

Social Computing in Education

Irwin King

king@cse.cuhk.edu.hk
<http://www.cse.cuhk.edu.hk/~king>

Department of Computer Science & Engineering
The Chinese University of Hong Kong

Social Computing in Education
Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Wealthiest People

2007



2008



Facebook in 2004.02

2008

at **23** and **\$1.5** billion later...

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Alexa as of Nov. 2008	USA	CHINA	Global
1	Google	Baidu	Yahoo
2	Yahoo	QQ	Google
3	Myspace	Sina	YouTube
4	YouTube	Google.cn	Windows Live
5	Facebook	Taobao	Facebook
6	Windows Live	163	MSN
7	MSN	Yahoo	Myspace
8	Wikipedia	Google	Wikipedia
9	EBay	Sohu	Blogger
10	AOL	Youku	Yahoo.jp

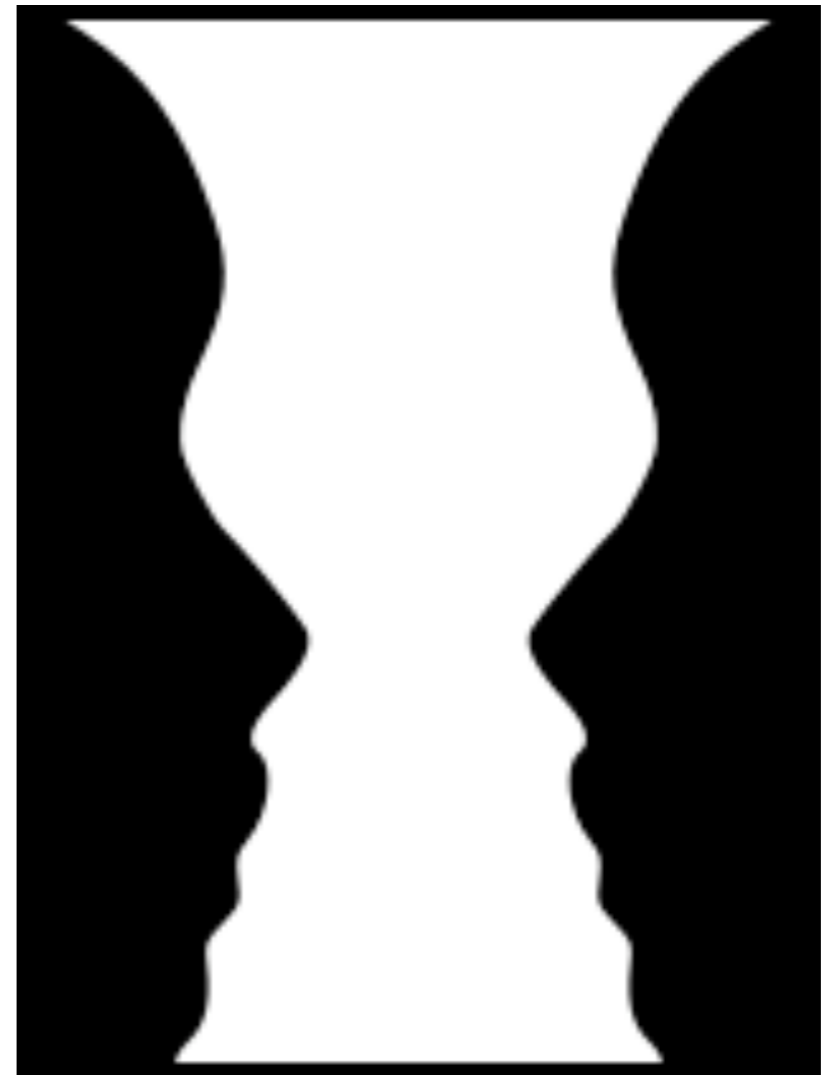
Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Road Map

- The Web 2.0 **Revolution**...
- Social Computing Education 2.0
- m-Learning
- Future Research and Challenges
- Final Remarks



Web 2.0

- Web as a medium vs. **Web as a platform**
- Read-Only Web vs. **Read-and-Write Web**
- Static vs. **Dynamic**
- Restrictive vs. **Freedom & Empowerment**
- Technology-centric vs. **User-centric**
- Limited vs. **Rich User Experience**
- Individualistic vs. **Group/Collective Behavior**
- Consumer vs. **Producer**
- Transactional vs. **Relational**
- Top-down vs. **Bottom-up**
- People-to-Machine vs. **People-to-People**
- Search & browse vs. **Publish & Subscribe**
- Closed application vs. **Service-oriented Services**
- Functionality vs. **Utility**
- Data vs. **Value**



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Web 2.0 Revolution

- **Glocalization**-think globally and act locally!
- **Weblication**-Web is the application!
- **3 Cs**
 - **Connectivity**
 - **Collaboration**
 - **Communities**



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Categories of Educational Activities

- Media sharing
- Media manipulation
- Conversational arenas
- Online games and virtual worlds
- Social networking
- Blogging
- Social bookmarking
- Recommender systems
- Collaborative editing
- Wikis
- Syndication



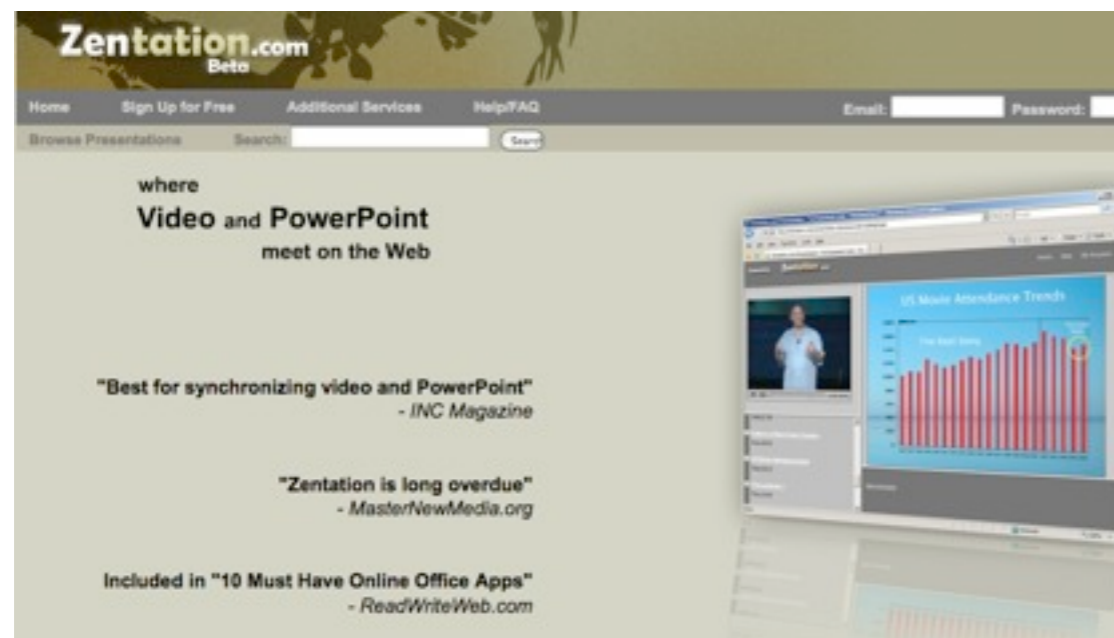
Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009

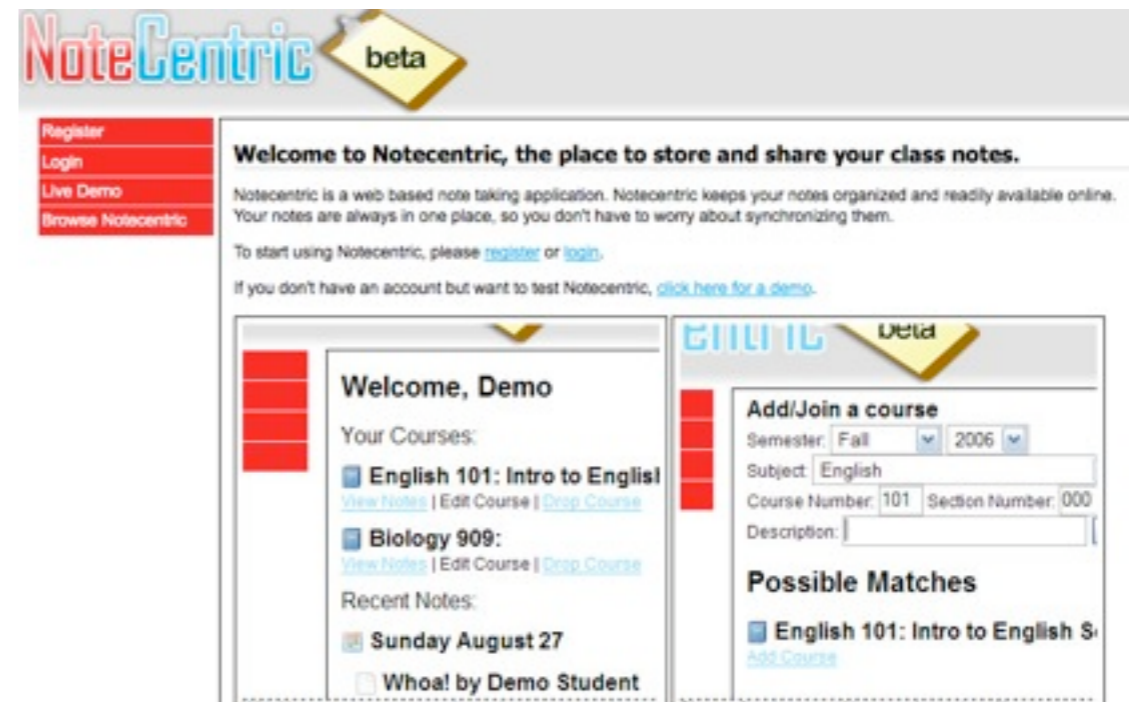


Media Sharing

General	Educational
Uploading and downloading media files for audience or exchange	Sites have emerged that welcome creative digital material organized by educators



Zentation: Share video and powerpoint



NoteCentric: Share university class notes

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Media Manipulation

General	Educational
Use web-accessible tools to design and edit digital media files	Provide graphical representations education materials



The screenshot shows a TechCrunch article header with the 'MERIDIEN Discovery' logo and a small image of a person's face. The article title is 'Thumbstacks - Ajax/Flash Web PowerPoint' by Michael Arrington, dated March 9, 2006, with 54 comments. The main text describes Thumbstacks as a web-based presentation tool that uses Flash or Ajax. A link is provided to see a sample presentation, and a note mentions Zoho's plans for a similar tool.



The screenshot shows a 'Welcome to Google Lit Trips!' page for 'Candide by Voltaire'. It features a portrait of Voltaire on the left and a map of Europe on the right with a red line tracing a travel route. The text 'A Different Way to Read Great Literature!' is at the bottom.

Thumbstacks: Allow presentations to be built and played online

Googlelittrips: Link literature to places or maps

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Conversational Arenas

General	Educational
One-to-one or one-to-many conversations between internet users	Support educational conversations by a variety of tools



Think: Teachers and students create learning projects, participate in a website competition...

Chatmaker: Users can create chat rooms for personal websites, blogs, newsgroups...

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Online Games and Virtual Worlds

General	Educational
Rule-governed games or themed environments that invite live interaction with other users	Develop multi-player online games for educational purpose



The Vue group is a virtual edu
the use of virtual worlds for te

[[Current Map](#), [Aerial Photo](#), [Processes&Guidelin](#)
[[Vue Mailing List](#) - University of Edi
[[VATAR - Vue /](#)

Vue: Provide a virtual educational and research institute

schome the education system for the information age

Home | Site map | Blog | Projects | Publications | Contact | Wiki | Forum

HOME

schome - the education system for the learning age

Overview

Schome will be an education system that meets the need
Schome will value and support people in learning through
Schome will include flexible use of both physical and virti
Read Futurelab's description of schome...
(based on an interview with Peter Twining)

The Schome Initiative

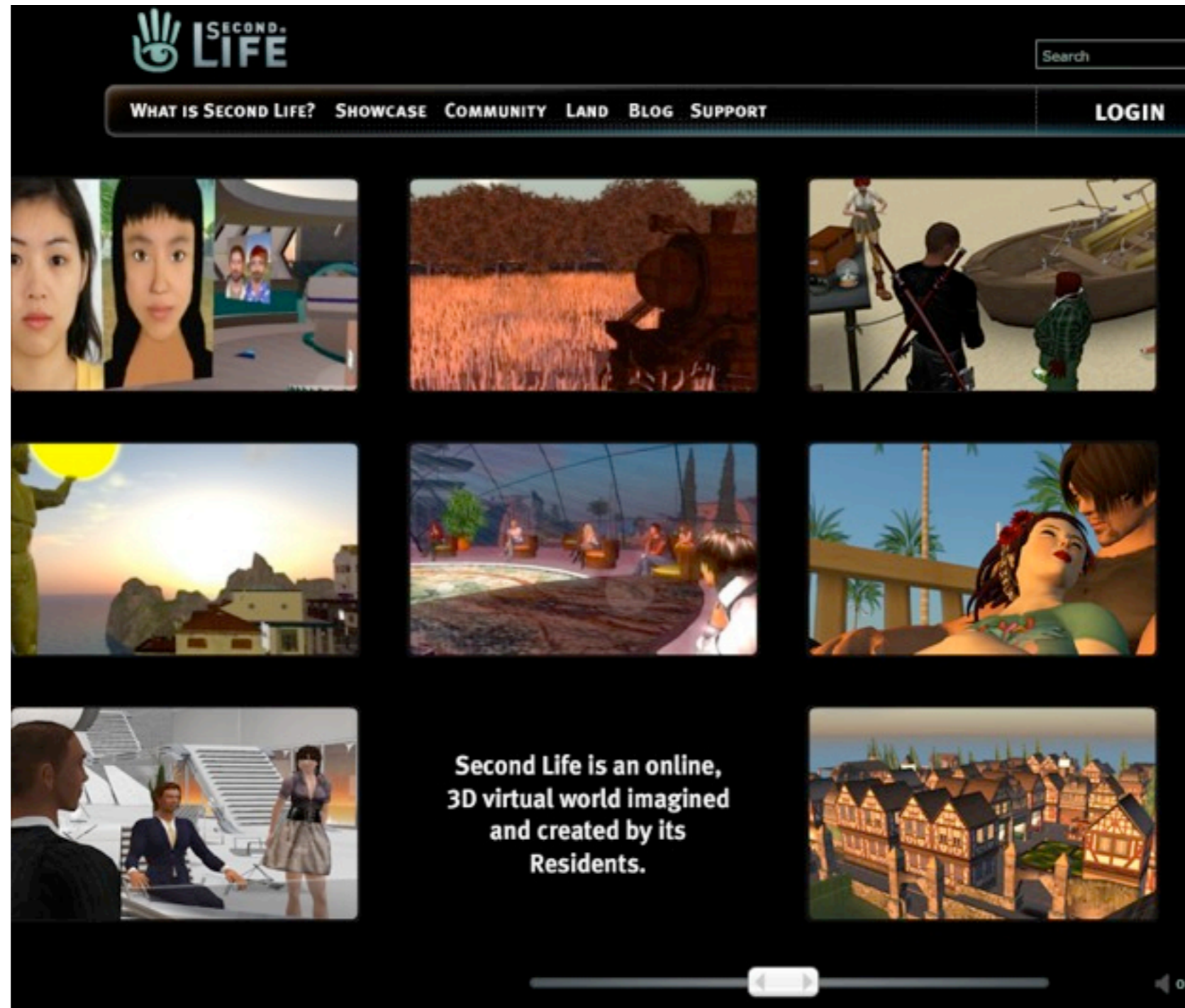
Schome: An education system to support people in learning throughout their lives

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Online Games: Second Life



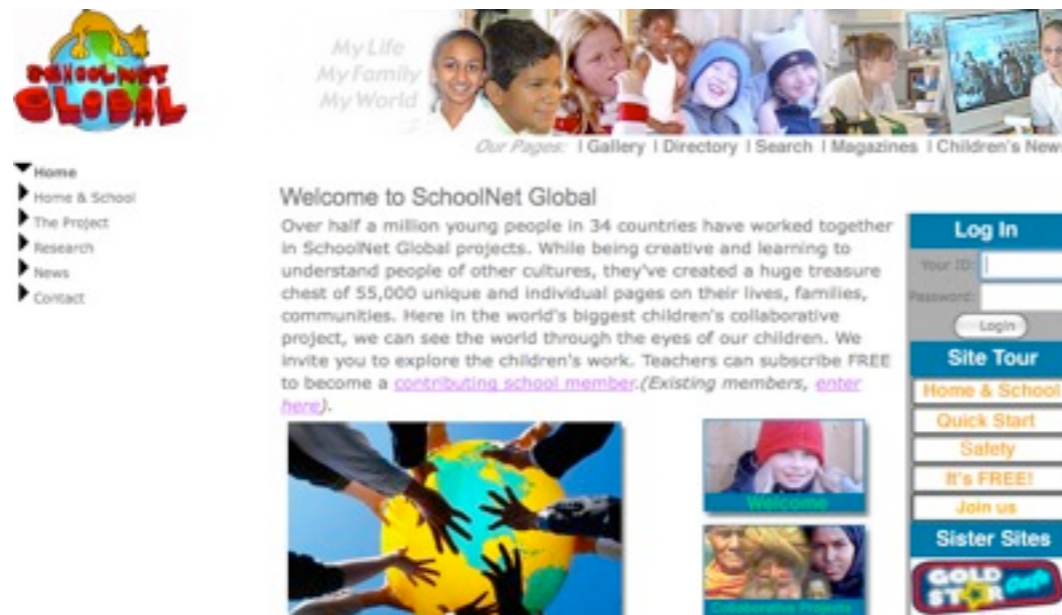
Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009

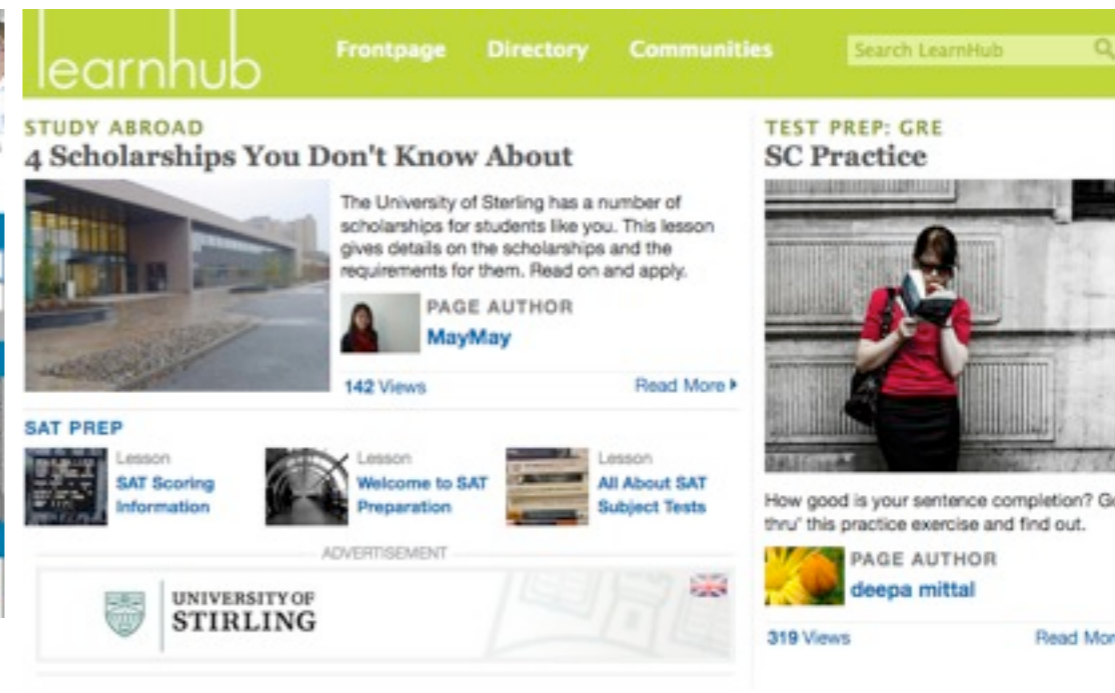


Social Networking

General	Educational
Websites that structure social interaction between members who form subgroups of 'friends'	Typically include education-oriented friendship groups



Schoolnetglobal: Provides a child-oriented design and security service for cross-site collaboration



Learnhub: Teachers can create learning communities.

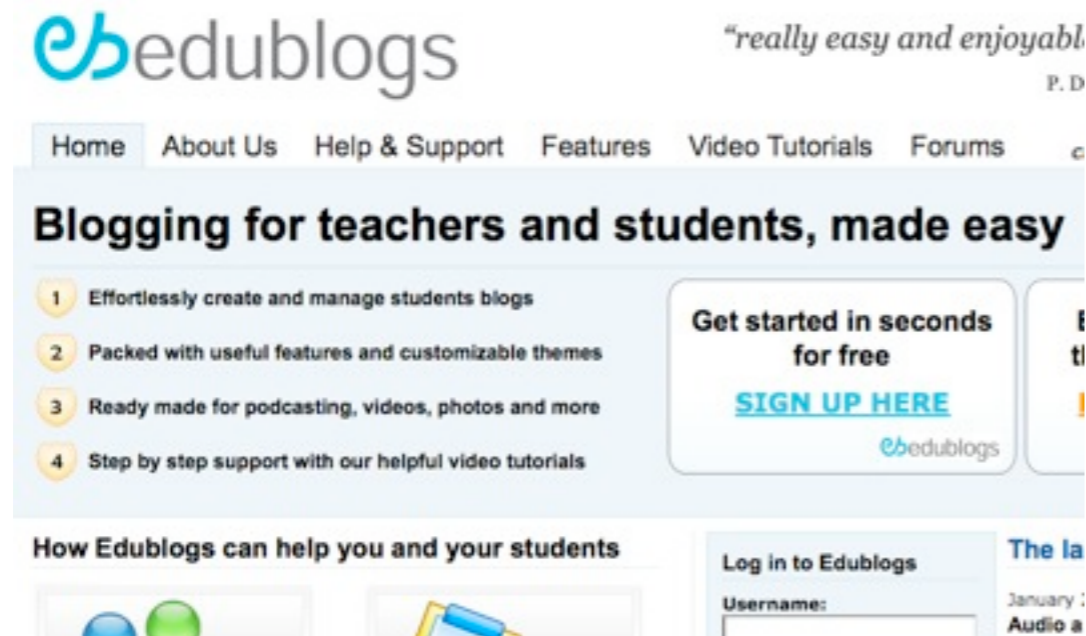
Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Blogging

General	Educational
An on-line journal or diary in which a user can post text and digital material while others can view and comment	Blog sites exist especially for students and teachers



Edublogs: Blogging for teachers and students

Social Computing in Education



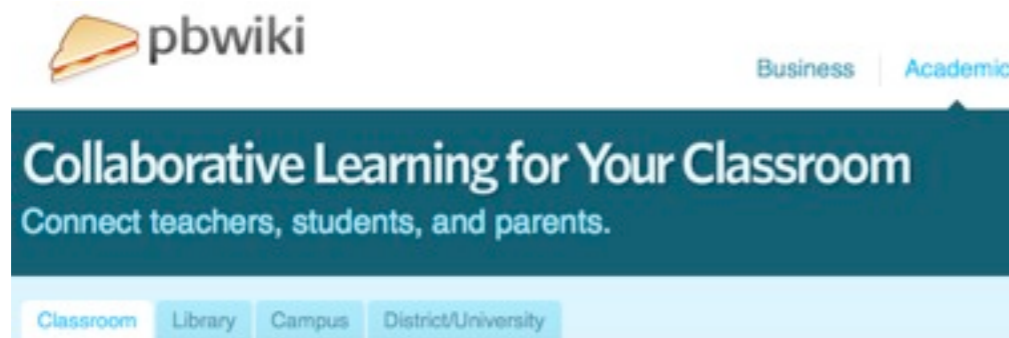
Nature: Encourages scientific authors to blog around their findings




Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Wikis

General	Educational
Web-based services allow users unrestricted access to create, edit and link pages	Sites that allow students and teachers to establish their own wiki with an educational slant



-  Share and collaborate on files
-  Built-in accountability: See changes, reverse them instantly.
-  Connect teachers, students, and parents

Pbwiki: students and teacher can create their own wiki



Wikiversity: devoted to learning resources, learning projects, and research for use in all levels, types, and styles of education

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Social Bookmarking

General	Educational
<p>Allow users to submit their bookmarked web pages to a central site where they can be tagged and found by others</p>	<p>Bookmarks sharing systems designed for research and education users</p>

BibSonomy :: search:all :: <fulltext search here>

A blue social bookmark and publication sharing system.

Home tags relations groups popular

BibSonomy is a system for sharing bookmarks and lists of literature. When discovering a bookmark or a put can store it on our server. You can add tags to your post to retrieve it more easily. This is very similar to the you store within your browser. The advantage of BibSonomy is that you can access your data from whereev you can discover more bookmarks and publications from your friends and other people.

This page shows you the latest updates of BibSonomy. Why dont you just try it yourself? After a free registrn your own bookmarks and publications, and discover related entries.

bookmarks publication

egghat's blog: Zahl des Tages (10.02.09): 103.000
to subprime by torstenschueneemann on Feb 11, 2009, 9:38 AM

Manga in der Perspektiver

citeulike | sponsored by Springer

Search citeulike

citeulike is a free service for managing and discovering scholarly references

2,142,311 articles - 3,305 added today.

- Easily store references you find online
- Discover new articles and resources
- Share references with your peers
- Find out who's reading what you're reading
- Store and search your PDFs

Join now

BibSonomy: A system for sharing bookmarks and list of literature

Citeulike: A website for the collecting and sharing research publications

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Recommender Systems

General	Educational
Websites aggregate and tag user preferences to make novel recommendations	Recommender systems designed for research and education users



Ratemyteachers: An (infamous) example of recommendation technology in education involves user evaluation of teachers.

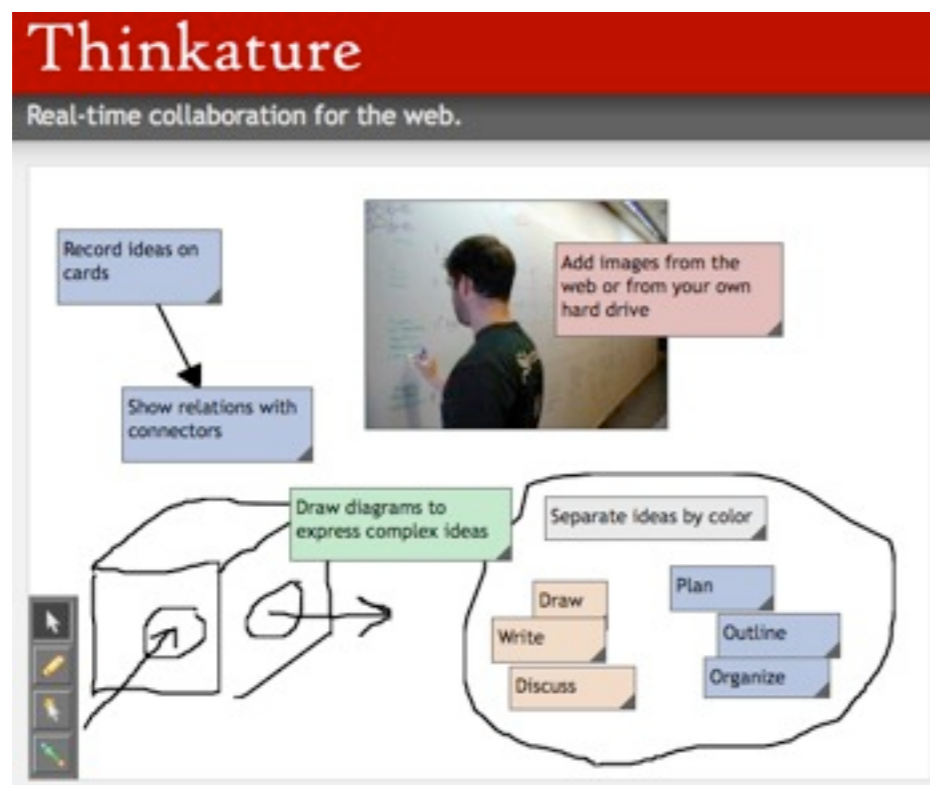
Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009

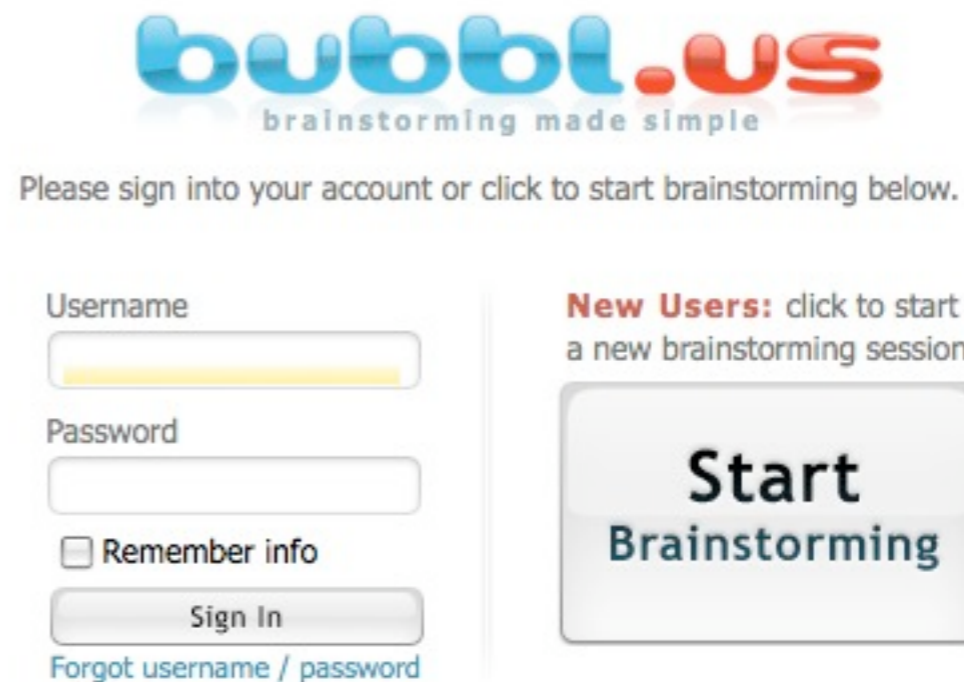


Collaborative Editing

General	Educational
Web tools used collaboratively to design, construct and distribute digital product	Text, spreadsheets and other documents can be stored centrally and permit collaborative editing



Thinkature: Websites incorporate more visual tools for collaborative pages



Bubbl.us: Some emphasizing mind-maps for brainstorming

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Syndication

General	Educational
Users can 'subscribe' to RSS feed enable websites so that they are automatically notified of any changes or updates in content via aggregator	Websites from which students can take advantage of syndicated content



Podcastschool: A website contains podcasts for school students



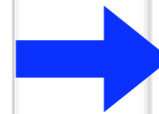
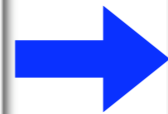
Stanford: A website contains syndicated material sponsored by Stanford

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Evolution of Learning and Training



distance learning
d-Learning

electronic learning
e-Learning

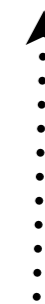
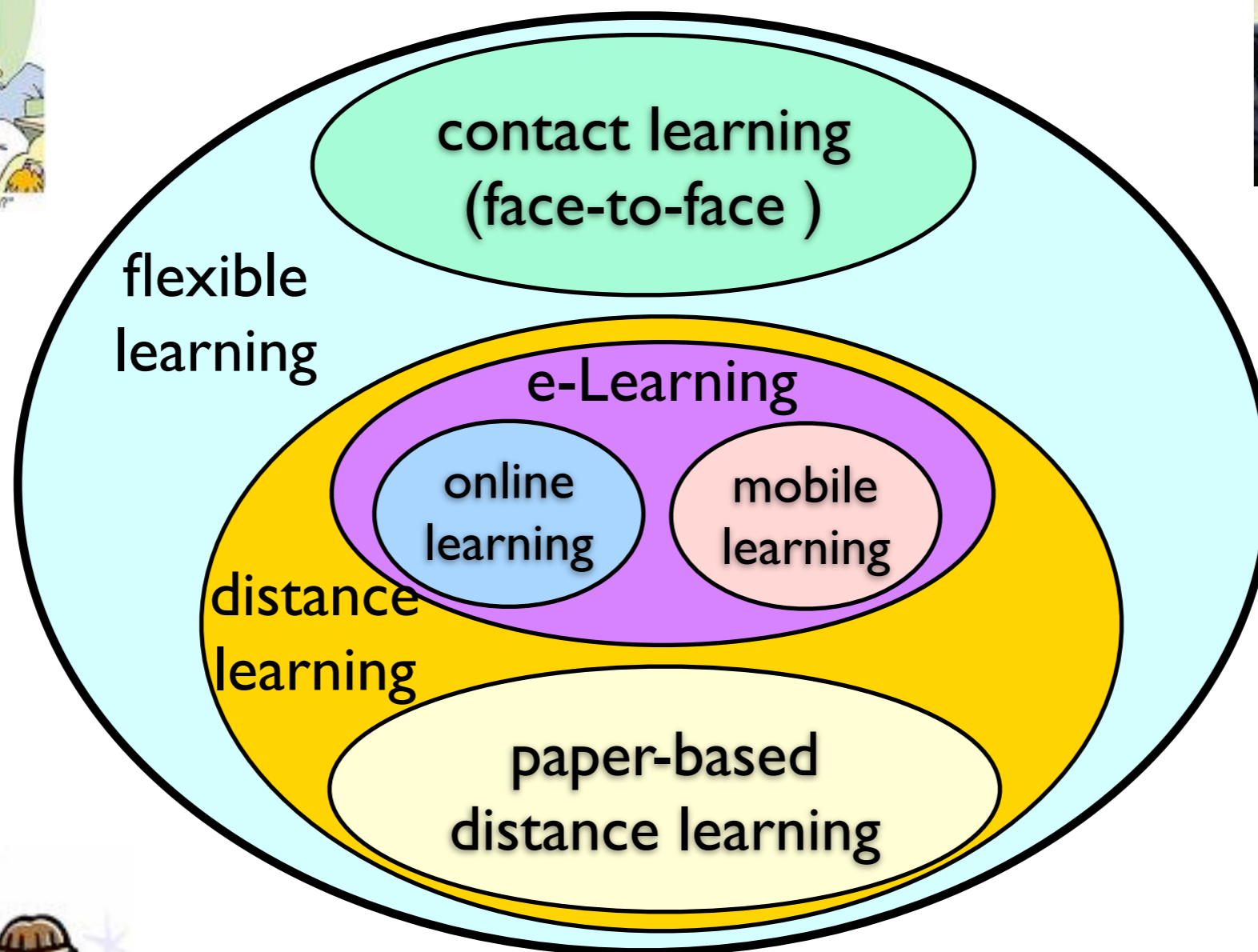
mobile learning
m-Learning

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Categories of Learning



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



e-Learning

- A subset of technology-based training and encompasses all learning activities conducted on the internet
- Can be “live” (also known as “**synchronous**”) learning, meaning students communicate with peers and instructors in real-time, or it can be completely self-paced, which is known as “**asynchronous**” learning
- Covers a set of applications and processes, including
 - Computer-based training
 - Web-based learning
 - Virtual classroom
 - Digital collaboration



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ISECS), 17-19 March 2009, 2009



Universities.com Distance Learning and On-Campus Colleges and Universities

http://www.universities.com/ distance learn

Most Visited Getting Started Latest Headlines

Universities.com Distance Learning and On-Campus Colleges and Universities

UNIVERSITIES **COM** Google™ Custom Search Search

Home

DISTANCE LEARNING

- [Associate Degree](#)
- [Bachelor Degree](#)
- [Masters Degree](#)
- [Doctorate Programs](#)

[Certificates](#)

[Continuing Education Degree](#)

[Online Degree Majors](#)

[Online Degree Schools](#)

[Articles](#)

ON CAMPUS

- [On Campus colleges and universities](#)

Universities.com
Universities.com has organized the most extensive collection of Post-Secondary distance learning and on-campus colleges and universities.

Distance Learning & Online Education
Browse and search 1164 Distance Learning degrees online.

Our most popular distance learning degrees: [Masters in Education](#), [PhD in Education - Doctor of Education](#), [PhD in Psychology](#), [Bachelor of Business Administration](#), [Masters in Healthcare Administration](#), [Masters in Psychology](#), [Masters in Nursing](#), [MBA Programs Business Administration](#), [Masters in Human Resources](#), [Doctor of Business Administration](#), [PhD in Healthcare Administration](#), [Bachelor in Engineering](#), [Bachelor in Criminal Justice](#), [PhD in Organization and Management -Doctor of Management](#), [Bachelor in Accounting](#), [Bachelor in Information Technology](#), [Bachelor in Healthcare Administration](#), [Masters in Information Technology](#), [PhD in Information Technology](#), [Masters in Criminal Justice](#).

On-Campus
For On-Campus degrees make sure to visit our on-Campus section by clicking on the links on your left under [On-Campus].

Done

UNIVERSITIES.COM: The most extensive collection of distance learning

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



What is m-Learning?

New Learning Paradigms		Mobile Technologies
Individual/Learner centered	↔	Personalized Services
Collaborative learning	↔	Networked/Wireless
Situated learning	↔	Mobile awareness
Contextual learning	↔	Context awareness
Ubiquitous learning	↔	Ubiquitous
Life long	↔	Durable

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



What is m-Learning?

- Refers to the use of **mobile** and **handheld** devices in teaching and learning
- Mobile implies movement and **mobility**--to learn “**on the go**”



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Why m-Learning?

- Enhance learner's success
 - **Real** world skills
 - Access learning materials from **anywhere** and **anytime**
 - **Just-in-time** learning--reference tool for quick access to data in the field
 - **Interact** with others
 - **Collaborate** learning



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



m-Learning Devices

- PDAs
- Tablet PCs
- Mobile phones
- Wearable computers
- Laptop computers
- E-book readers
- Hybrid devices

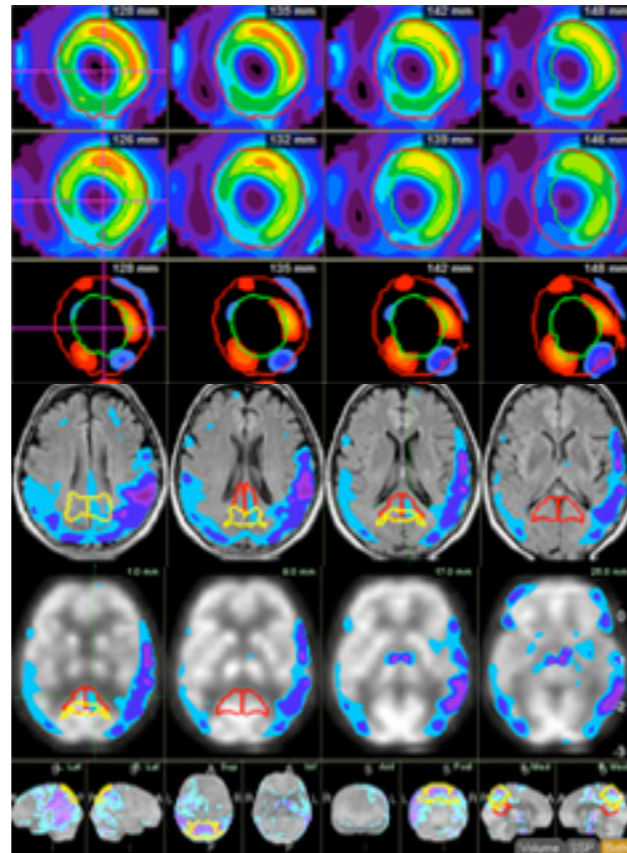
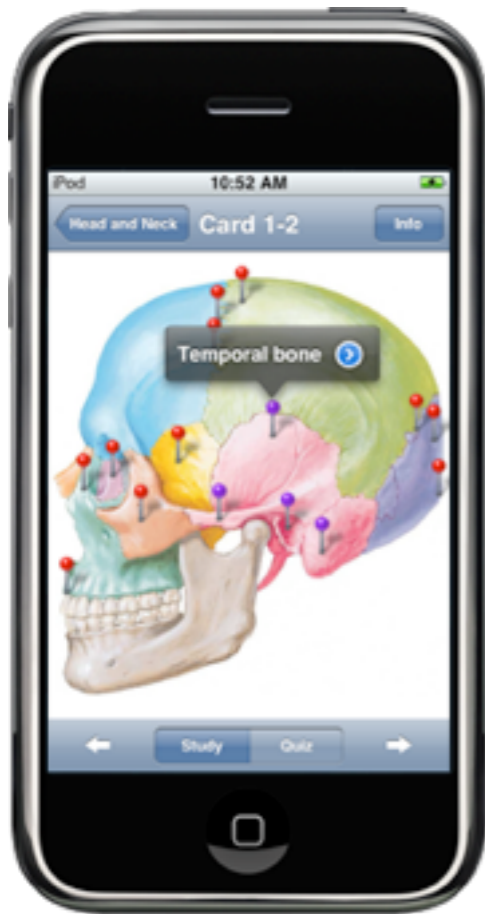


Social Computing in Education

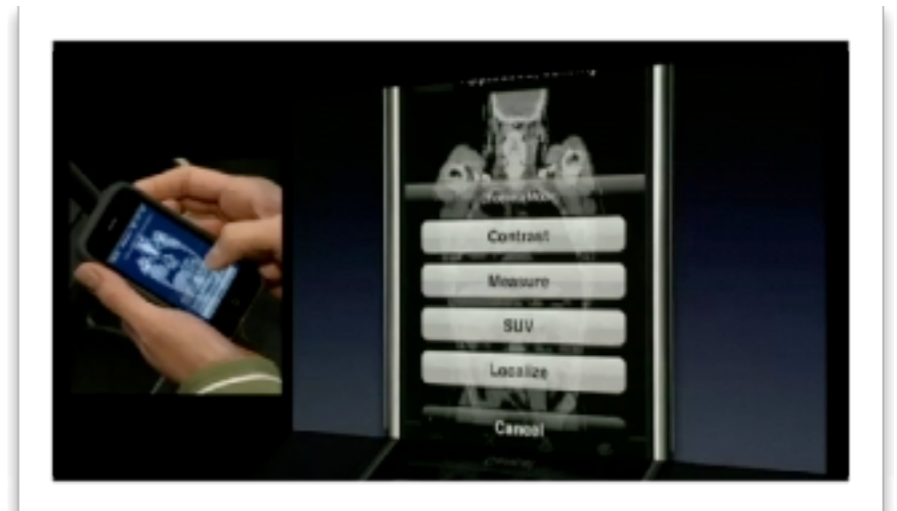
Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



iPhone in Medicine



Multi-planar
reconstruction data sets



Images



online version

Medical resources developed for the iPhone
can be used by students and practitioners

<http://jeffreyleow.wordpress.com/2008/06/10/iphone-in-medical-education/>

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



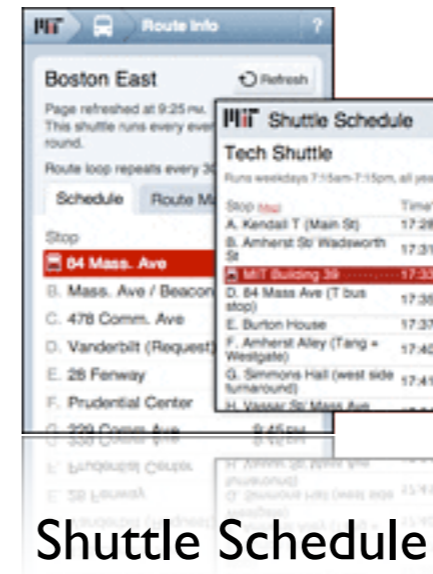
MIT Mobile Project



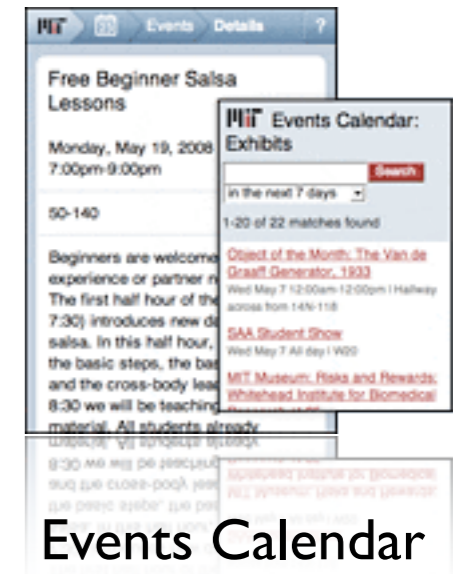
People Directory



Campus Map



Shuttle Schedule



Events Calendar



Stellar



Emergency Information



3DOWN

<http://mobi.mit.edu/>

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Limitation of m-Learning Devices

- Small screen size and limited storage capabilities
- Batteries require regular charging
- Lack of common platform
- More easily lost or stolen
- Much less robust than desktops
- Get outdated very quickly
- Security and privacy issues
- Limited bandwidth problems
- Difficulties to upgrade



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Tensions and Areas for Further Research

- Teaching **vs.** learning
- Walled garden **vs.** open arena
- Private learning **vs.** collaborative learning
- Digital native **vs.** digital immigrant
- Social networking **vs.** anti-social networking
- Rip-mix-burn **vs.** cut-tweak-paste
- Transitory marks **vs.** persistent marks
- Print literacy **vs.** digital literacy
- Serial processing **vs.** parallel processing

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009

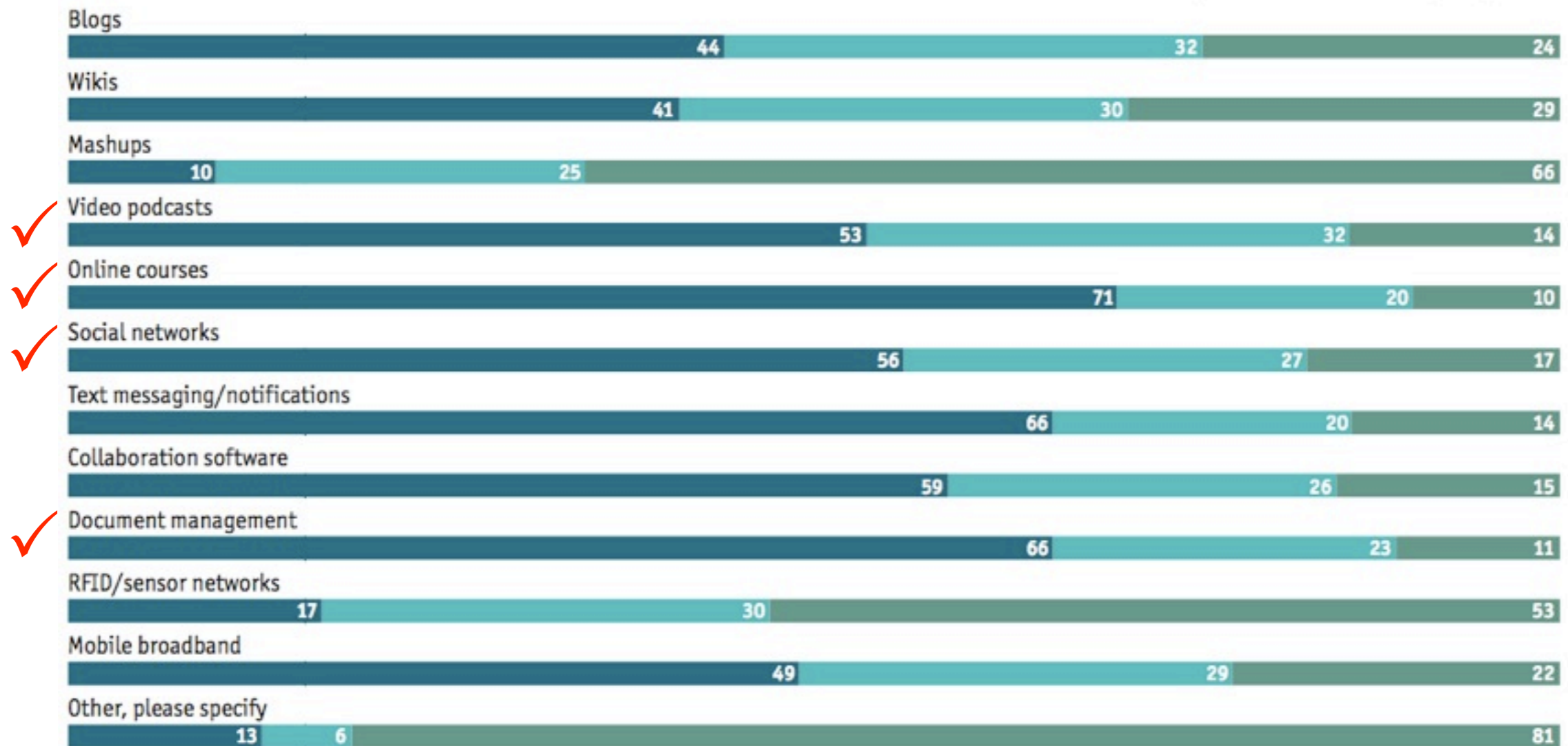


Economist Intelligent Unit 2008

Which tools does your institution currently use, and which do you think will be used within five years?

(% respondents)

■ Use now ■ Within five years ■ Don't know/Not applicable



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



New Challenges

- **Quality** and **reliability** of information and resources
- Responsibility and awareness of **security** and **privacy** issues
- **Ethical** questions, e.g. <http://www.ratemyprofessors.com/>, and cyberbullying
- Need for **new skills** both for learners and teachers

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Economist Intelligent Unit 2008

In what ways do new technologies pose the greatest challenges and risks to colleges and universities? Select up to three.
(% of respondents)

Potential increase in student plagiarism

51

Potential increase in student plagiarism

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



VeriGuide

- **Similarity text** detection system
- Developed at **CUHK**
- Promote and uphold academic **honesty, integrity, and quality**
- Support **English, Traditional and Simplified Chinese**
- Handle **.doc, .txt, .pdf, .html, etc.** file formats
- Generate detailed **originality report** including **readability**



Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Conclusions

- New availability of resources for learning
- New learner empowerment and networks
- New participation in learning processes

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Conclusions

- **New availability of resources for learning**
 - Easy access to **free** information resources (dictionaries, encyclopaedia)
 - New **variety** of sources and resources
 - Education providers pressured to open up their resources to show their **quality**



Conclusions

- New learner empowerment and networks
 - New empowerment in **choosing** the learning provider
 - New means to **express** and show one's skills
 - Collaborative communities, new support for **informal learning**

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009



Conclusion

- New participation in learning processes
 - Digital natives expect to use **participative** approaches
 - Learning tool developers are already **integrating** and **developing** participative tools to their products



Acknowledgments

- Prof. Jimmy Lee
- Mr. Patrick Lau
- Mr. Lam Cho Fung
- Mr. Simon Mok
- Mr. Ivan Yau
- Ms. Jessie Li (special thanks)



FREE **10-20-30** Trial

- **10** files submitted in a batch
- **20** originality reports
- **30** days of fully functional activated VeriGuide
- Use “**ECS2009**”

Social Computing in Education

Irwin King, 2009 International Symposium on Education and Computer Science (ECS2009), Wuhan, March 7, 2009

