

Ubiquitous Computing and Online Collaboration for Open Education

Keynote Address by Steve McCarty

Professor, Osaka Jogakuin College, Japan

Founder, World Association for Online Education (WAOE)

International Malaysian Educational Technology Convention

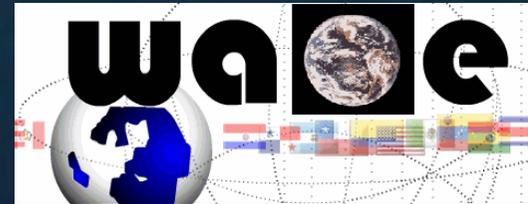
Kuantan, Malaysia, 17 October 2011

Presentation Outline

Part 1: Ubiquitous Computing

Part 2: Open Education

Part 3: Online Collaboration



Text Color Code

Author's views: reddish brown

Sources cited: purple, violet

Key technical terms: red

Navigation: light blue

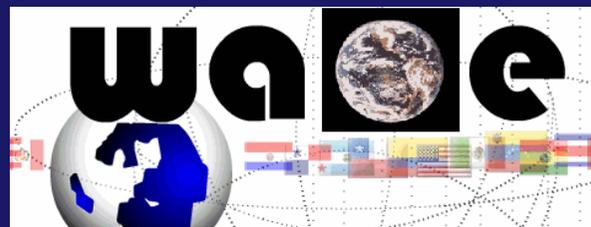


Reflections on the conference theme

Open Education:

Towards a Ubiquitous Learning Environment

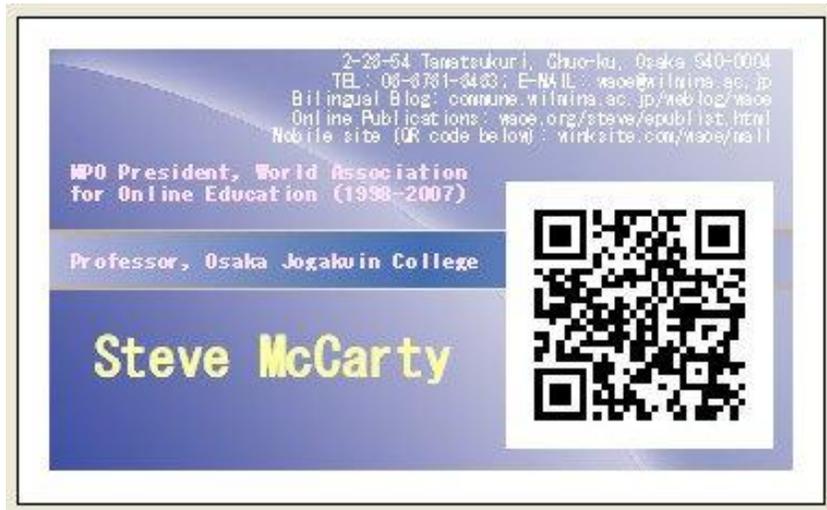
When we ask, “ubiquitous for whom?”, open education gives ubiquity a new meaning. Openness means wider access for students and new learning opportunities for people in developing and emerging countries. It is educators who will make this happen, collaborating internationally through the same technologies for education that empower students and informal learners.



Ubiquitous computing (1)

The **dictionary definition** of **ubiquitous** is to be virtually everywhere, e.g., “Mobile phones are ubiquitous in most countries nowadays.” Today the **common-sense meaning** of **ubiquitous computing** is being able to access the Internet or computer networks from virtually anywhere at any time, through digital devices like mobile phones, wireless-ready laptops, iPads, etc. **Ubiquitous computing** also has a **technical meaning** that is still evolving (**following slides**). **Ubiquitous computing** can refer to the macro level, whereas at the micro level it manifests in many cases as **embedded systems**, software programs that control individual functions of everyday appliances (**examples in later slides**). The hardware includes **sensors** like infra-red or **barcode readers** in mobile phones. An example (**illustrated in the next slide**) is QR codes, which are part of the **Internet of things**, providing a physical world-Internet interface.

Ubiquitous computing (2)



Plugs into a
computer's
USB port

QR codes in a calling card

iPod & MP3 format voice recorder

Ubiquitous computing includes devices that are usually operated offline, but are occasionally connected to the **cloud** or network through computers. This is needed for online content to go, like iPods, or for adding content to the cloud or network, e.g., by uploading digital video camera footage to YouTube, or recording a presentation for a podcast with a hand-held MP3 voice recorder.

Ubiquitous computing (3)

Ubiquitous computing (ubiquitous computing) is a post-desktop model of human-computer interaction in which information processing has been thoroughly integrated into everyday objects and activities ... More formally Ubiquitous computing is defined as “machines that fit the human environment instead of forcing humans to enter theirs.”

http://en.wikipedia.org/wiki/Ubiquitous_computing

The implied goal of **ubiquitous computing** is thus to serve people's needs without their having even to notice. **Cloud computing** is a similar aspect of ubiquitous computing that simplifies people's conscious tasks by storing and organizing information for users.

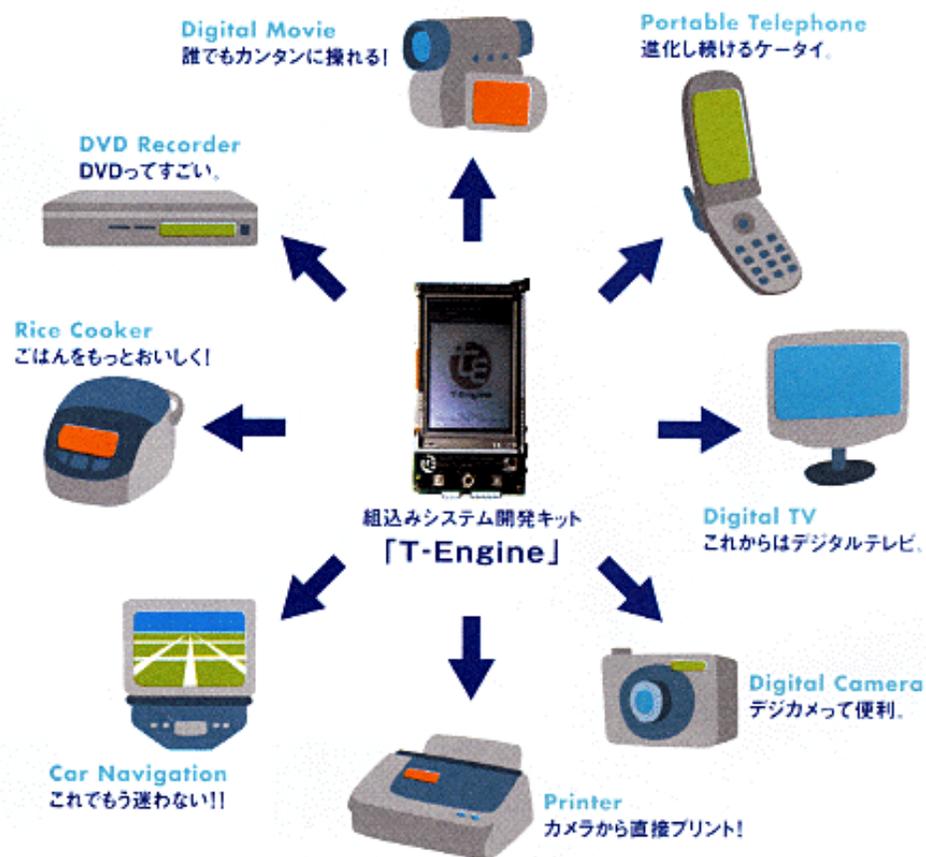
Another related concept is **ubiquitous learning (U-Learning)**, applying the affordances of ubiquitous computing to education and informal or autonomous learning, any time and anywhere.

Ubiquitous computing > Embedded systems > types of embedded systems > examples in Japan

「組み込みシステム」... Embedded System (エンベデッドシステム) ... さまざまな製品に組み込まれたコンピュータシステムのことです。... 組み込みシステム科では、このような組み込みシステムのソフトウェアを開発します。家電: テレビ、電子レンジ、デジカメ ... モバイル機器: 携帯電話、携帯情報端末(PDA)、カーナビ ... OA機器: プリンタ、複写機、FAX ... その他: 自動車、自動販売機、ロボット、人工衛星 ...

<http://www.jec.ac.jp/it-t/2004/06/post.html>

(Embedded systems are computer systems embedded in various products. In our department we develop embedded computing software for TVs, microwave ovens, digital cameras; mobile phones, PDAs, car navigation systems; office printers, copy machines, fax machines; and cars, vending machines, robots, satellites, and so forth.)



Ubiquitous computing > Embedded systems > examples in Japan > hospital wristbands

電子カルテの導入に伴い、患者様に安全な医療を提供するために入院中はリストバンドを手首につけていただくことになりました。

点滴や注射の間違いを防ぐために、リストバンドで患者様の「氏名」「性別」「生年月日」「血液型」などバーコードを使って確認します。

<http://www.yamashiro-hp.jp/users/patient/inpatient/>



(Along with electronic charts, we [Yamashiro Public Hospital near Kyoto] offer in-patients safe medical care through wristbands. To avoid mistakes in intravenous therapy, injections, and etc., with the wristbands we can confirm the patient's name, sex, date of birth, blood type, and so forth.)

A **barcode reader** scans the **barcode** on the patient's wrist, which links to the patient's electronic chart in the hospital's database, calling up the file to the laptop computer that the nurse wheels around. The barcode represents the URL or unique address of the patient's file in the hospital's Intranet. The national Kyoto Medical Center uses **QR codes** (**earlier slides**) instead of the above barcodes on their wristbands.

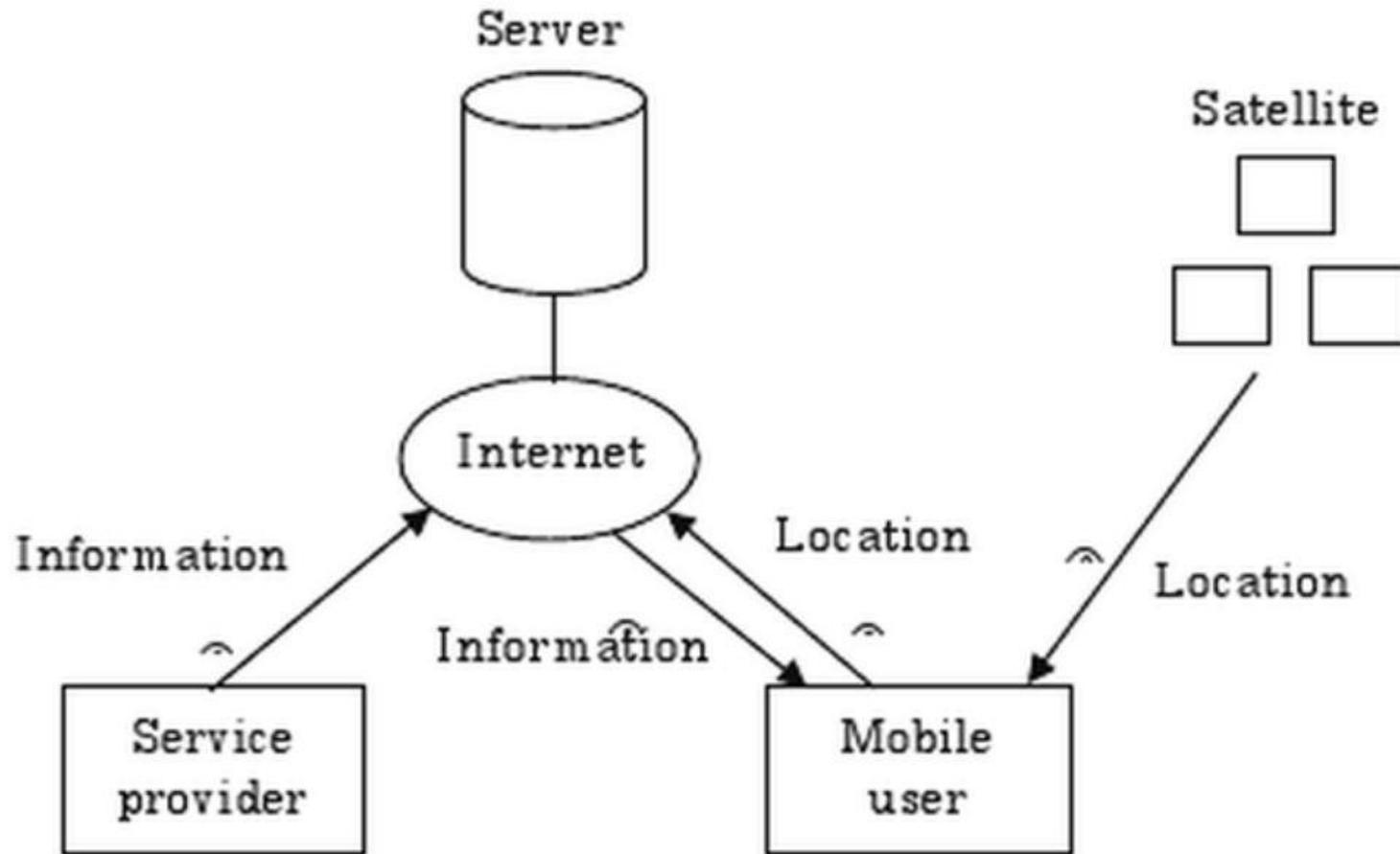
Ubiquitous computing > example in Japan > student attendance and information management systems

A **student info system** is a software application for education establishments to manage student data. Student information systems provide capabilities for entering student test and other assessment scores through an electronic grade book, building student schedules, tracking student attendance, and managing many other student-related data needs in a school, college or university.

http://en.wikipedia.org/wiki/Student_information_system

Little information is available on **(student) attendance management systems** except for companies offering such systems in Japan and some universities in India. The author recommended such a system at his college before finding that such systems already existed. Students touch a sensor in the classroom with their ID cards, similar to a train pass. They and the teacher can check their attendance status online, making it ubiquitous. Such systems increasingly add features of **student information systems (defined above)**, and the providers use the analogy of electronic charts in hospitals (**電子カルテ**).

Ubiquitous computing > location-based services > architecture including mobile phones with GPS



Hirano, K., Nakatani, Y., McCarty, S., & Masui, H. (2007). Applications of mobile research in Japan. *Ubiquity*, Volume 8, Issue 38, pp. 1-34.

One example of **location-based services** that was in the paper was restaurant or store coupons, more than a year before Groupon started.

Ubiquitous computing > location-based services > example in Japan > public disaster information

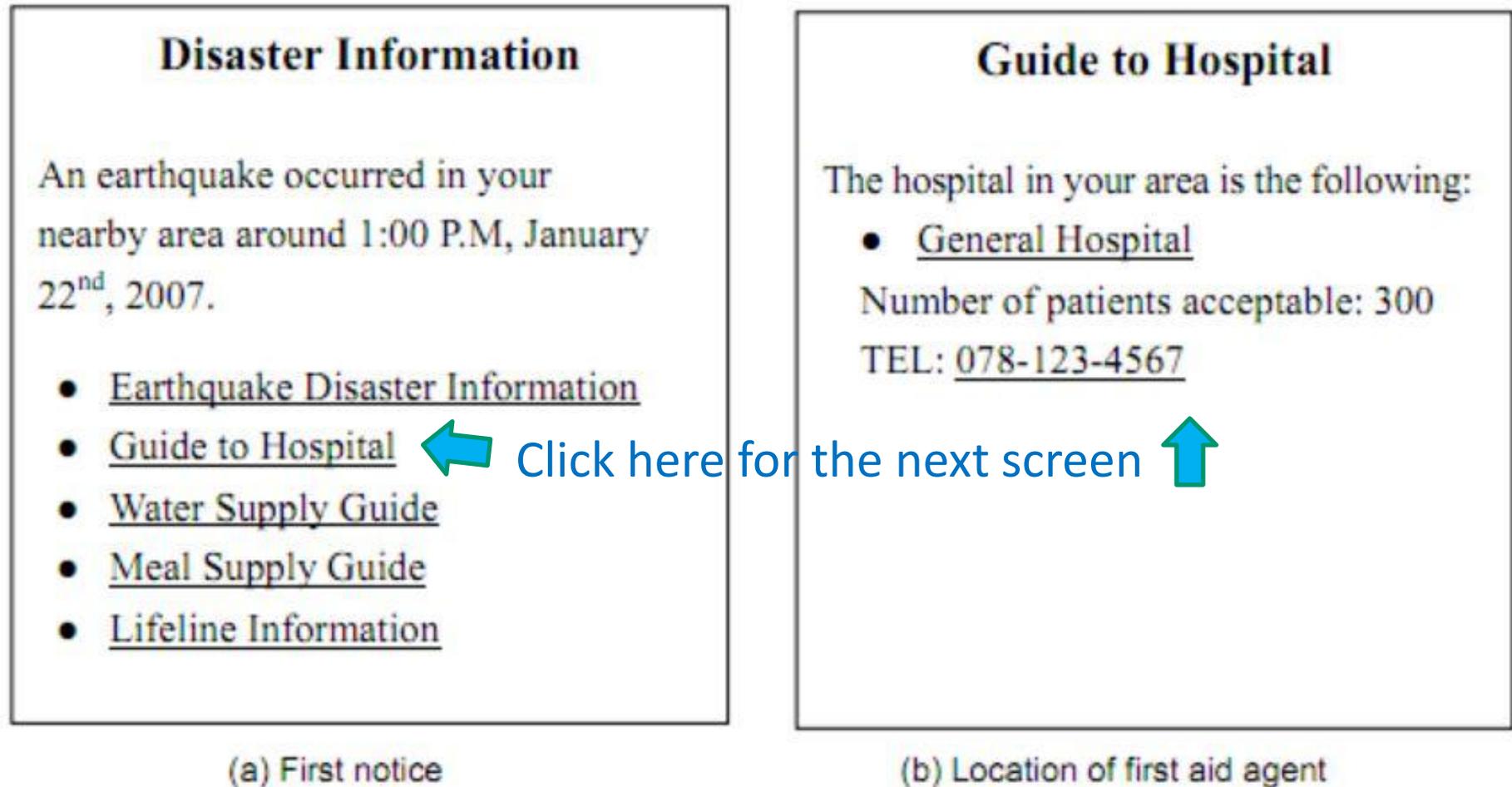


Figure 1.10 Emergency announcements with links in the case of an earthquake

Illustration of mobile phone screens, from Hirano et al. (2007)

Part 2, Section 1: e-Book Report on Open Education (1)

Downes (2011) envisions a society where “knowledge and learning are public goods, freely created and shared, not hoarded or withheld in order to extract wealth or influence” (p. 3). He advocates “open source, open content, and open learning from the point of view of the person desiring *access* to these things, rather than from the point of view of the provider” (p. 6). Around 1995 “when the internet arrived it gave people a whole new set of capacities” (p. 37) or affordances, giving the user an active role in the content, and a potentially global audience (p. 38). But traditional media and traditional services view this new development, quite rightly, as a threat” (p. 38).

... right now the control, the mechanisms of the production of this new media, especially in the case of learning, is in the hands of the traditional content publishers. It’s the broadcast model. And the reason why we need to move to the conversation model is because: nobody can learn only by listening, nobody can teach only by talking. (Downes, 2011, p. 45)

e-Book Report on Open Education (2)

Regarding **Open Educational Resources (OER)**, Downes (2011) writes: “For authors, open publication grants access to the widest possible audience. Studies show that their articles are cited more frequently ... For readers, open access grants access to an entire body of literature” (p. 63), **which helps a new discipline develop**. “And universities obtain increased visibility for their scholarship” (p. 63). Downes then cites Hylan (2005), as follows:

By Open Educational Resources (OER) initiatives, we understand:

- 1) Open courseware and content;
- 2) Open software tools (e.g. learning management systems);
- 3) Open material for e-learning capacity building of faculty staff;
- 4) Repositories of learning objects; and
- 5) Free educational courses. (p. 63)

Downes, S. (2011). *Free learning*. Retrieved from <http://www.downes.ca/files/FreeLearning.pdf>

Part 2, Section 2: Principles of Open Education (1)

Open education today involves utilizing the Internet and online education in the broadest sense, while upholding the value of openness and related convictions about the active role of an educator in society. A theory of open education could therefore be approached in terms of constitutive principles such as these:

- ❖ *ICT affordances* – leveraging information and communication technologies for learning, teaching, student empowerment, educator development, and networking; utilizing the open Web, mailing lists, learning management systems, social media and other Web 2.0 technologies that are affordable if not free, easy to use, with user needs and feedback influencing future services.
- ❖ *Open access* – open educational resources ([previous slide](#)), open access journals and other online publications, online conferences or online participation in f2f conferences, open enrollment or free educational opportunities.

Principles of Open Education (2)

- ❖ *Openness* – open-mindedness, inclusiveness, honesty, voluntarily sharing one's wealth of knowledge and institutional resources, mentoring, and endeavoring to open the minds of administrators and teaching colleagues as well as of students.
- ❖ *Digital literacy education* – computer training, national and local e-learning initiatives, and efforts to overcome the digital divide, so that learners worldwide can have equal opportunities to make use of ICT affordances for their education.
- ❖ *Collaboration* – as openly as possible, cooperation between nations, educational institutions, or individual scholars, interdisciplinary research, and academic associations, including online or virtual organizations.
- ❖ *Disintermediation*
- ❖ *Multilingualism*
- ❖ *Intercultural reconciliation*
- ❖ *Universal humanism*

What “Open” means in Open Universities

On the author’s behalf, Dr. Ramesh Sharma asked Prof. Polu Satyanarayana, the last living founder of the Indira Gandhi National Open University (IGNOU), “what is 'open' in open universities?”

This expands the principles of open education pedagogically:

The first chancellor of UKOU late Lord Crowther, after receiving Royal Charter in 1969 in his address said that the UKOU would be open, not only as to entry, but as to places, as to method and as to ideas. His address is often quoted by [Sir] John Daniel, whenever he lectures on ODL [open and distance learning].

[At IGNOU] the word open in open university reflects

- ❖ openness with regard to place and pace of study
- ❖ openness with regard to choice of courses
- ❖ openness with regard to completion of studies
- ❖ openness with regard to admission criteria

(personal correspondence, 19 February 2011)

Part 3: Global Online Collaboration > example of a virtual organization: the WAOE



WORLD ASSOCIATION FOR ONLINE EDUCATION (WAOE) ACADEMIC NPO

Home

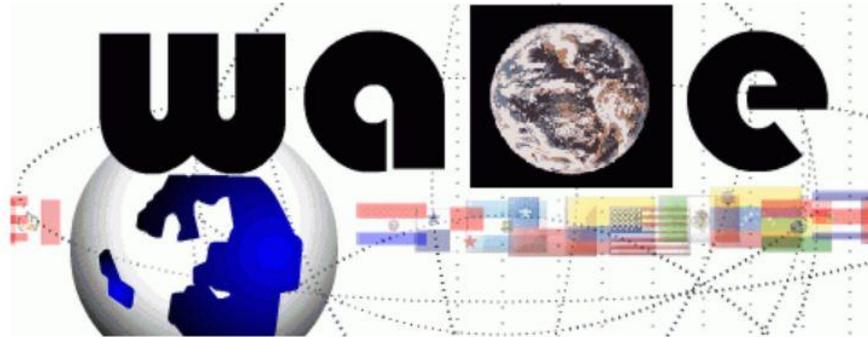
Directors

Vision

Participation

More About Us

Archives



WAOE-Views discussion list

Regardless of formal membership status, individuals with a scholarly interest in online education are welcome to start

Our global virtual organization

The World Association for Online Education is a free membership organization and consists of individual educators



MEMBERSHIP



COMMUNICATION



Open Education ideals in WAOE's founding Objectives

“(t) to maintain a global perspective as a world organization, supporting multilingualism and multiculturalism in online education, preserving human rights to diversity and mutual respect despite differences, and encouraging intercultural sensitivity and world reconciliation through intercultural communication among global citizens,
(u) to be as inclusive as possible in scope, serving the aspirations of all members and working for equitable access to online education and to membership, and,
(v) as world civilizations become digitized, to create an organization that can function entirely with digital technologies and thus provide worldwide access to its activities, research, and support.” [from WAOE's Bylaws, 1998]

<http://www.waoe.org/bylaw.htm>

WAOE Milestones (1): from April 1998

- ❖ The Teaching in the Community Colleges (TCC) Online Conference keynote address and downloadable video proposed a year-round organization to turn online education into a professional discipline
- ❖ Mailing list discussions continued after the conference, then a Constitutional Convention held in a BBS drafted WAOE formative documents and a system for online parliamentary procedures
- ❖ Further meetings were held in a Web Board and using mailing lists hosted at American universities
- ❖ Domain <waoe.org> acquired
- ❖ Affiliated *Journal of Online Education* at New York University
- ❖ WAOE recognized in educational technology sites, directories, and publications such as the *Chronicle of Higher Education*
- ❖ WAOE registered as a non-profit public benefit organization (NPO) in the State of California with Articles of Incorporation and Bylaws

WAOE Milestones (2): from 1999

- ❖ A Special Members' Meeting ratified the NPO Bylaws and elected members of the Board of Directors from various countries
- ❖ Inaugural Members' Meeting and Board of Directors' Meeting, annual NPO requirements, were held, with the State of California interested in WAOE's online voting
- ❖ Different mailing lists were developed for member discussions, organizational announcements, and officers' discussions
- ❖ Besides the elected officers, appointed officers included the Cyber-Parliamentarian and a Coordinating Ring of officers from many countries
- ❖ Online newsletter *WAOE Electronic Bulletin (WEB)* started
- ❖ A World Cultural Festival was held online, then a summer festival in collaboration with Child Research Net, a Tokyo, Japan NPO
- ❖ A WAOE Online Educators' Course utilized the Blackboard LMS

WAOE Milestones (3): from 2000

- ❖ The WAOE membership had been approaching a thousand participants from over 50 countries until a small membership fee was introduced, which regrettably discouraged the less privileged
- ❖ After gathering initial membership fees, receiving donations, and transferring honoraria to WAOE from collaboration with Child Research Net, membership dues were abolished
- ❖ WAOE online greeting card for the year 2000 in 20 languages
- ❖ The Multilingual WAOE Project resulted in WAOE commissioned Websites, discussion groups, or membership information available in Spanish, French, Malay, Turkish, Italian, Portuguese, Hindi, German, Russian, Chinese, and Japanese
- ❖ A policy for affiliating with other organizations was developed
- ❖ 2000-2001: Online Educator Development Practicum with the MetaCollege LMS

WAOE Milestones (4): 2001-2003

- ❖ WAOE collaborated with e-learning conferences in Malaysia, etc.
- ❖ A WAOE membership badge was made available online, but while only individuals can belong to WAOE, some groups have abused the badge or WAOE's logo to falsely imply a sort of accreditation
- ❖ An interactive world map of WAOE officers was offered along with other interesting items in java by Prof. Roberto Mueller in Brazil
- ❖ 2002: Started donating WAOE server space, hosting the International Program for Africa and a Russian Initiative
- ❖ WAOE co-sponsored Future of Universities event held in a MOO
- ❖ 2003: WAOE donated \$900 to an NGO in Estonia for Baltic region online education for minority Russian language users
- ❖ WAOE blog "Intercultural Literacy" started
- ❖ Main WAOE Website and mailing lists hosted at Portland State University by Chief Technology Officer Prof. Maggie McVay Lynch

WAOE Milestones (5): 2004-2006

- ❖ Mentoring Project of WAOE expert volunteers to help educators develop plans for online education projects
- ❖ WAOE mentors in several countries added a blended element to a graduate course on Online Education at a national university in Japan with audioconferences, voice board, the WebCT LMS, etc.
- ❖ Four officers met face-to-face for the first time, giving a group presentation at a conference held at the University of Sussex, UK
- ❖ 2005: Spoken Libraries Project, whereby several WAOE members developed podcasting blogs
- ❖ 2006: WAOE moved Websites and e-mail accounts to a private ISP as the CTO retired, with mailing lists moved to Google Groups
- ❖ Resolution announced to clarify that WAOE is an academic organization for individuals, not accrediting groups using our logo
- ❖ WAOE members in six countries collaborated on two chapters in *The International Handbook of Virtual Learning Environments*

WAOE Milestones (6): 2007-2011

- ❖ 2007-present: New Board of Directors: President Nick Bowskill (UK), Begum Ibrahim (Malaysia), Mike Holmwood (Canada), Eileen Dittmar (US), and Ramesh Sharma (India), with Steve McCarty (Japan) appointed President Emeritus, also serving as Webmaster
- ❖ 2008: WAOE live 3D event with Capella University in Second Life
- ❖ 2010: WAOE's main site was redesigned
- ❖ From 2010: WAOE hosts a Moodle LMS site as a voluntary contribution to the distance education section of the national University of Guyana in South America
- ❖ 2010-2011: Board meeting to consider changing from an NPO to an informal international NGO
- ❖ 2011: WAOE contributed about \$1,400 to a children's hospital in Bangladesh
- ❖ Some WAOE members able to meet f2f at the 5th International Malaysian Educational Technology Convention

World Association for Online Education (WAOE) free membership & discussion list WAOE-Views: <http://waoe.org>

Thank you!



Recording podcasts in the office or on the go



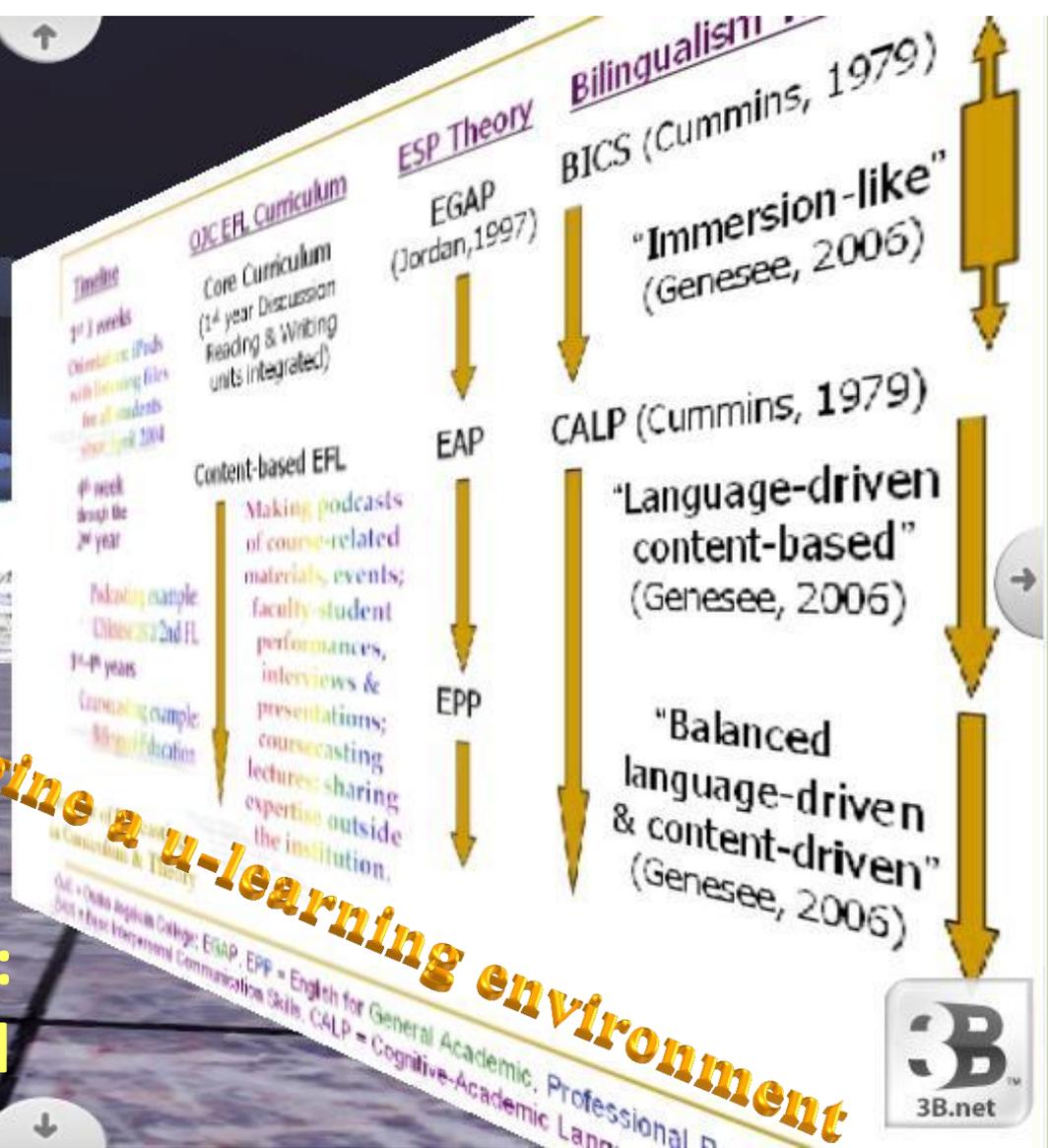
"syncing"

How to: two alternatives. Below the iPod is an MP3 format digital voice recorder with a retractable extension to connect to a computer through a USB port ext. Upload sound files (lower arrow) — a sleek, light and lovely Japanese gadget.

Steve McCarty

World Association for Online Education

Imagine a u-learning environment



See the author's online library:
<http://waoe.org/epublist.html>