MOOCs
Here to stay or flash in the pan?

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ALCTS Webinar Series
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why technology impact is difficult to anticipate
Immovable Object

Human nature does not change
Perceptual, cognitive, emotional, social behaviors
Irresistible Force
Human Nature and Technology Change
technology growth
Even when aware of supralinear growth, we reason poorly about it.

- Seeing data does not help!
- When it has effects, we misattribute them.
Reasoning about Exponential Growth

- Graph on the left shows exponential growth from 1 to 7.
- Graph on the right shows linear growth from 4 to 28.
Ten Years of Moore’s Law
Approximate costs in 2010 US$
Impact of Hardware Changes

1965 1975 1985 1995

Hardware R&D
Software R&D
User Interface R&D
Consumer Behavior
Organizational & Institutional Behavior
brief historical overview of human-computer interaction
Computer-Related Jobs, 1973

- Computer operator
- Systems analyst
- Computer programmer
HCI Disciplines, 1983

*Origins & emphasis:*
- Computer operation & data entry (HF&E)
- Systems analysis & management (IS)
- Computer programming & hands-on use (CHI)
Hardware Platforms & HCI Research Fields

- **1955-1965**: VACUUM TUBES
- **1965-1975**: MAINFRAMES
- **1975-1985**: MINICOMPUTERS
- **1985-1995**: MICROCOMPUTERS
- **1995-2005**: HANDHELD/MOBILE
- **2005-2015**: EMBEDDED

- **Human Factors and Ergonomics**
- **(Management) Information Systems**
- **Office Systems**
- **CSCW**
- **Computer-Human Interaction (CHI)**
- **Ubicomp/Pervasive**

**SIZE, COST, ETC.**
“These index cards might conceivably be transparent and so contrived as to give a photographic copy promptly whenever it was needed, and they could have an attachment into which would slip a ticket bearing the name of the locality in which the individual was last reported. A little army of attendants would be at work on this index day and night… An incessant stream of information would come, of births, of deaths, of arrival at inns, of applications to post offices for letters, of tickets taken for long journeys, of criminal convictions, marriages, applications for public doles and the like. A filter of offices would sort the stream, and all day and all night for ever a swarm of clerks would go to and fro correcting this central register, and photographing copies of its entries for transmission to the subordinate local stations, in response to their inquiries…”

– H.G. Wells, 1905

“Most information professionals ... were focusing on providing information to specialists as quickly as possible. The terms used by contemporary specialists appeared to be satisfactory for many indexing tasks and there seemed no need for systems based on comprehensive and intellectually pleasing classification schemes. The goal of creating tools useful to non-specialists was, at best, of secondary importance....”

looking to the future
Human Factors & Ergonomics
Operation & data entry

HCI in Information Systems
Managerial use

Computer-Human Interaction & antecedents
Discretionary hands-on use

Looking ahead: Design, Marketing
# Emergence of Information Schools

<table>
<thead>
<tr>
<th>Year</th>
<th>Institution</th>
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<tbody>
<tr>
<td>1960</td>
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<td>1970</td>
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<td>1980</td>
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<tr>
<td>2000</td>
<td></td>
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<tr>
<td>2010</td>
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</tbody>
</table>

- **Penn State**
- **Indiana-Informatics**
- **Royal School (Denmark)**
- **Maryland-BC**
- **North Carolina**
- **Michigan**
- **Wuhan**
- **U. Brit. Col.**
- **Washington**
- **Toronto**
- **Kentucky**
- **Illinois**
- **Florida State**
- **UT-Austin**
- **Indiana-SLIS**
- **Rutgers**
- **Drexel**
- **U. Coll. Dublin**
- **UC Berkeley**
- **Syracuse**
- **UCLA**
- **Georgia Tech**
- **UC London**
- **UC Irvine**
- **Sheffield**
- **Humboldt**
- **Maryland**
- **North Texas**
- **Pittsburgh**

**Legend:**
- Dashed line: "Information" and other discipline in name
- Solid line: "Information" is only discipline in name
Building a Bridge

Library & Information Science

Computer Science

Informatics

Information Retrieval

Business & Technology

Public Sector “Memory Institutions”

The Discipline of Organizing

Edited by Robert J. Glushko
personal (information) trainers
Do We Still Need Libraries?

INTRODUCTION

The New York Times reports that, as big stores like Borders disappear, “many public libraries are seeing an opportunity to fill the void created by the loss of traditional bookstores.”

Is that the right direction for libraries to take? What are libraries for, and how should they evolve?

DEBATERS

Bridge the digital divide?
Computer skills for the elderly?
Hub for citizen science, civics?

Solitude?
Place for gathering?
Repositioned in formal education?
Emerging Technologies & Practices

- New technologies
  - Messaging, social media
  - Wikis, weblogs, tagging
  - Real-time visualization, GPS, map mash-ups
  - Digital photos, music, video

- New skills and behavior
  - Multimedia authoring
  - Multi-tasking
  - Emotion & engagement
  - Search, browse, assess
High School Handout
(Adapted from one in Anastasia Goodstein, *Totally Wired*, 2007).

**AUTHORITY**
- Author’s credentials
- Known or respected source?
- Is the information documented?
- Is there any way to contact the author/publisher?
- Does the information belong to those who published it?
  - Is it an advocacy site… Is bias necessarily a bad thing?
  - Is there a conflict of interest? Does the website producer stand to benefit from the information being provided?
- How important is balance? Is it required for your purposes?
  - Do enthusiasts sites, novelty sites, and advocacy sites need to be unbiased?

**ACCURACY**
- Does this information need to be current?
- Do the links work?
- Information sites vs. recreational sites: Do they need to be evaluated using the same criteria?

**BALANCED TREATMENT**
- Be able to spot point-of-view
  - Is a site fair and objective?
- How important is balance? Is it required for your purposes?
  - Do enthusiasts sites, novelty sites, and advocacy sites need to be unbiased?

**THE DARK SIDE: TECHNIQUES USED TO DECEIVE OR MISLEAD**
- Deception and mimicry: acting like something you are not
- Co-opting symbols and traditions used in other contexts
- Calling on a higher authority (e.g., religion, country) to justify a position
- The Plain Folks technique—“We are like everyone else”
- Using patriotism and pride in citizenship to justify a position
- Pseudoscience—using scientific-sounding references to justify a position
<table>
<thead>
<tr>
<th>Oral</th>
<th>Literate</th>
<th>Digital</th>
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</thead>
<tbody>
<tr>
<td>Aggregation</td>
<td>Analysis</td>
<td><strong>Synthesis</strong></td>
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<td>Sparse</td>
<td>Multiform</td>
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<tr>
<td>Homeostatic</td>
<td>Cumulative</td>
<td>Dynamic</td>
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<tr>
<td>Traditionalist</td>
<td>Experimental</td>
<td>Innovative</td>
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<tr>
<td>Situational</td>
<td>Abstract</td>
<td>Universal</td>
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<tr>
<td>Empathic</td>
<td>Objective</td>
<td>Tolerant</td>
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# Educational mediation

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<thead>
<tr>
<th>Libraries</th>
<th>Authors</th>
<th>Publishers</th>
<th>Bookstores</th>
<th>Libraries</th>
<th>Instructors</th>
<th>Students</th>
<th>Libraries</th>
</tr>
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<tr>
<td>Schools</td>
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MOOE (Massive Open Online Education) is already here to stay.

YouTube
Khan Academy
Wikipedia
iTune U
TED talks
Project Gutenberg and other archives
Used book sellers
Textbook supplements (not open)
& MOOCs present and past
K-12 (primary and secondary)

- Pedagogy: In U.S., Common Core & online-only assessment
- Technology: 1:1 (powerful device : student)
- High resolution digital pen (education is one of few disciplines in which handwriting and sketching are part of the final product)

The first truly ‘digital native’ generation is coming.
MOOCs – Potential?

‘After setbacks, online courses are rethought.’

Q: Can distributed, asynchronous video be effective?
A: Yes. Stanford experiments of 1970s, replicated by others.
Tutored videotape instruction: a new use of electronics media in education.

Q: But it did not spread. Will MOOCs do better?
A: Coordination effort? Is live performance special?
Not clear. Some thoughts are in two blog posts on my web site: Wrong about MOOCs? and Couch Potato U.
MOOCs – Issues and Impacts

- Attrition
- Student assessment
- Credentials
- Business models for MOOC providers
- Humanities vs. science vs. technology vs. vocational courses
- High school vs. college vs. post-graduate students
- Role of local facilitators
- Effects on employment
Whether Here to Stay or a Flash in the Pan, MOOCs Will Reach Their Destination Quickly

- A few dedicated, talented, idealistic authors can have a large effect
- Best practices can spread with unparalleled speed
  - Thousands of students experience effective practices
  - Many MOOC students today are instructors
  - MOOCs that remain online can be models
- Data collected can improve practice
ACM and European MOOC research conferences

- Rigorous studies are refreshing after years of popular press articles.
- Controlled studies of features and approaches
- Caveat lector still applies: authors prone to over-generalize
MOOCs
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