

# From Gutenberg to Gates and Beyond

By Ted McCain & Ian Jukes

## From time to time

- product with unforeseen impact on society
- true since Chinese pounded linen to make paper
- provided mass means for disseminating knowledge

## This was also true...

- Gutenberg invented printing press
- initially devoted to publishing Bible
- impact of printing press?
- who thought it would undermine church?

## Who could have foreseen?

- ripple effect
- public schools
- teaching children to read
- to absorb knowledge books contained

## The power of the press

- came from information access
- making religious information available
- disintermediated religious leaders

## What is disintermediation?

- direct access to source of information, services or goods
- press allowed direct access to info in Bible
- leaders no longer only means of access
- leaders were not as necessary as before

## **The power of info access**

- took time
- shifted power
- turned Medieval world upside down
- changed relationship between Church & the masses
- Reformation
- Renaissance

## **And now it's happening again**

### **We are living...**

- extraordinary times
- world being turned upside down
- implications of microelectronics
- has lead to...

### **The world of Gates**

- meteoric rise typifies astounding shift
- has matured into online revolution
- fundamentally changing our world
- but huge difference...

### **It's happening in fast forward**

- accelerated rate of change
- hard to recognize or understand
- microelectronic explosion - 30 years ago
- desktop computer - 20 years ago
- WWW - took off 6 years ago

### **Even the rate of change**

- changing
- major shift
- incremental to exponential change
- profound implications

## **Incremental growth**

- the way it was
- growing in size by factor of 1
- 1-2-3-4-5-6-7...
- over 15 years 15 times as big, fast, powerful
- planning for change is easy
- what is change like today?

## **Exponential vs. Incremental**

- starts out similar to incremental but...
- over 15 years 16,384 times as big, fast, powerful

## **New dynamic of new century**

- Moore's Law times 2x every 18 months
- Law of The Photontimes 3x every 12 months
- Internet content times 3x every year

## **This explains things**

- why WWW exploded into view
- why it changed world overnight
- unlike anything we've ever seen before
- exponential nature of world tells us...

## **You ain't seen nothin' yet!**

- changes in next 5 years...
- how do you plan?
- what trends should we be looking at now?

## **Technological convergence**

- fusion of 4 technologies
- television
- interactive real time communication
- computers
- networks
- fusion so powerful, we're compelled to give it a name...

# Synercation

## Synergy of communication tech

- content of TV
- interactivity of telephone
- processing of computers
- reach of networks
- single synergized entity
- not broadcast
- interactive

## This is disruptive technology

- challenge to status quo
- more impact than Gutenberg's press
- compressed into 6 years
- turning everything upside down

## Has lead to...

- a fundamental change
- changing relationship between producer & consumer
- power has shifted from producer
- to the consumer
- five reasons for this shift

## #1 Enhanced Access

### The real significance

- Gutenberg's press - access to info
- real power
- upset status quo
- information services now available to masses
- for example...

## **Consider WebMD**

- *medical info on Web*
- *allowing access to information*
- *previously available only with medical degree*
- *power now in hands of patient*
- *changing way doctors practice*

## **Consider MySchwab**

- *www.myschwab.com*
- *alliance with Excite*
- *personalize information*
- *my business, my sports, my news, my weather, my travel*
- *soon - my bills, my medical records, my favorite music...*

## **Consumers have direct access**

- *to source of goods & services*
- *news, books, banking businesses, encyclopedias*
- *trading stocks*
- *cars, houses, banking, insurance*
- *Web has broken business wide open*
- *disruptive/disintermediative impact*
- *big upset to establishment*
- *combined with...*

## **#2 Complete Freedom**

### **The way it was**

- *Industrial Age*
- *placed constraints on consumers*
- *set hours/days for access*
- *people who's schedule didn't fit missed out*

## **The way it is**

- *on-demand digital services*
- *24/7/365*
- *still tied to desktop*
- *about to change*
- *freedom of wireless*

## **Consider Vindigo**

- *geographical tool*
- *wireless survival guide*
- *movies, restaurants, shows, directions etc.*
- *daily updates*
- *according to location*

## **This is a stealth trend**

- *potential underestimated*
- *wireless to pass desktop*
- *just hint of things to come*
- *exponential tipping point...*
- *faster than we expect*
- *anytime, anywhere access*

## **#3 Transparent Communication**

### **Transparent communication**

- *transparent use*
- *with focus on task*
- *transparency of pen*
- *so where are we at?*
- *how do we communicate?*
- *up to now mainly text output*
- *mainly keyboard/mouse*
- *major obstacle*

## **New DoCoMo 3G celleputer**

- wireless Web & e-mail
- video clips & books
- digital camera
- play music
- speech recognition
- speech to text
- automated interpreted telephony
- natural communication

## **Digital people**

- digital people
- BBC's Ananova
- reads news
- Chase Walker
- artificial intelligence
- interactively answer questions
- clunky now - but...

## **Move- natural communication**

- multimedia allowing us to listen & view
- now adding interactivity
- natural multimedia-based communication
- this alone will bring revolution
- break communication barrier

## **#4 Personal Comfort**

### **Who's comfort was it?**

- Industrial world
- one size fits all
- now mass customization
- progress at own pace

- link info in any way
- follow cognitive links

## **New personal comfort**

- don't have to conform to pre-conceived ideas of order
- how long it should take
- comfort is critical
- can't overestimate this
- used to be power in hands of producer
- consider publishing...
- what, when, where controlled by publisher
- now due to growing power of technology
- control shifting to readers

## **#5 Individual Empowerment**

### **Shift towards the consumer**

- consumers have direct access
- disintermediating publishers/broadcasters
- increasingly consumer decides when
- publishers now adjusting to consumer
- upsetting status quo again
- brave new world with new rules
- challenging established ways of doing things
- but what about education?

### **Instruction will not be exempt**

### **Synercation meets learning**

- already profound impact
- people already comfortable with online learning
- text & still graphics & limited
- if they need it, they'll find it

## Consider the future?

- *how do we do our jobs?*
- *ability to communicate*
- *interact*
- *no serious alternative*
- *how 5 aspects of synercation will impact learning...*

## #1 Enhanced Access

### New experiences

- *more than one source, perspective*
- *virtual expertise*
- *classrooms hindered by teacher's background*
- *first step is to augment*
- *but won't stop there...*

### New ways of doing things

- *more will arrive very soon*
- *high speed access is coming*
- *on-line multimedia learning*
- *follow cognitive links*
- *doesn't matter where or who*
- *redefine instructional delivery*

## #2 Complete Freedom

### Consider barriers to learning

- *hair, clothes, complexion*
- *teenagers - stay up late, sleep til noon*
- *yet we have morning classes*
- *synercative learning when & where is best for you*
- *consider power of wireless*

- learning at home, in community, learning as you travel
- learn anytime anywhere

## **#3 Transparent Communication**

### **The power of the web...**

- kids in their native language
- many waiting for CD or web version
- chat lines?
- when kids can speak to the web?
- move to interactive instruction/learning

## **#4 Personal Comfort**

### **The frustration of "should"**

- Math
- not that they can't do it...
- can't do it fast enough
- time is constant - learning is variable
- 100 yard dash
- technology - learn at own pace

### **New synergistic technologies**

- can break these barriers
- not intimidated by others
- ink info in different way than instructor
- not constrained by learning of instructor
- alternative learning experiences
- comfort of home

## **#5 Individual Empowerment**

## **Power was with the teacher**

- they were in control
- broker of information
- definer of deadlines
- where instruction was presented
- when it was presented
- how it's presented
- learner not active
- learner required to adjust to teacher

## **Power shift to the learner**

- direct access to instructional services
- disintermediating classroom educators
- learner decides when they want to learn
- where it's presented
- how it's presented
- learner actively involved
- And it's happening again
- like Gutenberg's press
- modern life is changing
- upsetting status quo
- brave new world with new rules
- challenging established ways of doing things
- profound implications for learning

## **How will this change learning?**

### **Some questions to consider...**

- who will provide instructional services?
- can schools move fast enough to catch this wave?
- issue is not technology...
- but mindset

## **Consider the music industry**

- why has Napster been so successful?
- enhanced access
- freedom of presentation
- from comfort of living room
- personal empowerment
- upset established way of doing things
- challenge monopoly

## **Why didn't they see it?**

- stability lead to mindset for how things get done
- resistance
- reaction of music companies
- try to shut down
- didn't grasp implications
- for consumer...
- shut them down & there will be 10 more

## **There's another side to this**

- also lead to opportunities for others
- Napster
- slow moving music industry
- key was mindset
- vision of empowerment
- understanding of exponential growth
- must move quickly
- a drama of mindset

## **A clash of mindsets**

- those not seeing future
- those who get it
- BMG broken with big 5
- will use tech for on-line music sales
- digital renaissance in music distribution

## **What's this got to do with us?**

- *established mindset*
- *quick to embrace new models?*
- *does slowness provide opportunities for others?*
- *is technology having any impact?*

## **It's already happening**

- *already seeing*
- *on-line information resources*
- *Classroom Connect, Discovery Channel, Sylvan,*
- *University of Phoenix*
- *on-line degrees*

## **What if?**

## **Napster changed its focus...**

- *puts K-12 education in its sights?*
- *peer to peer learning?*
- *on-line learning resources*
- *what would learning look like?*

## **Consider...**

- *student doing homework*
- *needs help*
- *no access to teacher*
- *log on*
- *search for expertise*

## **Search provides**

- *list of sources of instruction*
- *on-demand digital lecture*
- *can stop/replay*
- *profound implications*
- *but doesn't stop there...*

## **Consider Ananova as a tutor**

- math homework in evening
- needs help
- calls up online interactive math tutor
- ask questions
- tutor responds
- waits for confirmation of learning
- graphical representation
- real life illustrations

## **How do you respond to this?**

### **1. Don't hide from it**

- can't pretend this isn't happening
- because it is
- not exploring - opens door
- must understand magnitude of change
- • must ensure all students have access

### **2. Embrace a new mindset**

- see opportunity - not threat
- could be start of beautiful relationship
- partnership with electronic tools
- lose control of a lot

### **3. Be a value-added educator**

- goals of standards are good
- much has been reduced to very low level
- could be done by technology
- start evaluating what you do
- find what technology can't do & will never do
- let's focus on those
- one thing is certain...

## **The genie's out of bottle**

- *people thrive on this*
- *synercation shifting power to learner*
- *learners in control of learning*
- *redefining instructional delivery*
- *digital renaissance in educational services*
- *as we move from Gutenberg to Gates and beyond...*

**For more information contact:**

**Ted McCain**

**The Thornburg Center**

**tmccain@netcom.ca**

**<http://www.tcpd.org>**

**Ian Jukes**

**The Committed Sardine**

**ijukes@mindspring.com**

**<http://www.thecommittedsardine.com>**