

# Computer-Based Technology and Chinese/English Bilingual Education In California, U.S.A.

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電腦遠距／輔助教學、華語文教學

摘要：

本論文旨在探討電腦科技如何融入加州各級教育中，並討論網路遠距離學習的評量，以及電腦科技與全球華文教育整合的問題。

討論課題包括：加州大、中、小學的電腦科技的應用，中小學教師職前及在職的科技訓練及評量標準，大學教授在「英特爾的未來教學」計畫上的電腦科技的訓練，以及加州中小學學生在「挑戰 2000 年多媒體計畫」裡的電腦科技學習內容及標準。

同時，也討論網際網路遠距離教學和學習與網址品質評量標準。也將討論僑委會的兩個網站的內容及設計：「親子園地」與「華語教室」。總之，統整電腦科技在全球華語文教育上的建議，將加以描述和討論。

## ABSTRACT

This paper examines how the computer-based technology is infused into education at all levels in California. Additionally, evaluation of online/Web distance learning and suggestions of integrating computer-based technology into international Chinese education are discussed.

On the topic of computer-based technology in California k-16 education, the technology standard of California Commission on Teacher Credentialing, pre-service teacher's training on technology, university/college faculty's training on the Intel Tech to the Future Program, and The Challenge 2000 Multimedia Project in California K-12 classrooms are discussed. In this Conference these programs will be presented.

On the topic of evaluation of online/Web distance learning, criteria for evaluating the quality of a Web site and guide for evaluating Internet resources are examined. In addition, The Family Corner and Mandarin Classroom Programs at the OCAC Website are examined. In conclusion, several suggestions for integrating computer-based technology into international Chinese education are stated and discussed.

## Computer-Based Technology and Chinese/English Bilingual Education In California, U.S.A.

The widespread reliance of contemporary society upon computer-based technologies reflects the increasing importance of electronic information management and communication tools. Technology, in its many forms, has become a powerful tool to enhance learning and teaching. Productivity, communication, research, and learning are dramatically enhanced through the appropriate use of technology thereby allowing educators to accomplish tasks that were not previously possible.

The true power and potential of computer-based technologies lies not in the machine itself but in the prudent and appropriate use of software applications to gather, process, and communicate information. Teachers' integration of these tools into the educational experience for students, including those with special needs, is crucial in preparing them for lives of personal, academic, and professional growth and achievement.

Teachers must become fluent, critical users of technology to provide a relevant education and to prepare students to be life-long learners in an information-based, interactive society. The appropriate and efficient use of software applications, related media, and Internet to access and evaluate information, analyze and solve problems, and communicate ideas is also essential to maximizing the instructional process. Such use of technology supports teaching and learning regardless of individual learning style, socio-economic background, culture, ethnicity, language, or geographic location ([www.ed.gov](http://www.ed.gov)).

### Computer-based Technology in K- 16 Education in CA, U.S.A.

#### I. Technology Standard of California Commission on Teacher Credentialing

The California Commission on Teacher Credentialing (CTC) requires all colleges and universities with Commission-accredited programs for the preparation of Multiple and/or Single Subject Teaching Credentials to prepare teachers to meet the computer-based technology standard—"Use of Computer-Based Technology in the Classroom: Teachers are able to use appropriate computer-based technology to facilitate the teaching and learning process." (Standard 20.5) ([www.ctc.ca.gov](http://www.ctc.ca.gov))

#### II. Pre-service Teacher's Training on Computer-based Technology in CA

The College of Education at San Jose State University, the largest teaching credential programs/education in California, implements three-pronged technology program in all teaching credential programs to address the state computer-based technology ([www.sweeneyhall.sjsu.edu](http://www.sweeneyhall.sjsu.edu)). Phase I is Testing. Credential candidates are required to be tested prior to admission to the credential program to ensure that they have minimal computer competencies. Individuals who lack computer expertise will be advised to take appropriate course work and to retest prior to being admitted to a program of studies. Phase II is Integration of Computer-based Technology in Course Work. Most courses in the teaching

credential programs models the infusion of technology for pre- and in-service teachers. Particularly since August 2001 twenty faculties in the Multiple and Single Subject Teaching Credential Programs have been trained on the latest technology by the Institute of Computer Technology (ICT), a non-profit organization operated by Intel and Microsoft companies. The Intel Teaching to the Future Program is currently incorporated in most courses at College of Education, San Jose State University. Phase III is Field Practicum. Each Teacher candidate has to demonstrate their proficiency as a computer-based technology user in their teaching practicum.

### III. Teacher Educator's Training on the Intel Teach to the Future Program

Studies show that only one teacher in five currently feels "very well prepared" to integrate technology into the grade or subject s/he teaches. Equally disturbing is that nearly four teachers in ten report that their students do not use computers at all during a typical week. As a result, teachers throughout the country (U.S.A.) and from around the world have asked for help in integrating advanced technology into their classrooms. In response, The Institute of Computer Technology (ICT) ([www.ict.org](http://www.ict.org)), a non-profit public agency funded by the Intel and partnered with Microsoft, created the Intel Teach to the Future program. It is an intensive curriculum designed to incorporate the same advanced technology, which is now used in the industry, inside the classroom. The core focus of this curriculum/program is to ensure that technology is used successfully to improve student learning. Today, sixty percent of the jobs being created call for individuals having at least basic computer skills, and this number has been increasing dramatically. Classrooms can no longer afford to be left behind. In a world increasingly dependent on technology-whether it be in the classroom, at home, or the workplace-students and teachers must be technology proficient.

The Intel Teach to the Future Educational Program is a worldwide initiative, started in 2001, to help teachers effectively integrate the use of computer technology into classroom curriculum to improve student learning. Themes of the Intel Teach to the Future curriculum include:

- Utilizing Essential Questions to promote effective use of technology in the classroom.
- Introducing technology tools and strategies that students and teachers can use to enhance learning through research, communication, and productivity.
- Supporting hands-on learning while creating units and evaluation tools that address state and national academic and technology standards.
- Encouraging students to work in teams, problem-solve, and participate in peer review of their units.

In 2001, Intel is supporting the training of 62 pre-service teacher educators from twenty-two U.S. universities. These teacher educators will in turn use this Intel Teach to the Future curriculum and program CD-ROM 1.0 to train over 5,400 pre-service teachers in 2001 and 2002.

### IV. Computer-based Technology in K-12 Classrooms in CA, U.S.A.

The Challenge 2000 Multimedia Project (MMP), a 5-year initiative funded by the U.S. Department of Education and sponsored by the Joint Venture: Silicon Valley Network (JVSV) has been implemented at most K-12 schools in northern California, particularly Silicon Valley

since 1995 (<http://pblmm.k12.ca.us>). This innovative program provides mentoring and support to teachers learning to integrate computer-based technology into their classrooms through project-based learning supported by multimedia (PBL+MM). This project is developed on the principles of project-based learning with the added twist of incorporating computer-based technology that students must use to present their work and findings. In this project, advanced technology is integrated into regular subject-area curriculum to enhance student's high-level thinking skills. Students not only learn content knowledge and technology skills but also valuable workplace competencies such as teamwork, communication, planning and problem solving. Students use the computer and technology as a research tool, a publishing tool, and a communication device to maximize their learning. Examples of students' multimedia products are Web page or site, hypermedia stack, PowerPoint presentation, computer generated movie, and video program. Students display their work at Project-sponsored multimedia fairs, such as California Student Media and Multimedia Festival ([www.mediafestival.org](http://www.mediafestival.org)).

The Challenge 2000 Multimedia Project is also an innovative way of integrating curriculum development and professional development. The Project provides tools for teachers to transform conventional teaching into project-based, technology-rich curriculum. Teachers work together to develop instructional designs that include:

- Challenging, multidisciplinary curriculum
- Sustained student effort
- Student decision making
- Collaboration
- Real-world connections
- Measures of student accomplishment
- Multimedia applications

In this way, K-12 classroom teachers build on what they do well, learn new practices and develop exemplary educational experiences for all students.

### Online/Web Distance Learning on Chinese Language Education

When K-12 students use the Internet to learn or to conduct research, it is very important for teachers and parents to know how to evaluate the material they find on the Web. Students often assume that information found on the Web is factual. Teachers and parents need to help them determine if a Web site has usable, factual, and reliable information. For younger students, you may need to conduct the research yourself and create a Web site or Favorites folder that has links to the pages that you want them to use. The following criteria and form you may use to evaluate any Web sites on the Internet, including the OCAC Website ([www.ocac.gov.tw](http://www.ocac.gov.tw)).

#### I. Criteria for evaluating the quality of a Web site

Content: The content supports the learning objectives and contains topic-specific criteria. Examples of topic-specific criteria:

- Information is current, accurate, complete, meaningful, and useful.
- Includes links to other relevant and quality Web sites.

- Demonstrates understanding of how geological structures impact the culture and a chosen country through written examples, pictures, links, and posted correspondence.
- Publishes survey results using tables and graphs.

#### Design and Layout:

- *Aesthetics:* The Web site layout is logical and aesthetically pleasing. The design is consistent and reinforces the content message.
- *Graphics and Pictures:* Graphics are attractive and relevant. Graphics are placed so as not to interfere with the content. Quantity and resolution of images allows the Web page to load quickly.
- *Text, Color, and Background:* The text is easy to read. The background is subdued and coordinates with text colors and graphics.
- *Lists and Tables:* Lists and tables are properly constructed and positioned.
- *Navigation:* Links and buttons are properly placed to allow easy access and movement between pages within the site.
- *Interactive Communication:* Provides a Web Board to facilitate interactive communication among readers and Web site author/manager.

## II. Guide for evaluating Internet resources

- URL of Web site:
- Name of Web site:
- Primary use (circle all that apply):    students       teachers       others
- What is the purpose or goal of this Web site?
- What organization created this site?
- Do they have a built-in bias toward the information?
- What other references are cited for the information presented?
- What other types of organizations link to this site? (Using the Google search engine, type *link*; and the Web site address)
- Who is the author of the page and does this person/organization have valid credentials to present this information?
- Is there a way to provide feedback on the Web site and create an exchange with the Web site manager or author?
- How old is the material on the Web site? Is it current or outdated?
- Describe how this Web site might be used in your teaching:
- Reviewing your answers above, is this a good site to use for your teaching? (circle one)    yes       no

## III. Chinese Education Programs at the OCAC Website

East Gate American-Chinese school is a private bilingual school, which provides after-school program and weekend-school program. Mandarin classes are offered from kindergarten to high school levels. The school uses many bilingual materials in teaching and learning. The school also utilizes the OCAC Website, <http://edu.ocac.gov.tw>, for students to learn Mandarin and Taiwanese languages. The OCAC Website contains a variety of on-line programs. In the

OCAC Website, the Family Corner Program and Mandarin Classroom Program are the two most appropriate on-line programs for the students in that school.

The Family Corner Program is a Chinese education program for children from ages three to fifteen. It contains five sections which are Biweekly Topic (ages 10 to 15), Biweekly Section (ages 10 to 15), Chinese for Kindergarten (ages 5 to 6), Chinese for preschoolers (ages 4 to 5), and Mandarin Learning Activities for young ages (ages 3 to 6). The contents of the program include cultures, social skills, and daily life matters. These contents are relevant to our students' learning. However, the teachers at the East Gate American-Chinese School have encountered two problems after utilizing this on-line program in their teaching and students' learning. The first problem relates to the method of instruction and learning. The lessons designed in the Program only involves passive learning such as reciting the lesson text, memorizing vocabulary and drill. However, the communicative method, which is the most appropriate teaching/learning method for the second language learners, is not incorporated in the lessons. Chinese language is the second language to most oversea Chinese children. They need to learn not only written language skills (i.e., reading and writing) but most importantly oral language skills (i.e., listening and speaking). The lessons in the Family Corner Program are only designed to practice the written language skills. The second problem relates to instructions on Internet access. In the OCAC Website Home page, there are no explanations on minimum specifications of computer hardware and software (e.g., operational system) in order to access the OCAC Website.

The Mandarin Classroom program is another Chinese language program on the OCAC Website and it includes two levels of learning Chinese on-line. Level One is "Speaking Mandarin in Five Hundred Words" for the beginning learners. This level includes reading passages, words and phrases, review, and extended practice. Level Two is "Speaking Mandarin in One Thousand Words" for the intermediate level learners. It includes special notes, browsing the whole lesson, dialogue, new vocabulary, pattern drill, listening to the entire lesson and paragraphs in Chinese and in English. Separating the program into two different levels is very useful in instruction and learning. The contents of the lessons are all tied to daily life experiences. They are interesting and relevant to the oversea Chinese children. However, the problems that the teachers and students at the East Gate American-Chinese School have encountered are the same as those stated in the Family Corner Program. Furthermore, lessons and/or activities on reading comprehension should be included to check students' understanding.

### Conclusion and Some Suggestions

Education in the Knowledge Age, or so called "the digital age", means shifting from information as a final product toward information as "raw materials." The network information provides us new types of teaching and learning. In this digital age most teachers at Chinese schools in America, even in the high-tech area such as the Silicon Valley, need to learn how to use computer-based technology (e.g., PowerPoint, Publisher, and Internet, etc.) in their teaching and students' learning. The authors would like to provide some approachable suggestions for the OCAC to integrate the computer-based technology into international Chinese education.

#### I. Teacher Professional Development

The OCAC may provide Chinese school teachers professional training on computer-based technology and build a peer “learning community” in which teachers gradually take on responsibility for planning and conducting their own professional development. Veteran teachers can share their skills with less experienced colleagues. This kind of teacher learning needs to occur over time, preferably with opportunities to observe models, to practice, and to receive feedback on one’s actions. The OCAC may provide these types of support in the form of training workshops, mini-grants for equipment and supplies, on-line resources and networking opportunities (e.g., Web Board), and on-site mentors.

## II. Hardware, Software, and Network Access

Teachers have little motivation to learn how to use technology in their teaching if they do not have adequate access to that technology. Unfortunately, most Chinese schools in America rent classrooms from neighboring public schools or churches. They do not have permanent sites to locate the necessary technology equipment. The authors suggest the OCAC to equip the targeted provision of hardware and software resources at Chinese Culture Centers for teachers and students to use after classes. We also suggest the OCAC to pursue sponsors from the industry and business sectors in equipment and supplies, in-kind donations, cash, and technical support. In addition, we also suggest the OCAC to create interactive on-line resources, including a database of teaching descriptions with *email links* to their creators, links to teachers’ and other useful Web sites, and guides for creating computer-based project storyboards.

## III. Recognition and Rewards

The OCAC may provide mini-grants to support individual school, a group of teachers, or individual teachers’ requests for equipment, software, or special training activities, as an incentive for teachers to design and incorporate technology in their curriculum and instruction. Chinese school teachers and/or students can display their work at OCAC-sponsored technology/multimedia fairs, if any.

There are a number of low-cost ways for students to publish their technology-based multimedia presentations and Web pages. One of these venues is the ThinkQuest competitions (<http://www.thinkquest.com>) which target middle- and high- school- aged programs. ThinkQuest is a program that encourages students to use the Internet to create information-rich, Web-based educational tools and material. Lightspan’s Cyber Fairs are another venue for publishing student work on the Web (<http://www.lightspan.com>). Such venue are important, because they provide a real-world audience for students work and help to motivate teachers and students to utilize computer-based technology in their teaching and learning.

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[www.ed.gov](http://www.ed.gov) (U.S. Department of Education, U.S.A.)

[www.ctc.ca.gov](http://www.ctc.ca.gov) (California Commission on Teacher Credentialing, U.S.A.)

[www.sweeneyhall.sjsu.edu](http://www.sweeneyhall.sjsu.edu) (College of Education, San Jose State University, U.S.A.)

[www.ict.org](http://www.ict.org) (The Institute of Computer Technology, U.S.A.)

[www.cue.org](http://www.cue.org) (Computer-Using Educators, Inc., U.S.A.)

[www.mediafestival.org](http://www.mediafestival.org) (California Student Media & Multimedia Festival)

<http://pblmm.k12.ca.us> (Project-based Learning with Technology, U.S.A.)

<http://edu.ocac.gov.tw> (Chinese Education Programs at OCAC Website, Taiwan)

[www.ocac.gov.tw](http://www.ocac.gov.tw) (Oversea Chinese Affairs Commission, Taiwan)

### Resources

[www.yahoo.com](http://www.yahoo.com) (Yahoo! an Internet directory)

[www.google.com](http://www.google.com) (Google, an Internet search engine)

[www.allonesearch.com](http://www.allonesearch.com) (All-in-One, an Internet meta search engine)

[www.freesevers.com](http://www.freesevers.com) (a free Web page hosted on the Internet)

[www.thinkquest.com](http://www.thinkquest.com) (ThinkQuest, a low-cost Web site for publishing multimedia work)

[www.lightspan.com](http://www.lightspan.com) (Lightspan's Cyber Fairs, a low-cost Web site for publishing multimedia work)

[www.mcrel.org/products/tech/technology](http://www.mcrel.org/products/tech/technology) ((McRel-Technology and Teacher Education)

[www.edresources.com](http://www.edresources.com) (Educational Resources, academic discount software, hardware, professional development)

<http://ericir.syr.edu> (AskEric, Internet resources)

[www.teachers.net](http://www.teachers.net) (Teachers.Net – Teacher Resources)

<http://users.cwnet.com/jedman> (The educator's Guide to Internet Resources)

[Http://pblmm.k12.ca.us/PBLGuide/Mmrubric.htm](http://pblmm.k12.ca.us/PBLGuide/Mmrubric.htm) (Multimedia Project Scoring Rubric: Scoring Guidelines)

[www.stanford.edu/group/arts/nicaragua/student/mural/rubric.html](http://www.stanford.edu/group/arts/nicaragua/student/mural/rubric.html) (Teacher Rubric for Brochure Evaluation)

[www.coe.ilstu.edu/jabraun/braun/professional/wwwrubric.html](http://www.coe.ilstu.edu/jabraun/braun/professional/wwwrubric.html) (A Rubric for Evaluating Social Studies World Wide Web Pages)