The social life of information - learning in the digital age

Educause 2001

Ok, jsb. Is it evolution or revolution??

Maybe it's both!
Fundamental dynamics--
(Pace of change of the digital infrastructure)

Digital power =

computing \(\times\) communication \(\times\) storage \(\times\) content

- **Moore's law**
  - doubles every 18 months

- **Fiber law**
  - doubles every 9 months

- **Disk law**
  - doubles every 12 months

- **Community law**
  - \(n^2\) Where \(n\) is # of people

**AND NEW ALGORITHMS**

**Exponential pace of change**
The amazing disk drive
MEMS redefines storage

(MEMS—Micro Electrical Mechanical Systems)

And this is just the beginning
STEPS TOWARD 1000 GIGABYTES

The tiny millipede disk array

BITS MEET ATOMS

1,024 array of cantilevers 3mm by 3mm each with a 50 nanometers wide tip.

MEMS - BRIDGING THE NANO AND THE MACRO WORLD

IBM
MY WORLD IN MY HAND

HOW DOES THIS CHANGE WHAT I NEED TO KNOW?
THE ROAD AHEAD AIN’T STRAIGHT –
A COMPLEX DIGITAL CULTURE IS UNFOLDING.

SOCiETY AND TECHNOLOGY CO-EVOLVE

BE AWARE OF TUNNEL VISION
Tunnel vision leads to tunnel design

Individuals

Communities

So what does this say about learning?
CARTESIAN VIEW

KNOWLEDGE AS SUBSTANCE

PEDAGOGY AS TRANSFERING KNOWLEDGE
WE PARTICIPATE
THEREFORE WE ARE

UNDERSTANDING IS SOCIALLY CONSTRUCTED
THE ARCHITECTURE STUDIO--
A POWERFUL SOCIAL LEARNING ENVIRONMENT

WHERE WORK IN PROGRESS IS MADE PUBLIC.
LEARNING AS ENCULTURATION INTO A PRACTICE.

MUST THE MASTER BE PHYSICALLY THERE?
AN EXPERIMENT BETWEEN PARC & MIT
REMOTE/VIRTUAL STUDIO CRITIQUES

PARC

MIT

MUCH INFO LIES IN THE PERIPHERY

CONTEXT MATTERS!!
A PROVOCATIVE LEARNING EXPERIMENT

RETHINKING DISTANCE LEARNING - TVI

AH, LEARNING AS SOCIALLY CONSTRUCTED UNDERSTANDING.

A ROBUST RESULT BY JIM GIBBONS.
DIGITAL DELIVERY OF INFORMATION CAN HAVE A DOWNSIDE
A WEBCASTING EXPERIMENT OF PARC’S FORUMS

EFFICIENCY IS NOT THE SAME AS EFFECTIVENESS.
LEVERAGING A 'COMMUNITY' OFANNOTATIONS — EFFICIENCY AND EFFECTIVENESS
THE UNIVERSITY

ON CAMPUS,
AS MUCH LEARNING HAPPENS
OUTSIDE THE CLASSROOM AS INSIDE
LEARNING ON CAMPUS

EXTENSIVE
• EXPOSURE TO MULTIPLE COMMUNITIES OF PRACTICE/SCHOLARS
  • EXPERIENCING:
    WHAT CONSTITUTES AN EXPLANATION
    WHAT IS ELEGANT OR INTERESTING, ETC

INTENSIVE
• ENCULTURATING INTO A PARTICULAR PRACTICE:
  LEARNING TO READ, WRITE, SELECT PROBLEMS, ETC
• PICKING UP THE AESTHETICS OF THE PRACTICE
• LEARNING TO BE (NOT JUST LEARNING ABOUT) - COGNITIVE APPRENTICESHIP

KEY: RUBBING SHOULDERS WITH MULTIPLE SENSIBILITIES
RUTH SIMMONS - CAMPUS LIFE: INTELLECTUALLY QUARRELsome
Is a library without walls a library

A place for reflection and peripheral support
A feeling of membership -
the practice of scholarship

Nurturing communities as well as maintaining collections
WEB\(^+\) AS A TRANSFORMATIVE LEARNING TECHNOLOGY

• INTERNET / WEB AS A NETWORK OF COMPUTERS

INTERNET / WEB AS A MEDIUM

• A MEDIUM THAT HONORS MULTIPLE FORMS OF INTELLIGENCE

VALUE OF COMPUTERS FOR LEARNING

EXPLOSIVE ENTREPRENEURIAL PERIOD FOR TRANSFORMING LEARNING

1970 1998
**Multiple Forms of Intelligence**

- Abstract
- Textual
- Visual
- Musical
- Social
- Kinesthetic

**Flow**

Linear ---> Non Linear

Logic ---> Rhetoric
SOME CYBERAGE SHIFTS

- Text Literacy → Text + Image Literacy → Information Navigation
- Being Told (Authority Based) → Learning → Discovery, Experiential
- Deductive (Linear) → Reasoning → Bricolage + Judgement (Lateral)
- Don’t Know Won’t Try → Action → Don’t Know Link, Lurk & Try

Trust through triangulation—
a new form of literacy??

Searching the web as an adventure.
BRICOLAGE ACROSS MULTIPLE MEDIA – IMPROVISATIONS AS COIN OF THE DAY
THE OPEN SOURCE & LINUX MOVEMENTS

- WRITING CODE TO BE READ
- ENGAGEMENT THRU BRICOLAGE
- SOCIAL CAPITAL MATTERS

A FORM OF APPRENTICESHIP,
COGNITIVE APPRENTICESHIP,
APPRENTICING TO A
COMMUNITY OF PRACTICE

OPEN CODE, OPEN SYSTEM, OPEN COMMUNITY DISCUSSION
New media creates new genres

New genres alter new media

Examples...
I MUST HAVE BEEN A DINOSAUR

I DIDN'T BELIEVE IN HYPER TEXT, HYPER VIDEO, VIDEO GAMES LIKE MYST OR EVEN EVERQUEST.

AND THEN I SAW THE WORKS OF STEPHANIE BARISH, PROFESSOR MIYAGAWA AND TINA SCHNEIDER -- EXPERIMENTS IN NEW MEDIA GENRES.

HMMM, BUT MAYBE YOU STILL ARE, MR. JSB
Evolving Forms of Literacy - USC' Multimedia Literacy Program

- Integrating Critical Understanding of Media Through Cinema and Visual Studies
- Hands on Authorship by Students, TAs and Faculty
- Being able to Read and Write in Emerging Forms of Media

English, Philosophy, Women’s Studies, History, Sociology, Political Science, Religion and Quantum Mechanics

Exploring the Conceptual Implications of Integrating Appropriate Forms of Media into Each Discipline - Not an Issue of Mastering the Technology!

Stephanie Barish, E. Daley
A NEW MULTIMEDIA GENRE
BY MIYAGAWA

PDA: VIDEO MEMOS, JOURNEY MOVIE, INTERVIEWS, FIELD NOTES, DIARY, 3-D ENVIRONMENTAL CUBE
THE UNIVERSITY IN THE DIGITAL AGE

• LET THE VIRTUAL AUGMENT THE PHYSICAL, NOT REPLACE IT.
• TURN THE UNIVERSITY, ITSELF, INTO A LEARNING ORGANIZATION.
AN ECOLOGY OF EXPERIMENTS FOR REINVENTING THE UNIVERSITY FOR THE 21ST CENTURY

- RESOURCE UTILIZATION - ON CAMPUS FOR ONLY HALF THE YEAR CYBER CAMPUS FOR THE OTHER HALF.

- EXTENDING THE REACH OF THE UNIVERSITY THRU TIME
  - ALUMNI NETWORKS (DIODE ---> DIALOGUE)
  - CAPTURING INTELLECTUAL ASSETS IN THE MAKING

- EXTENDING THE REACH OF THE UNIVERSITY THRU SPACE
  - BECOMING A REGIONAL LEARNING PARK
  - UTILIZING DISTRIBUTED FACILITIES FOR STUDY GROUPS

- UTILIZING DESIGN STUDIOS AS A CENTRAL LEARNING MOTIF

- OPEN SOURCE CONSORTIA FOR CONTENT AND ITS CONSTANT RENEWAL
Being Educated for the 21st Century

To be “educated” today is to be able to “swim” easily in the world of the information revolution.

It is to know something about the “information revolution” of the last fifty years and of its social, cultural, economic, political, legal and psychological implications.

It is to be able to deal with data sets using this technology. In a world of multimedia, it is to be visually and aurally literate.

It is to be able to “manage” the vast amounts of information now available, to be able to think about “information systems,” and to be able to make accurate judgments about the accuracy and value of any particular “information” in any media.

(abridged) University of Michigan - PIRC
“THE WAY FORWARD IS PARADOXICALLY NOT TO LOOK AHEAD, BUT TO LOOK AROUND”

A SOCIAL VIEW OF LIVING, WORKING AND LEARNING
THANK YOU