image is to comprehending the message, the more detailed the textual description should be.

### **Solutions/Best Practices**

Whatever the ultimate purpose and instructional value of an image may be, most of the time, digital images will be contained in some sort of digital document file for presentation and viewing by the end user. Depending on the document format, it may be possible to associate a text description of the information directly into the image. Sometimes the textual description will need to be in the document, either before or after the image, or as an image caption.

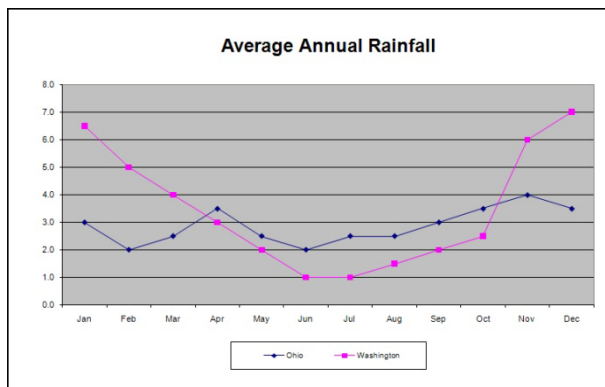
## Distance Education Accessibility Guidelines

This relationship between digital images and the documents in which they are used is important to understand. Most digital image files do not allow textual information to be embedded directly inside the image file. Rather, when placing the digital image into an electronic document, the electronic document will provide some means of associating a textual description with the image. For example, in a Web page, the 'alt' tag is used to describe the content of an image, but the 'alt' tag is part of the Web page, not part of the image.

For complex images such as graphics, charts, maps, or any image requiring an extended explanation, options for placing a text description in the document include:

- placing a text description in the form of a caption, either before or after the image; or
- adding a separate text document that describes the image and making it available to the user via the 'longdesc' (long description) attribute.

The notable difference between the longdesc attribute and the use of a separate text description as a caption is that the longdesc will only be available to individuals with visual impairments using screen reading software. Therefore, as a best practice, it is recommended that the caption option be employed so that all users will have access to the textual information.



**Figure 1:** The above chart could be explained by this caption. The explanation will vary depending on the context in which the image is being used. To the left is a text chart that could be used in a long description (longdesc).

Average Annual Rainfall		
Month	Ohio	Washington
Jan	3.0	6.5
Feb	2.0	5.0
Mar	2.5	4.0
Apr	3.5	3.0
May	2.5	2.0
Jun	2.0	1.0
Jul	2.5	1.0
Aug	2.5	1.5
Sep	3.0	2.0
Oct	3.5	2.5
Nov	4.0	6.0
Dec	3.5	7.0

Remember, if an image is used in multiple documents or converted to a different document format, it will likely have to be re-associated with a textual description in each instance of the image in each document or format.



Some content management systems (CMS) and learning management systems (LMS) allow an alternate text description to be associated when importing it into the CMS or LMS, and then every time that image is used, the alternate text description is automatically in place for users of AT.

### ***Images Masquerading as Text***

As part of the range of content that can be contained in an image, digital images of textual information may be found, but these are not the same as digital text. The “Average Annual Rainfall” title of the chart on the previous page is an example of this. A quick and easy way to check whether the content is digital text or a digital image of text is to try and select the text on your screen and copy it to a word processor or text editor. If the text can be copied into a word processor or text editor, it is digital text. If the text can't be copied, it may be an image of text. Another method to use in making the determination is to search for key text, if it shows up in a search, then it exists as digital text in that document.

### ***Media Type – Audio***

Audio information can convey many types of information, from verbal dialogue to music and sound effects.

### ***Access Challenges***

In general, the basic rule of thumb is to provide a transcript of the spoken dialogue and other meaningful audio content for individuals who are deaf or hard of hearing.

Unlike digital image files, certain audio file formats will permanently associate textual information with the audio content. In this way, the audio file always has the textual description included no matter where the file is copied or moved. There is an important limitation, however, as the playback device or software must provide a method for viewing the embedded textual description. Some common audio files that support the permanent association of textual descriptions are MP3 (.mp3), MP4 (.mp4), Apple Audio Codec (.aac), QuickTime Audio (.mov), and the Apple proprietary formats (.m4a, .m4b, .m4v). It is important to know which file format the audio information is in and how to associate textual information with that file.

### ***Solutions/Best Practices***

Always provide a text transcript for digital audio, and follow the best practices for creating accessible text when creating the audio transcript.

Remember that producing good quality recordings can also help increase the accessibility and usability of audio files for individuals who are hard of hearing. If the

overall quality of an audio recording is poor, AT will have a more difficult time with the information.

### **Media Type – Video**

Digital video information typically includes audio, which, again, needs to be transcribed. However, because it is video, there is a capability to provide the text transcript synchronously with the corresponding dialogue (and all relevant audio information) as it happens. This is called captioning, and it comes in two forms: open and closed.

Closed captions are the captions that can be turned on and off, using the television's remote control.

Open captions are the captions that are permanently turned on, similar to foreign language subtitles.

### **Captions vs. Subtitles**

There is an important distinction between captions and subtitles: subtitles provide a translation of dialogue only, while captions are always in the native language being spoken and provide a textual indication of all significant audio information, including sound effects and music.

For accessibility concerns, subtitles are not equivalent to captions because subtitles do not convey all of the significant audio information of the video. Consider the potential for losing valuable content details in the following examples of sound that would not be included in subtitles:

- Door slamming shut (as in the case of someone entering or leaving the room, but off-camera)
- Telephone ringing
- Dog barking
- Sirens
- Squealing tires
- Gunshots

### **Access Challenges**

To create accessible video, ensure that captioning is in place. Also, ensure that the media playback application is accessible, allowing the end user to control the playback of the content.

Depending on the digital video file format, the production tools available, and the level of technical skills and abilities of the technician, the options for creating captions will vary.

Ultimately, with proper planning, training, and resources, it is possible to caption digital video for use as instructional materials in Web-based instruction.

### ***Solutions/Best Practices***

As of this writing, there is a small pool of digital video file formats commonly in use that allow for captioning. To ensure accessibility of video information, always use a video format that supports captioning. The following video formats currently support captioning: QuickTime Movie (.mov), MPEG (.mpg or .mpeg), AVI (.avi), Flash Video (.flv or .swf), Windows Media (.wmv or .asx) and Real Player Media (.rpm). Always ensure that captioning is in place. Audio description may prove to be a viable solution and should be considered as an addition to video content.

### **Media Type – Complex Digital Media**

Complex media refers to those digital media formats and systems that contain multiple media types at the same time and/or provide a means for user interaction with the content. Complex media can be a single digital file or a system that coordinates multiple digital files being exchanged between the instructor and students, and, sometimes, an actual software application.

HTML and PDF files are common examples of complex media files that can support a variety of different media types, including captioned video and online forms. Content management systems such as Moodle, Blackboard, Wimba, Elluminate, VoiceThread, and Etudes are all complex media management systems. Social media technologies like Facebook, Second Life, and Twitter are examples of other complex media systems used by individuals for communication, entertainment, and self expression. Complex digital media as a category encompasses a wide range of technologies that provide a variety of methods for organizing, delivering, and interacting with digital content.

### ***Access Challenges***

Typically, complex digital media is an assemblage of discrete media files such as text, images, audio, and video. By following the best practices for creating these individual digital files, the accessibility and usability of the information when it is presented as part of a complex digital media system will be assured.

### ***Solutions/Best Practices***

In addition to ensuring the accessibility of the discrete media assets used in a complex media file or system, it is critical to ensure accessibility of the various interactive aspects to ensure that they are compatible with different AT and available to the end user.

In addition, it is important to become familiar with any built-in accessibility tools that are included in whatever complex media file format or system being used.

**Summary of Access Strategies for Digital Media**

Access strategies for the various media categories focus on ensuring that text is properly formatted, proper textual equivalents are provided for non-textual content, and that all interactive controls are available to the end user.

The following table represents the basic access strategies for the primary categories of digital media: text, images, audio, video, and complex information. Depending on the specific type of media within these categories, different capabilities for enhancing access will exist, as shown in the table.

**General Access Strategies by Media Type**

<b>Media Type</b>	<b>Access Strategy</b>
<b>Text</b>	Make use of semantic markup capabilities to identify message elements such as headings, lists, page numbers, and footnotes. Use at least 11 pt fonts, and always ensure strong contrast between the font color and the background color. When possible, utilize a style sheet so the end user can determine how text will be rendered. HTML is generally accessible to most assistive technologies, such as screen readers and electronic reading systems.
<b>Images</b>	Provide a textual equivalent that can be rendered into an accessible format via assistive technology for non-sighted viewers. Keep your descriptions concise and specific to the main point of the image. For complex images, describe the image using a caption or a separate text document that can be accessed via the 'longdesc' attribute.
<b>Audio</b>	Provide a text transcript of the audio information that can be rendered into an accessible format via assistive technology for students with disabilities.
<b>Video</b>	Captioning should be put in place (open or closed) in order to provide an equivalent experience for individuals who are unable to hear the audio content.
<b>Complex</b>	Complex media, which includes applications, interactive content, a content management system, or a file containing multiple media types (i.e., text, images, audio, and video), must begin with the best practices for accessibility in each of the included media types. In addition, appropriate markup of headings and other content must be applied to each of the different media types from beginning to end. By applying appropriate markup and definition to content, as well as the document or delivery system it is contained within, assistive technologies can better process and interact with the complex media.

**Access Strategy Examples**

The following table includes some examples of access strategies for specific disability categories, in order to illustrate how multiple access strategies are required to ensure ultimate access. While the individual access strategies for a given type of media may be simple, the complete access strategies can be extensive when multiple types of media are combined. Likewise, when an individual has multiple disabilities, the access strategies can also grow more complex.

**Examples of Access Strategies by Disability & Electronic Media Type**

Media Type	Blind	Low Vision	Deaf or Hard of Hearing	Mobility Impairment
<b>Text</b>	Braille, Text To Speech, or Audio	Screen Magnification, Text To Speech, or Audio	None required	None required
<b>Audio</b>	None required	None required	Transcript	None required
<b>Video</b>	Descriptive Audio (if possible)	Screen Magnification	Captions of audio content	None required
<b>Complex</b>	See above	See above	See above	See above
<b>Interactive</b>	See above and refer to Section 508 criteria	See above and refer to Section 508 criteria	See above and refer to Section 508 criteria	See above and refer to Section 508 criteria

Ultimately, the power of assistive technology and digital media will develop into a standardized approach of creating content that will ensure the access strategies are viable without excessive effort on the author’s part.

**Assistive Technology Types**

Many people are not familiar with the various types of AT used by people with disabilities. Understanding the relationships between AT and different types of disabilities can help content creators better recognize how a message will ultimately be communicated to diverse audiences.

## Distance Education Accessibility Guidelines

### Assistive Technology by Disability

Assistive Technology (AT)	Blind	Low Vision	Mobility	Learning Disability	Deaf	Hard of Hearing	Speech
Screen Magnifier		X		X			
Screen Reader	X						
E-text Reader	X	X	X	X		X	X
Assistive Listening Device						X	
Closed Captioning (CC)				X	X	X	
Speech Recognition			X	X			
Augmentative Alternative Communication (AAC)							X
Custom Display/System Theme	X	X	X	X	X	X	
Custom Switch/Input System			X				X
Text To Speech (TTS)	X	X		X			X

## Distance Education Accessibility Guidelines

### Types of Alternate Media

Sometimes it is necessary to create customized media in order to fully accommodate the needs of a certain type of disability. A common example is the category of learning disabilities, where the sheer variety and complexity of each individual case provides a challenge in terms of providing a streamlined and systematic solution. As technology continues to improve and the best practices for remedying specific learning disabilities are refined, more automated AT solutions for students with learning disabilities, as well as refined guidelines for content creation, will surely develop. While AT can often do the conversion of media automatically, sometimes human intervention is required to create the alternate media. The following table shows some examples of typical alternate media formats associated with different types of disabilities.

### Alternate Media by Disability

Alternate Media	Blind	Low Vision	Mobility	Learning Disability	Deaf	Hard of Hearing	Speech
Large Print		X					
Books on Tape/CD (RFBD & Bookshare)	X	X	X	X			
E-text	X	X	X	X	X	X	
DAISY	X	X	X	X			
Closed Captioning (CC)				X	X	X	
Braille	X						
Tactile Graphics	X			X			
3D Models & Manipulatives	X			X			
MP3 & Digital Audio	X	X	X	X			
Text To Speech (TTS)	X	X		X			X



## Frequently Asked Questions

### 1. ***Do I really have to make my course accessible?***

Yes. The California Community Colleges are bound by Federal law (Section 508) and California state law (Government Code Section 11135, that mirrors Section 508), to ensure that all DE courses be made accessible to students with disabilities. These legal requirements are reinforced by the Chancellor's Office in the DE Guidelines. Beyond these legal requirements for electronic information, all of the services provided by the California Community College system must be equally available to all citizens of California. Following the Section 508 standards and the principles of Universal Design that are included in the Web Content Accessibility Guidelines (WCAG) 2.0 is the recommended approach to use in achieving accessibility.

***All courses must be accessible regardless of whether or not a disabled student is currently enrolled.***

*"...As officials of the agencies charged with enforcement and interpretation of the ADA and Section 504, we ask that you take steps to ensure that your college or university refrains from requiring the use of any electronic book reader, or other similar technology, in a teaching or classroom environment as long as the device remains inaccessible to individuals who are blind or have low vision. It is unacceptable for universities to use emerging technology without insisting that this technology be accessible to students." (‘Dear Colleague’ letter OCR and U.S. Dept of Education, 2010)*

### 2. ***I have a video I want to use in my distance education course that is not captioned, but I don't know of any deaf students currently enrolled in my course. Do I still have to caption the video?***

Per Section 508 guidelines, video files should always be captioned whenever possible, and in most situations they MUST be captioned. Generally speaking, if the video has audio and it will be stored for later or repeated use in a course, it must be captioned. It does not matter if the video is instructor or institution owned, or if it is a collection of clips and snippets; whatever video will be shown in a classroom, placed on a public website, or used in any open forum, needs to be captioned. In order to use non-captioned video, the video must be contained in a secure, password-protected environment, there must be no students requiring captioning,

and the video can only be used for a single term. Other exclusions to captioning include student work and raw footage that will never be archived after the current use, as well as video with foreign language subtitles.

Quite simply, if you're keeping the video and more than a very limited audience might view it, then you must caption it.

### **3. *How much time will it take to make my course accessible?***

There are several variables that affect this question. The quantity of multimedia you incorporate into your course can impact the amount of time required. In addition, the more complex the multimedia, the greater the time that can be expected to address accessibility. *The key is to build accessibility into your course content during the development phase, so it will not be necessary to go back later to retrofit inaccessible content.*

### **4. *What if I teach a Math or Chemistry course? Is accessibility possible?***

The capability for designing and delivering accessible online Math and Chemistry courses has been rapidly expanding in recent years. Traditionally difficult, if not impossible, content such as the symbols and characters used in Math, Chemistry, and Engineering can now be rendered accessible. Advances in computing and communication technologies have made it possible for many disciplines that rely extensively on graphic means of conveying information to be designed and delivered in an accessible way.

### **5. *If I have no disabled students in my course, do I still have to make it accessible?***

Yes. All courses must be accessible regardless of whether or not a disabled student is currently enrolled. There is no guarantee that you will NEVER have a student with a disability in your course. The intention and mandate of Section 508 is to remove all existing barriers to access so that when a disabled student does enroll, there will be no need to hastily retrofit materials to provide access.

Additionally, disabled students are not required to disclose their disabilities and, in an online course, it would likely be more difficult to identify disabilities than in a face-to-face course. All materials have to be accessible when presented, not in the after-the-fact accommodation style that is the norm in many face-to-face courses. Again, following the principle of Universal Design to make courses usable and effective for everyone benefits all students, not just students with disabilities.

**6. *I understand that I might be exempt from making my content accessible if it is an undue burden to do so. What is an undue burden?***

Undue burden is a concept presented in the Americans with Disabilities Act; defined in Section 35.150 of 29 USC. This section states that, in general, a public entity shall operate each service, program, or activity so that the service, program, or activity, when viewed in its entirety, is readily accessible to and usable by individuals with disabilities. The ADA does not require a public entity to take any action that it can demonstrate would result in a fundamental alteration in the nature of a service, program, or activity or result in undue financial and administrative burdens.

In those circumstances where personnel of the public entity believe that the proposed action would fundamentally alter the service, program, or activity or would result in undue financial and administrative burdens, **the public entity has the burden** of proving that compliance with § 35.150(a) of this part would result in such alteration or burdens.

The decision that compliance would result in such alteration or burdens must be made by the head of a public entity (in the case of a California Community College, either the College President or the District Board of Trustees) or his or her designee after considering **all resources available** for use in the funding and operation of the service, program, or activity and must be accompanied by a written statement of the reasons for reaching that conclusion.

If an action would result in such an alteration or such burdens, the ADA requires that the public entity shall take any other action that would not result in such an alteration or such burdens, but would nevertheless ensure that individuals with disabilities receive the benefits or services provided by the public entity.

In choosing alternate accommodations, the public entity must engage in an interactive process with the person requesting the accommodations and must:

- **give preference to accommodations in the most integrated setting and;**
- **give weight/preference, whenever possible, to the type of accommodation requested.**

In summary, for a college to claim undue burden, it must be prepared to prove compliance with these applicable provisions of the ADA and assume that burden. The claim must be made in writing by the head of the college, the claim must be made after considering **all** the resources available to the college (not only DSPP funds, but all college resources), and the alternate action proposed must be determined through an interactive process, directly involving the student.

It is recommended that each college work closely with their legal counsel, ADA Coordinator, supervisor of DSPS, College Administration and other experts on their campus before considering pursuing a claim of “undue burden.”

**7. *How do I bridge the students’ capabilities with the required learning objectives when there are perceived accessibility challenges?***

In answering this question, there are variables at play, including: 1) What is the learning objective of the course? 2) What is the user’s skill level with regard to using assistive technology?

*What is the learning objective?* It is important to factor in how the course is taught and the nature of the assignment, when determining how to accommodate an individual with a disability. For example, in an astronomy course being taken by a blind student, assignments could be made accessible by providing tactile graphics of star systems or other materials pertinent to the lesson/course.

*What is the user’s skill level with regard to using assistive technology?* Sometimes a user’s skill level with a given assistive technology tool is not adequate to access a course, no matter how accessible the course is. Refer the student to the DSPS office on your campus to help determine the user’s level of expertise and to acquire training, if necessary.

***Every California community college has someone whose duties include training faculty to design accessible courses. This person’s title and department affiliation may vary from campus to campus.***

**8. *To whom do I go for help?***

It is important to know your campus. Every California community college has someone whose duties include training faculty to design accessible courses. This person’s title and department affiliation may vary from campus to campus. A common title is Alternate Media Technology Specialist. This position often resides in DSPS. A good place to start is with the supervisor of DSPS. Other resources may be the Distance Education Coordinator or Dean. The Vice President of Instruction or Student Services is also a possible resource to identify appropriate assistance. Again, know your campus!

**9. *What are our college's responsibilities regarding the accessibility of e-packs?***

*Ultimately, it is the responsibility of each college to ensure that the electronic information they procure is accessible.* It is important to get assurance from the e-pack's publisher representative about its accessibility before making a purchase. Insist that the publisher representative send files to you in an accessible format. Putting pressure on publishers to make content accessible will help to motivate them to provide content that is accessible. Find out about the possibility of being able to use some parts of the e-pack and not others. An e-pack can be mostly text with a few graphics, a full Flash-based site with comprehensive graphics, and everything else in between.

Alternatively, you can modify the publisher files to make them accessible yourself (you may need permission first), create your own files, or not use an e-pack at all. You might also consider switching to a different textbook that uses an accessible e-pack.

***If third-party websites are used as required course materials and you cannot guarantee accessibility of the content, you must be prepared to provide accessible equivalent versions of the content for students with disabilities.***

**10. *When I select a delivery method, how do I determine the accessibility of the tools I choose to teach the course?***

One thing is certain: new exciting ways to present information electronically become available every day. It is our responsibility as educators to consider the ramifications for all students when making new technology purchases. However, as the instructor, you have many resources at your disposal. A good place to start in selecting those tools is with your supervisor of DSPS, Alternate Media Specialist, Faculty Resource Center, technology trainer, etc.

They often have answers or can provide resources based on your specific concerns (i.e., contact information for determining the accessibility of your learning management system, e-book, e-pack, etc.). There is no comprehensive solution for determining the accessibility of all electronic and information technology that is available.

**11. *I send my students to many sites on the web. Am I responsible if those sites aren't accessible? What do I do if they are not accessible?***

Required course materials must be provided in an accessible format. If third-party websites are used as required course materials and you cannot guarantee accessibility of the content, you must be prepared to provide accessible equivalent versions of the content for students with disabilities. It is your responsibility as faculty to conscientiously select course content and materials from external sources that are accessible.

**12. *The graphics I use in my course are merely decorative? Do I really need to add alt labels to them?***

Graphics that are used solely for background or decorative purposes should be labeled with the empty alt tag (where alt = ""). There is no space between the quotes in an empty alt tag.

**13. *The files I upload into my course are mainly Microsoft Word, PowerPoint files, and also Adobe PDF files. Are those accessible?***

In general, the safe answer is no. As of 2010, PowerPoint files are not accessible in their native format. The accessibility of Word and PDF depends on the complexity of the layout of each document. In order to help ensure accessibility of Microsoft and Adobe files, a good starting point is the training materials that are available on the High Tech Center Training Unit (HTCTU) web site at <http://www.htctu.net>.

**14. *I uploaded my syllabus, which contains my course schedule in a table. Is that accessible?***

Tables require some special attention to make them accessible. Depending on your authoring tools (HTML Editor, Word, Acrobat) and the media file format (doc, HTML, PDF), the procedures will vary. However, the concepts for creating accessible tables remain the same: header columns and rows must be added to help define the context of each table's cell data. For more information about creating accessible tables, visit the High Tech Center Training Unit website: <http://www.htctu.net>.

**15. *I use a lot of interactive Flash files as simulations. Are those accessible?***

Flash files can be created in an accessible manner, as long as the content creator is deliberate about including accessibility throughout the authoring process. While it is possible to create accessible Flash-based information, it is not safe to make an assumption regarding the accessibility of Flash files in general. Each Flash file, whether created by you or someone else, must be considered as a separate entity in terms of determining accessibility. If they are not accessible – and if you want to

## Distance Education Accessibility Guidelines

continue using them – you or the creator will have to retrofit the files. Information about Flash accessibility can be found at <http://www.adobe.com/accessibility>, and at the High Tech Center Training Unit website: <http://www.htctu.net>

**16. *I don't have time to caption or transcribe all of my videos and podcasts. How can I get help?***

Talk to the person responsible for web accessibility on your campus. One resource is the DECT (Distance Education Captioning & Transcription) Grant provided for the CCCs. This grant will help to alleviate some costs for the captioning of digital audio and video files used in DE courses: <http://www.canyons.edu/captioning>

**17. *My course is not a DE course. Do I still have to make my web materials accessible?***

Yes. Any content placed on the web must be accessible. For that matter, any online materials that you require students to access, whether you are using a campus-hosted learning management system, your campus faculty web page, or a site that you are maintaining outside the scope of the college altogether, all materials must be accessible to your students.

**18. *I am an adjunct instructor. Am I required to make my course accessible?***

Yes, accessibility is not an optional consideration regardless of your position status. Consult your college's Office of Instruction/Academic Affairs for more information about resources that may be available to help you make your courses accessible. Also, remember to consult the High Tech Center Training Unit for assistance with specific accessibility issues or questions at: <http://www.htctu.net>.

**19. *What are the ramifications if my courses are not made accessible?***

The ramification of not making a DE course accessible is that you become complicit in creating a culture of inaccessibility and discrimination vs. accessibility and Universal Design.

If your online materials are not accessible, there is a chance that a student with a disability could file a discrimination complaint with the Department of Education, Office for Civil Rights. That would likely trigger an investigation. If the OCR found that the student's complaint was valid, your institution would likely have to agree to some binding conditions as part of a costly resolution. Another possibility would be that a student might file a lawsuit and the college or district could be held liable for any damages awarded to the student.

### **Summary**

As this document clearly demonstrates, colleges are currently facing significant technological access issues in providing Distance Education courses. The concept of Universal Design and the development of new and emerging technologies challenge us all in designing accessible course content and materials.

This document has presented historic, legal and conceptual background information to position the reader to move forward with confidence as they plan and execute Distance Education offerings. Review of basic requirements set forth in the legislation, along with guidelines presented in both media categories and disability categories, were intended to enhance usability of this information. Frequently Asked Questions were designed to address the most common concerns that have been voiced by faculty.

The Distance Education Accessibility Guidelines Task Force and the many stakeholders involved in the development of these clear and helpful guidelines gave freely of their time and are to be commended for their insightfulness, knowledge and generosity. Their willingness to grapple with the many access issues and provide solutions and best practices has resulted in a document that offers the most promising solutions available. The lofty goal of this work is assurance to each and every institution that, as they strive to ensure all aspects of their Distance Education offerings are accessible to and useable by individuals with disabilities, they are properly supported in their efforts.

We look forward to your comments and feedback on these updated guidelines and will further update or amend them as regulations and technologies change.



## Distance Education Accessibility Guidelines

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### References (hyperlinks provided for access to more information)

1. U.S. Department of Education, Office for Civil Rights (OCR) September 18,1996 [Letter to California Community Colleges](#)
2. California Community Colleges Chancellor's Office. (CCCCO) (1999) [Distance Education: Access Guidelines for Students with Disabilities](#).
3. MPR Associates, Inc. (2009) [A Needs Assessment of the Accessibility of Distance Education in the California Community College System Part II: Costs and Promising Practices Associated with Making Distance Education Courses Accessible](#). P. 26.
4. CCCCOC. (2008) [Distance Education Guidelines 2008 Omnibus Version](#).
5. Web Content Accessibility Guidelines [\(WCAG\) 2.0](#)
6. [Understanding WCAG 2.0](#) A guide to understanding and implementing Web Content Accessibility Guidelines 2.0
7. The World Wide Web Consortium. [W3C](#)
8. The Rehabilitation Act of 1973 Section 504 ([29 U.S.C. § 794](#))
9. Title 34 Regulations. U.S. Department of Education. (2002) Chapter I - Office for Civil Rights, Department of Education Part 104 - [Nondiscrimination on the basis of handicap](#) in programs or activities receiving federal financial assistance.
10. Americans with Disabilities Act of 1990 ([42 U.S.C. § 12100 et seq.](#))
11. Americans with Disabilities Act of 1990 [Implementing Regulations 28 C.F.R. 35](#)
12. California Government Code section 11135. [Discrimination in state programs or activities](#).
13. California Code of Regulations. [Title 5 section 59300](#) Complaints of Unlawful Discrimination under Title 5.
14. California Code of Regulations. [Title 5 sections 55300 and 55370](#). Distance Education Regulations
15. Section 508 of the Rehabilitation Act (*29 U.S.C. § 794d*), as amended by the *Workforce Investment Act of 1998*. (*P.L.105-220*), August 7, 1998
16. CCCCOC (2003) New Requirements Regarding Implementation of Section 508 of the Rehabilitation Act of 1973. [Legal Opinion M 03-09](#)
17. California Department of Education [Title 5 section 55200](#)
18. Federal Communications Commission. (2010) Telecommunications Act of 1996. [Section 225](#)
19. CCCCOC (1993). [Title 5 section 56027](#) – Academic Accommodations.
20. U.S. Department of Justice Civil Rights Division & U.S. Department of Education Office of Civil Rights. (2010) Dear Colleague letter: [Electronic Book Readers](#).
21. Americans with Disabilities Act of 1990 [Section 35.150 of 29 USC](#)

# Appendices

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## **Resources Funded by the California Community Colleges Chancellor's Office**

### **High Tech Center Training Unit**

<http://www.htctu.net>

Funded by the California Community College's Chancellor's Office, the High Tech Center Training Unit (HTCTU) is a state-of-the-art training and support facility for community college faculty and staff wishing to acquire or improve teaching skills, methodologies, and pedagogy in Assistive Computer Technology, Alternate Media and Web Accessibility. The HTCTU supports High Tech Center programs at 112 community colleges and satellite centers.

### **Distance Education Captioning Grant**

<http://www.canyons.edu/captioning>

The Distance Education Captioning and Transcription grant (DECT) provides CCCs with funding for live and asynchronous captioning and transcription as a means of enhancing the access of all students to distance education courses. The DECT also promotes and supports awareness of available funding as a means to support faculty efforts to develop high-quality, media-rich distance learning courses.

### **@ONE**

<http://www.onefortraining.org>

The @ONE Project goal is the provision of training, online resources and research for California Community College faculty and staff to learn about technology that will enhance student learning and success. @ONE's programs are provided for free - or at a very low cost – with funding from the California Community College Chancellor's Office Telecommunication and Technology Infrastructure Program (TTIP).

### **The Galvin Group**

<http://galvin-group.com>

The Galvin Group, as a contractor to the California Community Colleges Chancellor's Office, provides technical assistance to all 112 college DSPS programs. Its website contains an extensive array of resources for DSPS professionals from federal and state laws to policies and procedures, forms and reports. These resources are divided into fifteen sections and contain over 500 links and documents. In addition, the Galvin Group offers, on behalf of the California Community Colleges Chancellor's Office, modular online training for DSPS staff.

## Other Resources

### Access and Equity in Online Classes and Virtual Schools

[http://www.inacol.org/research/docs/NACOL\\_EquityAccess.pdf](http://www.inacol.org/research/docs/NACOL_EquityAccess.pdf)

Report: This issues brief references to civil rights legislation in the United States, but the issues covered that relate to *access and equity* are relevant to all *online* programs.

### AccessDL

<http://www.washington.edu/doit/Resources/accessdl.html>

The Center on Accessible Distance Learning (AccessDL) is funded by the U.S. Department of Education to share guidance and resources on making distance learning courses accessible to students and instructors with disabilities.

### Accessify Forum

<http://www.accessifyforum.com>

An online forum that holds discussions on web accessibility topics.

### CAST

<http://www.cast.org/index.html>

CAST is a nonprofit research and development organization that works to expand learning opportunities for all individuals, especially those with disabilities, through Universal Design for Learning.

### CSU Accessible Technology Initiative

<http://www.calstate.edu/accessibility>

The Accessible Technology Initiative (ATI) is a project of the California State Universities (CSU) to provide access to information resources and technologies to individuals with disabilities.

### GRADE

<http://www.catea.gatech.edu/grade/>

Georgia Tech Research on Accessible Distance Education (GRADE) is a research project at the Georgia Tech Center for Assistive Technology and Environmental Access (CATEA).

### Knowbility

<http://www.knowbility.org>

Knowbility's mission is to support the independence of children and adults with disabilities by promoting the use and improving the availability of accessible information

technology. Knowbility's programs and services are designed to provide universally-available, barrier-free information technology solutions that help the blind visualize the world around them, help the deaf communicate with the hearing world, and help those with mobility impairments "travel" via the Internet.

### **NCDAE**

<http://ncdae.org/webcasts/>

The National Center on Disability and Access to Education (NCDAE) monitors and promotes electronically-mediated distance education policies and practices that enhance the lives of people with disabilities and their families.

### **Web Accessibility Initiative (WAI)**

<http://www.w3.org/wai>

The Web Accessibility Initiative (WAI) works with organizations around the world to develop strategies, guidelines, and resources to help make the Web accessible to people with disabilities.

### **WebAIM**

<http://www.webaim.org>

Since 1999, WebAIM has been a leading provider of comprehensive web accessibility solutions and expertise internationally. WebAIM offers articles on Universal Design and Web Accessibility: <http://www.webaim.org/articles/archives/universal>

### **World Wide Web Accessibility Consortium (W3C)**

<http://www.w3.org>

The World Wide Web Consortium (W3C) is an international community that develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential. W3C is a forum for information, commerce, communication, and collective understanding.

### **Glossary**

**Audio description** – Narration that is added to a soundtrack to describe important visual details that cannot be understood from the main soundtrack alone. Audio description of video provides information about actions, characters, scene changes, on-screen text, and other visual content. In standard audio description, narration is added during existing pauses in dialogue. Where all of the video information is already provided in existing audio, no additional audio description is necessary. Also called ‘video description’ and ‘descriptive narration.’

**Alt Tag** – A HTML tag that provides alternative text when non-textual elements, typically images, cannot be displayed.

**Assistive Technology** – As defined by the Assistive Technology Act of 1998, the term refers to “any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities.” Assistive technologies include: screen readers and magnifiers, closed captioning, alternative keyboards, and other special software and equipment that makes information devices more accessible. Also referred to as ‘Adaptive Technology.’

**Built-in accessibility tools** – Hardware and software on the computer, such as: a screen reader, magnifier, or on-screen keyboard. These tools are designed primarily for people who have difficulty interacting with their computer using a typical display, keyboard, and/or mouse.

**Caption** – A text transcript of the audio portion of a video file that synchronizes the text to the action contained in the video.

**Captions** – Words shown on a movie, television or computer monitor showing what is being said in the program. Captions may be ‘open’ (visible whenever the program is shown) or ‘closed.’ Closed captions (when shown) may be visible to all people viewing the show, or with some technology, they may be visible only to people who wish to see them. Even though the terms caption and subtitle have similar definitions, captions commonly refer to on-screen text specifically designed for deaf or hard of hearing viewers, while subtitles are straight transcriptions or translations of the dialogue. Captions are usually positioned below the person who is speaking, and they include descriptions of sounds (i.e., gunshots or closing doors) and music. Closed captions are not visible until the viewer activates them. Open captions are always visible, such as subtitles on foreign videotapes.

**Closed Captioning** – Words shown on a movie, television or computer monitor showing what is being said in the program. Closed captions (when shown) may be visible to all people viewing the show, or with some technology, they may be visible only to people who wish to see them.

**Complex media** – Digital media formats that contain multiple media types and may include applications, files, content management systems, interactive content, text, images, audio and video.

**Course Management System (CMS)** – A tool that allows instructors and other college personnel to develop and support online learning. Accessed on the Web, this software allows instructors to manage materials distribution, assignments, communications and other aspects of instruction. Examples are Blackboard, WebCT, ETUDES, Moodle and Sakai.

**Descriptive Narration** – Aids blind and visually impaired viewers with audio descriptions of key visual elements of video programming, including descriptive information on scenery, action, expressions/movements and costumes/props – everything that will give the viewer a better “picture” of what is happening.

**Digital images** – Electronic snapshots taken of a scene or scanned from documents, such as photographs, manuscripts, printed texts, and artwork.

**Digital images of textual information** – Electronic snapshots of text, such as a scanned document.

**Distance Education** – Instruction in which the instructor and student are separated by distance and interact through a variety of communication methods.

**Distance Education course** – For purposes of curriculum approval, this is any course where, by design, the student(s) and faculty are separated by a distance for any portion or element of the student contact hours.

**Electronic Book (E-book)** – The digital media equivalent of a printed book. Such documents are either read on personal computers or on dedicated hardware devices known as e-book readers.

**Electronic Text (E-text)** – Any text-based information that is available in a digitally encoded human-readable format and that is read by electronic means.

**End user** – The person who actually utilizes the technologies.

**E-pack** – An e-pack is a publisher created digital content package which can be used by faculty with technology such as Blackboard and customized to meet their unique needs. It can contain text, graphics, images, interactive Flash files, PDFs, etc.

**Fundamental alteration** – The ADA states a “fundamental alteration” is a change to such a degree that the original program, service, or activity is no longer the same.

**Interface design/content layout** – The intent of Web design to create a website which is a collection of electronic documents and applications that reside on a Web server(s) and present content and interactive features/interfaces to the end user in the form of Web pages.

**Learning Management System (LMS)** – Software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content.

**Native accessibility** - The natural capability of electronic information to be accessed directly and without modifications (out of the box).

**Navigation structure** – A navigation structure identifies how the information will flow through a website and how a user will locate the information presented. A good navigation structure will allow the user viewing the site to maneuver through the pages with ease.

**Playback context** - The unique set of variables comprised of the end-user capabilities, skills, and knowledge, combined with the functionality of the electronic information in question.

**Screen Magnifier** – Software program that magnifies all, or part, of a computer screen to make the content visible to users with visual impairments.

**Screen Reader** - Software for the people with visual impairments that converts the text to speech and reads the content of a computer screen aloud. Screen readers can only interpret text content, so all graphic and multimedia must have alternative text descriptions using alt tags, captions, transcripts, or other methods.

**Semantic markup capabilities** - The capability to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.

**Social media** – Web-based technologies that allow the creation and exchange of user-generated content for networking or connecting to other individuals. Popular networking



sites, Myspace, Facebook and Twitter, are the social media most commonly used for socialization and connecting friends, relatives, and employees.

**Style Sheet** – Style sheets are the way that standards-compliant Web designers define the layout, look-and-feel, and design of their pages. They are called Cascading Style Sheets or CSS. With style sheets, a designer can define many aspects of a Web page, such as: fonts, colors, layout, positioning, imagery, and accessibility.

**Subtitles** – Textual versions of the dialog in films and television programs, usually displayed at the bottom of the screen. They can either be a form of written translation of a dialog in a foreign language or a written rendering of the dialog in the same language.

**Synchronous** – Communication in which interaction between participants is simultaneous.

**Technology based instruction** – Education or training delivered via web-based media, computer, or other technologies.

**Textual description** – Written descriptions of images that can be rendered into an accessible format via assistive technology for non-sighted viewers.

**Universal Design** – Universal Design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

**User interface components** – Hardware and/or software that allow individuals to interact with technology. User interfaces exist for various systems and provide a means of input, allowing the users to manipulate a system, and/or output, allowing the system to indicate the effects of the users' manipulation.

**WAI** – Web Accessibility Initiative is affiliated with the World Wide Web Consortium. It coordinates with organizations around the world to increase the accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development. They are the developer of web content accessibility guidelines.



Submit by Email

Print Form

GROSSMONT-CUYAMACA  
COMMUNITY COLLEGE DISTRICT

Education Master Plan  
Information Submission Form

The GCCCD is starting a year-long process to develop an Educational Master Plan that will serve as the blueprint for our future. The Educational Master Plan is a long-range, comprehensive document intended to guide institutional and program development at both the college and district levels. The priorities established in the Educational Master Plan will serve to guide College and District decisions about growth, development and resource allocation.

As the first step in this planning process, everyone in the GCCCD community (faculty, staff, students and community members) are invited to identify and submit information sources to be reviewed for the trend analysis in one of six taxonomy areas - society, technology, economy, environment, politics, and education. We are not asking you to do new research - only to identify information you already have or that you encounter during the search period (March 21 - April 25) and bring it to the attention of the Scan Teams for review.

Please feel free to submit as many of these forms as you would like. Please answer the following questions for each submission:

1) What is the document we should review? :

2) Author:

3) Source:

4) Which of the following taxonomy areas does it fit into? (Please select only one):

- Society
- Technology
- Economy
- Environment
- Politics and Legal Issues
- Education

Other:

5) Relevance:

6) Page / Section:

7) Add Attachment/Hyperlink Here:

To attach a document use **Tools-Comments and Markups-Attach A File As A Comment**

**Submit** this document by scrolling to the top of the page and clicking on the Submit button at the top right corner. You cannot print once the document is submitted.

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# Wireless in the House

By Bridget McCrea

**W**hen Springfield College's 2,000 resident students arrived on the school's Springfield, MA campus for the fall semester, they got a nice surprise: Over the summer, all of the institution's residence halls—along with other areas of the campus—had been equipped with 802.11n wireless Internet access.

Danny Davis, CIO, said the initiative has been on his IT team's agenda for several years and was formally launched when he came on-board in May 2010. "The college had looked at wireless and knew there was a demand for it from the student population," Davis explained. "Today's students use laptops and want the flexibility to be able to move around and use their devices without having to tether themselves to a wall outlet."

## A Quick and Effective Rollout

Davis said Springfield College's senior administration supported the initiative but wanted to see a comprehensive plan outlining the move from wired to wireless access in the dorms. "We put a plan together pretty quickly," said Davis. "The catalyst for the project was the students and their needs, so we focused on those points and got approval to go ahead with the initiative."

As it happened, the college was already in a "pretty good position" in terms of Internet access infrastructure, said Davis. The institution had revitalized its cable television network several years prior, he said, and "pulled in some [Cat-5] lines in the process."

The college also had the necessary networking-switching equipment in place and required just a few new Cat-5 and Cat-6 lines to be connected to new access points across its campus. Davis said existing routers were assessed for their usage levels, with some being reallocated to the residence halls. "We took existing areas that were underutilized," he said, "and used those existing facilities to bring up the new WiFi capabilities."

Wireless access in residence halls now serves the full range of WiFi electronic communications devices, such as iPads, iPhones, laptop computers, cell phones, and other technologies. Students can register an unlimited number of devices. "We really don't mind what type of device they're using because these dorms are their homes," said Davis. "That's how we look at it."

For students who are using desktops, the residence halls' wired access points were left intact. So far, Davis said, reaction to the WiFi access has been positive, with anywhere from 70 percent to 85 percent of the students using it. "We've already received a significant amount of positive feedback from students who are back on campus," said Davis.

In all, the initiative took about six weeks to complete and posed few challenges for the school's IT team. Additional wireless zones on campus include Cheney Dining Hall, Schoo-Bemis Science Center, the Wellness and Recreation Complex, Babson Library, the Richard B. Flynn Campus Union, and the foyer of the Allied Health Sciences Center.

## Security Concerns

The move from a wired to a WiFi Internet platform did bring up some issues among users, said Davis, who added that a few of them were concerned about the new system's "open" environment. "It was a bit of a cultural shift and required new anti-virus and spam filtering software," said Davis. "We were proactive about putting those elements in place, knowing that we not only need to provide access, but we also have to protect the users."

Davis said the school has taken other steps to ensure that students don't download spyware and viruses when surfing the Web on the WiFi network, which is encrypted and requires registration and a password to access. "With federal mandates [governing] issues like identity theft and protection," said Davis, "we are taking great strides to make sure we're safeguarding users on all fronts."

Davis and his team are also paying attention to issues like iPad security, a concern that has many colleges up in arms over whether to allow the devices on their networks. "We've followed that debate closely, but haven't settled on a particular stance or solution at this time," said Davis. "We want and expect our wireless networking to be as secure as possible, regardless of the platforms. We have a couple of iPads using our networking and haven't had any problems with them."

## The Future Is Layered

Looking to the future, Davis said the school's 802.11n WiFi system is well equipped to handle growth in student population and residence halls. It will also be able to accommodate a possible move to a virtualized computing environment—an initiative that Springfield College is looking to implement "in the near term," according to Davis.

"We built this network with the goal of being able to layer other elements on top of it, including new and evolving technologies," said Davis, whose IT team is working on several other initiatives right now, including a new college admissions system. "We have a lot going on right now, and will be introducing even more technology as the school year progresses."

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*Bridget McCrea is a business and technology writer in Clearwater, FL. She can be reached at [bridgetmc@earthlink.net](mailto:bridgetmc@earthlink.net).*

## U São Paulo Upgrades Massive Wireless Network

By Dian Schaffhauser

One of the largest public universities in Brazil has built up its wireless infrastructure using routing gear from Brocade. The network at the University of São Paulo in Brazil hosts 41,000 computers and thousands of other devices in use by 80,000 students and 6,000 faculty members on seven campuses.

U São Paulo traditionally used a combination of Cisco and 3COM equipment. When the latest purchase was put out for bid, the university said in a statement, it selected Brocade® technology owing to a combination of performance and overall cost-efficiency advantages.

“After evaluating various vendors, Brocade was able to provide us the best overall price-for-performance, high reliability, and one of the lowest total costs of ownership,” said Tereza Cristina Carvalho, director of CCE-USP, the campus computing center.

The university has deployed 25 Brocade MLX routers, which provide 10 gigabit Ethernet data transport and 1 gigabit port density. The company says these routers are best suited for metropolitan area networks, Internet edge/aggregation routing, virtualized data centers, large enterprise core, and high-performance computing environments.

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*Dian Schaffhauser is a writer who covers technology and business. Send your higher education technology news to her at [dian@dischaffhauser.com](mailto:dian@dischaffhauser.com).*



## A Growth Spurt of Wireless and Bandwidth

### By Campus Technology Staff

**W**ireless is a top priority among private four-year college IT leaders, according to a recent survey by Xwires Communications, formerly X-Wires Broadband, a newly acquired division of satellite cable television and telecommunication services provider Campus Televideo.

The study further suggests that these same colleges are growing their bandwidth at accelerated rates. The survey, conducted in early 2010, queried 1,443 IT professionals at private four-year colleges on a range of technology topics. About 10 percent, or 142 people, participated (including IT professionals from four small public universities).

While that number of respondents represents less than 10 percent of all private four-year schools, the data may be suggestive of trends across the larger universe of private four-year higher learning institutions.

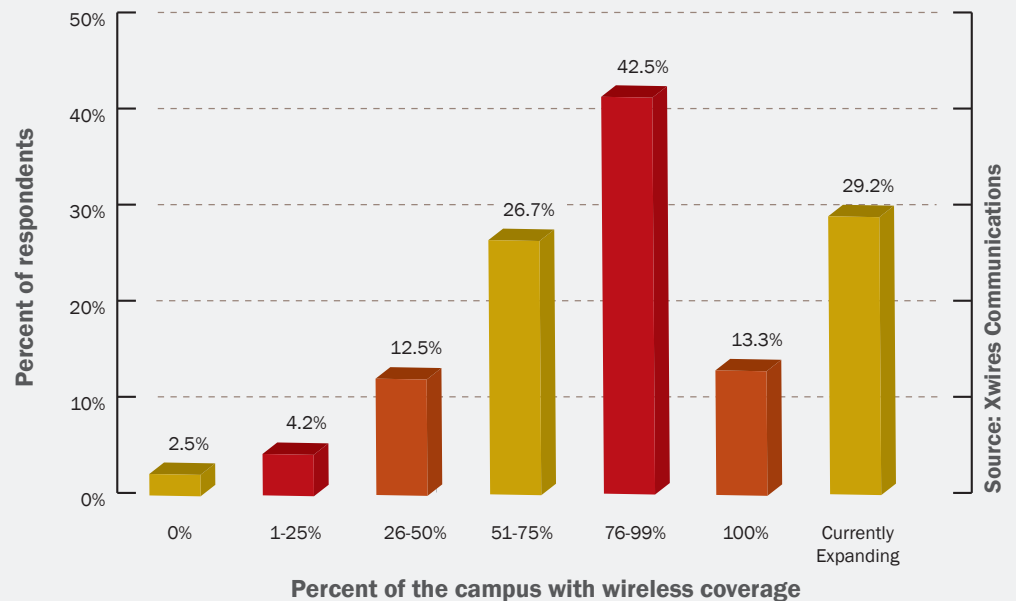
In its second year, the survey found that wireless deployment continues to be a top priority among private college IT professionals, second only to network integrity/virus protection (in 2010 receiving scores of 4.19 and 4.33, respectively, on a five-point scale; results from 2009 were about the same). Wireless has become pervasive at many respondents' campuses, and deployments continue to expand (see chart at right).

According to survey participants, bandwidth is also increasing rapidly on private college campuses. More than 88 percent of respondents said they have added bandwidth within the previous two years, and more than half (52 percent) reported adding 46 Mbps or more within the past year.

"Reacting to accelerating demand, private colleges are adding new bandwidth at a very high rate," the report authors conclude. Furthermore, they say, "The study confirm[s] the importance of wireless networks. Today's students expect high-tech environments and colleges are aggressively meeting that expectation."

A free copy of the report is available to school faculty and staff by contacting Rick Nixon, director of sales and marketing at Campus Televideo, at 203-983-5400 x119 or [rnixon@campustelevideo.com](mailto:rnixon@campustelevideo.com).

#### Pervasive Wireless on Private College Campuses



**More than half (55.8%) of the IT directors at private colleges responding to an online survey reported that they have deployed wireless coverage across more than three-quarters of their campuses. Thirteen percent said their campus is completely wireless and another 29% said they are in the process of expanding their wireless deployments.**

# Enabling the Pervasive Wireless Campus for Higher Education

Institutions of higher education are leveraging the Internet to enrich the learning experience for today's university and college students. Many professors now administer tests online and use Webinars and podcasts to disseminate supplemental information on a variety of subjects. In addition, teachers and administrators post assignments, grades, and study guides online, helping to ensure student success.

Growing up in a wireless world, today's students expect "anywhere, anytime" access to whatever information they need, on whatever device is in their hands. At the same time, the increasing emphasis on campus safety is forcing security personnel to rely on new wireless technologies—from video surveillance to crisis notification systems—to extend their reach and work more efficiently. Given these challenges, universities and colleges must determine how to cost-effectively provide the high-speed wireless access and applications required to meet the needs of both students and campus staff.

Brocade® Mobility enterprise Wireless LAN (WLAN) solutions, featuring support for 802.11n-based wireless networking, can help institutions of higher education efficiently meet these requirements while containing costs and laying the foundation for future growth. Fully integrated with Brocade wired campus networking solutions, Brocade Mobility solutions enable higher education IT departments to unify their wired/wireless communications, providing a seamless edge networking infrastructure to support next-generation applications.

## THE PERVASIVE WIRELESS CAMPUS

Leveraging best-in-class wireless networking technologies, colleges and universities can address today's challenges by enabling pervasive wireless networking across the

entire campus. High-performance 802.11n WLANs allow the reliable delivery of high-speed wireless voice, video, and data inside buildings as well as throughout the campus grounds.

This provides support for applications that greatly improve the learning environment, campus security, and the overall productivity of faculty and staff—while providing value-added services that strengthen communications with both students and their parents. These wireless applications include:

- Real-time faculty and administrative applications
- Distance learning
- Video surveillance
- Security and regulatory compliance

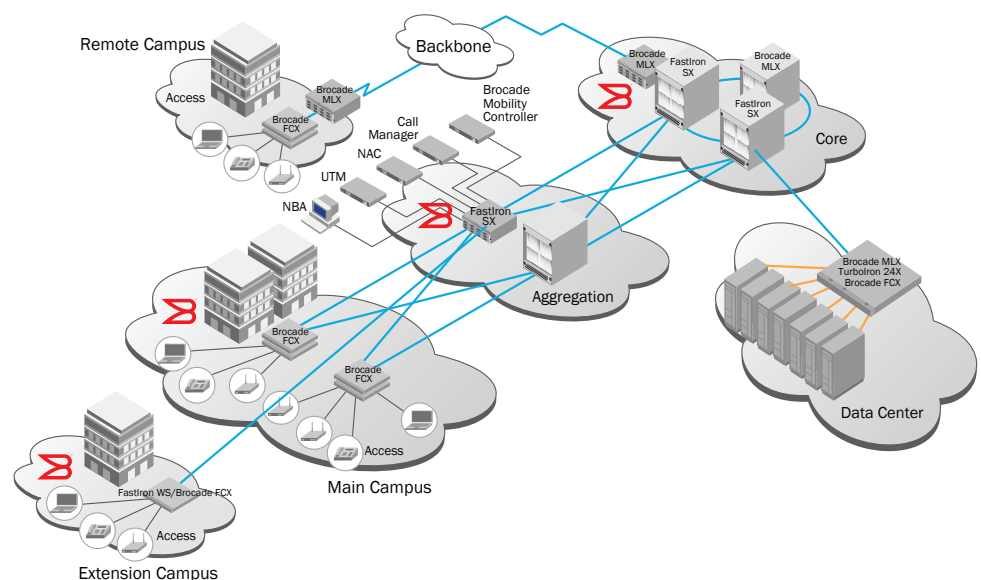
## Real-time Faculty and Administrative Applications

A wireless network can deliver applications that

enable teachers to spend more time on teaching and less time on administrative tasks, helping to improve the quality of education. Wireless attendance applications, for example, can eliminate paper forms, saving time, eliminating errors, and enabling rapid identification of missing students. The ability to send wireless work orders to maintenance staff not only improves productivity, but also enables faster repair—from a leaky faucet or faulty heating unit to the removal of broken glass in the parking lot—helping to maintain a safer and cleaner environment for all.

## Distance Learning

A high-speed wireless network provides a vehicle to enhance and extend the learning environment. In higher education, students can access learning portals, course information, and online libraries as well as collaborate with classmates and professors on other campuses.



Brocade Mobility solutions provide the foundation for pervasive wireless campus deployments.

High-performance wireless networks can give students online access to class and individual lessons as well as homework assignments, library services, and more.

### **Video Surveillance**

The ability to wirelessly connect video cameras both indoors and outdoors eliminates the high cost of wiring, enabling educational institutions to blanket the campus with video cameras. The result is real-time streaming video, providing visibility into every inch of the campus, enabling security personnel to immediately discover and respond to virtually any type of on-campus incident. The digital video is easy to archive and retrieve, and sophisticated analytics help security personnel proactively identify potential problems. The wireless network allows personnel anywhere on campus to watch the video, enhancing overall campus security.

### **Security and Regulatory Compliance**

Because higher education institutions house volumes of financial, health, and other personal information about students, alumni, donors, faculty, and staff, they must keep this data confidential. Wireless networks have multiple layers of security to help ensure airtight data protection, prevent security breaches, and help ensure compliance with regulatory standards, including those set forth by the Payment Card Industry (PCI) and the Health Insurance Portability and Accountability Act (HIPAA).

### **Brocade Mobility Solutions: Making the Pervasive Wireless Campus a Reality**

Brocade 802.11n wireless networks are helping higher education institutions of all sizes around the world realize the promise of the pervasive wireless campus. With speeds up to six times the bandwidth of 802.11a/g, Brocade indoor/outdoor 802.11n wireless networks offer the performance, scalability, coverage, resiliency, and security required to enable cost-effective delivery of some of the most demanding applications.

Brocade offers the unmatched reliability and gap-free security required for successful wireless deployment in educational environments. As a networking industry leader, Brocade can deliver the breadth of experience and proven, integrated wired and wireless products universities and colleges need to maximize the success of their wireless solutions.

### **Expansive Reach with Indoor and Outdoor Coverage**

Brocade Mobility Solutions seamlessly integrates with industry-leading Brocade wired access and aggregation solutions, enabling the extension of secure and ubiquitous wireless access to every corner of the campus—including in (and between) remote buildings, in sports arenas, and even in off-campus housing. The pervasive campus-wide connection provides students with the anywhere, anytime high-speed access they expect while providing the process automation that faculty and campus staff need to improve productivity and efficiency. In addition, it provides the constant video connection required to improve campus security and situational awareness.

### **Superior WLAN Performance with 802.11n**

The Brocade WLAN product family helps institutions of higher education deliver quality mobile video, voice, and data. Enterprise-class Quality of Service (QoS), pre-emptive roaming, load balancing, WMM Admission Control, and seamless Layer 3 mobility combine to provide users with toll-quality voice and a resilient connection as they roam throughout campus—from classroom to dormitory halls to outdoor common areas, sports arenas, and more—ensuring continuity of service for phone calls and data applications. Virtual AP enables broadcast domain separation for secure hotspot enablement.

### **Gap-free Security**

Brocade Mobility solutions offers comprehensive best-in-class wireless security that rivals

that of the wired network. A tiered approach protects and secures every point in the network—wired and wireless. This complete suite of tools includes a role-based wired/wireless firewall that provides protection against attacks and unauthorized access right at the wireless edge—including Layer 2 and Layer 3—using advanced encryption and authentication technologies.

### **Optimization for Dense Deployments in Indoor Areas**

Many university and college campuses require support for high-bandwidth applications in small areas, such as conference rooms and lecture halls. Brocade Mobility SMART RF technology increases capacity in these dense areas by automatically self-tuning the network for optimal performance. In addition, Brocade Mobility solutions adaptive architecture allows local traffic such as video streams from faculty computers to be bridged locally, eliminating potential network bottlenecks.

### **Interoperability**

Faced with limited budgets, institutions of higher education need to be able to leverage their existing technology investments as much as possible. Brocade standards-based wireless networks easily integrate into the existing technology environment, allowing colleges and universities to preserve their current wired and wireless networking infrastructures.



**From:** [Debbi Smith](#)  
**To:** [Lynne Davidson](#)  
**Subject:** technology in education info  
**Date:** Thursday, April 14, 2011 8:52:53 AM

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[http://www.eschoolnews.com/2011/02/25/mobile-learning-not-just-laptops-any-more/?p=57798/?utm\\_source=website&utm\\_medium=shorturl&utm\\_campaign=MobileLearning0311](http://www.eschoolnews.com/2011/02/25/mobile-learning-not-just-laptops-any-more/?p=57798/?utm_source=website&utm_medium=shorturl&utm_campaign=MobileLearning0311)

February 25th, 2011

## Mobile learning: Not just laptops any more

New advances in mobile technology could help schools realize the promise of true anytime, anywhere learning

By Jennifer Nastu, Contributing Editor



Technology News for Today's K-20 Educator

### eSchool News Live

Last fall, nearly 50 percent of middle and high school students said they carried some type of smart phone.

Not all that long ago, the term "[mobile learning](#)" implied laptop computers and mobile carts that were wheeled from classroom to classroom. Now, as a growing number of students carry smart phones, tablets, and other mobile devices that can connect to the internet wirelessly through a cellular as well as a Wi-Fi connection, the definition of "mobile learning" is expanding—and with it, the possibilities inherent in the term.

The rise of mobile technologies small enough to carry in one's pocket, and the increasing power and functionality of these devices, is causing a seismic shift in education technology.

Last fall, nearly 50 percent of middle and high school students said they carried some type of smart phone—a 47-percent increase from fall 2009, according to Project Tomorrow's annual Speak Up survey of students, parents, teachers, and administrators on their uses and views of [school technology](#).

For more on mobile learning, see:

[Leveraging the Power of Mobile Learning](#)

[Innovative learning content for mobile devices](#)

[Where are we going? A look at the future of mobile learning](#)

[Three successful mobile learning projects](#)

There are now five billion wireless subscribers in the world, and of those, 1 billion are 3G subscribers, according to Wireless Intelligence. By 2014, there will be 2.8 billion 3G subscribers. (3G refers to a third-generation cellular network, which is capable of streaming video and other bandwidth-intensive applications wirelessly. Already, some providers are rolling out 4G services that promise even faster download speeds and more capabilities.)

As mobile learning has come to mean something very different than it once did, the very definition of a mobile device may be changing. Mark Anderson of Strategic News Service, a predictive newsletter covering the computing and telecommunications industries, says there are three categories of today's popular computing devices: the laptop, the carry-along (which includes netbooks, iPads, and other slates), and the mobile.



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COMMUNITY COLLEGE DISTRICT

Education Master Plan  
Information Submission Form

The GCCCD is starting a year-long process to develop an Educational Master Plan that will serve as the blueprint for our future. The Educational Master Plan is a long-range, comprehensive document intended to guide institutional and program development at both the college and district levels. The priorities established in the Educational Master Plan will serve to guide College and District decisions about growth, development and resource allocation.

As the first step in this planning process, everyone in the GCCCD community (faculty, staff, students and community members) are invited to identify and submit information sources to be reviewed for the trend analysis in one of six taxonomy areas - society, technology, economy, environment, politics, and education. We are not asking you to do new research - only to identify information you already have or that you encounter during the search period (March 21 - April 25) and bring it to the attention of the Scan Teams for review.

Please feel free to submit as many of these forms as you would like. Please answer the following questions for each submission:

1) What is the document we should review? : USD, AMSOLAR Announce Major Solar Energy Partnership

2) Author: Anthony Shallat '10

3) Source: Inside USD

4) Which of the following taxonomy areas does it fit into? (Please select only one):

- Society
- Technology
- Economy
- Environment
- Politics and Legal Issues
- Education

Other:

5) Relevance: Saving money without any out of pocket costs to Colleges/District and helping the environment at the same time

6) Page / Section: online

7) Add Attachment/Hyperlink Here: <http://www.sandiego.edu/insideusd/?p=6973>

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Please feel free to submit as many of these forms as you would like. Please answer the following questions for each submission:

1) What is the document we should review? : University of San Diego Installs Solar Panels

2) Author: Tanya Roscorla

3) Source: Converge

4) Which of the following taxonomy areas does it fit into? (Please select only one):

- Society
- Technology
- Economy
- Environment
- Politics and Legal Issues
- Education

Other:

5) Relevance: Saving money without any out of pocket costs to Colleges/District and helping the environment at the same time

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7) Add Attachment/Hyperlink Here: <http://www.convergemag.com/infrastructure/University-of-San-Diego-Solar-Panels.htm>

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Please feel free to submit as many of these forms as you would like. Please answer the following questions for each submission:

1) What is the document we should review? : University of San Diego Powered by Solar Energy

2) Author: Nicole Corpuz

3) Source: KPBS

4) Which of the following taxonomy areas does it fit into? (Please select only one):

- Society
- Technology
- Economy
- Environment
- Politics and Legal Issues
- Education

Other:

5) Relevance: Saving money without any out of pocket costs to Colleges/District and helping the environment at the same time

6) Page / Section: online

7) Add Attachment/Hyperlink Here: <http://www.kpbs.org/news/2010/nov/17/university-san-diego-powered-solar-energy/>

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