

Living in a Digital World

Use Me or Lose Me

**October 1, 2008
Aarhus, Denmark**



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I'll be going at

TWITCH
SPEED

(slides will be available)

MARC PRENSKY

DIGITAL GAME-BASED LEARNING

- ① PRACTICAL IDEAS FOR THE APPLICATION OF DIGITAL GAME-BASED LEARNING
- ① PROFILES OF THE MOST SUCCESSFUL GAME-BASED LEARNING PROGRAMS—AND THE COMPANIES THAT USE THEM
- ① CHECKLISTS FOR ESTABLISHING A GAME-BASED LEARNING PROGRAM IN YOUR COMPANY



*Foreword by Sivasdham "Thiagi" Thiagarajan,
President, Workshops by Thiagi*

~~My Latest Book:~~

How Computer and Video Games Are Preparing Your Kids
For 21st Century Success—and How You Can Help!

“

Don't Bother Me Mom— I'm Learning!

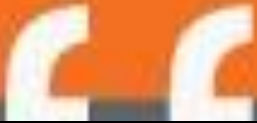
”



Marc Prensky

with a foreword and contributions by
James Paul Gee, Ph.D.
Tashia Morgridge Professor of Reading
University of Wisconsin-Madison

How Computer and Video Games Are Preparing Your Kids
For 21st Century Success—and How You Can Help!





Business + Military + Higher Ed + K-12

Business Projects:

- **Financial Trading Games**
- **Certification Games**
- **Multi-team Competitions**
- **Pharmaceutical Game**
- **Medical Games**
- **Sexual Harassment Prevention Game**
- **Conversation Games**
- **CAD Game**
- **PDA/Cell phone games**
- **Reusable Game Templates**

Did You Have A Good Summer?



Did Your Kids?



www.bromasaparte.es

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A photograph of a man with a goatee, wearing a black baseball cap and a grey t-shirt, sitting at a desk in a classroom. He is looking at a computer monitor and has his hand on a mouse. The background shows other students at their desks.

***“USE ME
or
LOSE ME”***

***Your Digital
Native Workers
are...***

A man in a dark suit, light blue shirt, and striped tie is shown from the chest up. He has a wide-eyed, open-mouthed expression, suggesting surprise or emphasis. His right hand is raised, palm facing forward, with fingers slightly spread. The background is dark and out of focus.

**Your hidden
*competitive
advantage!***

Deriving
Maximum Value
from the
Digital Workforce



Today's Younger Workers



Who *ARE*
these people,
anyway!

We don't **listen** to them ^{enough} ^

We don't **engage** them ^{enough} ^

We don't **respect** them ^{enough} ^

We

BORE

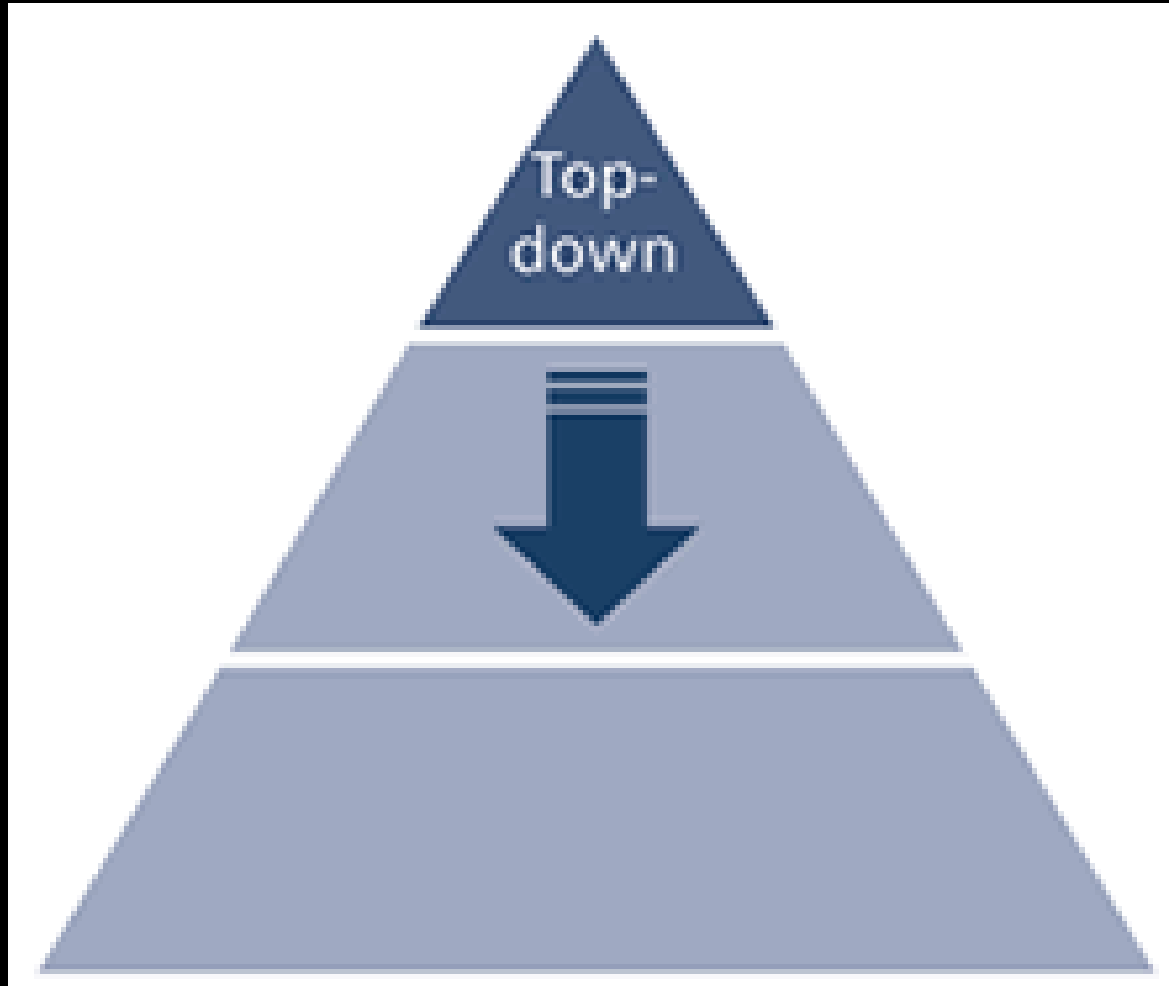
them

Plenty!

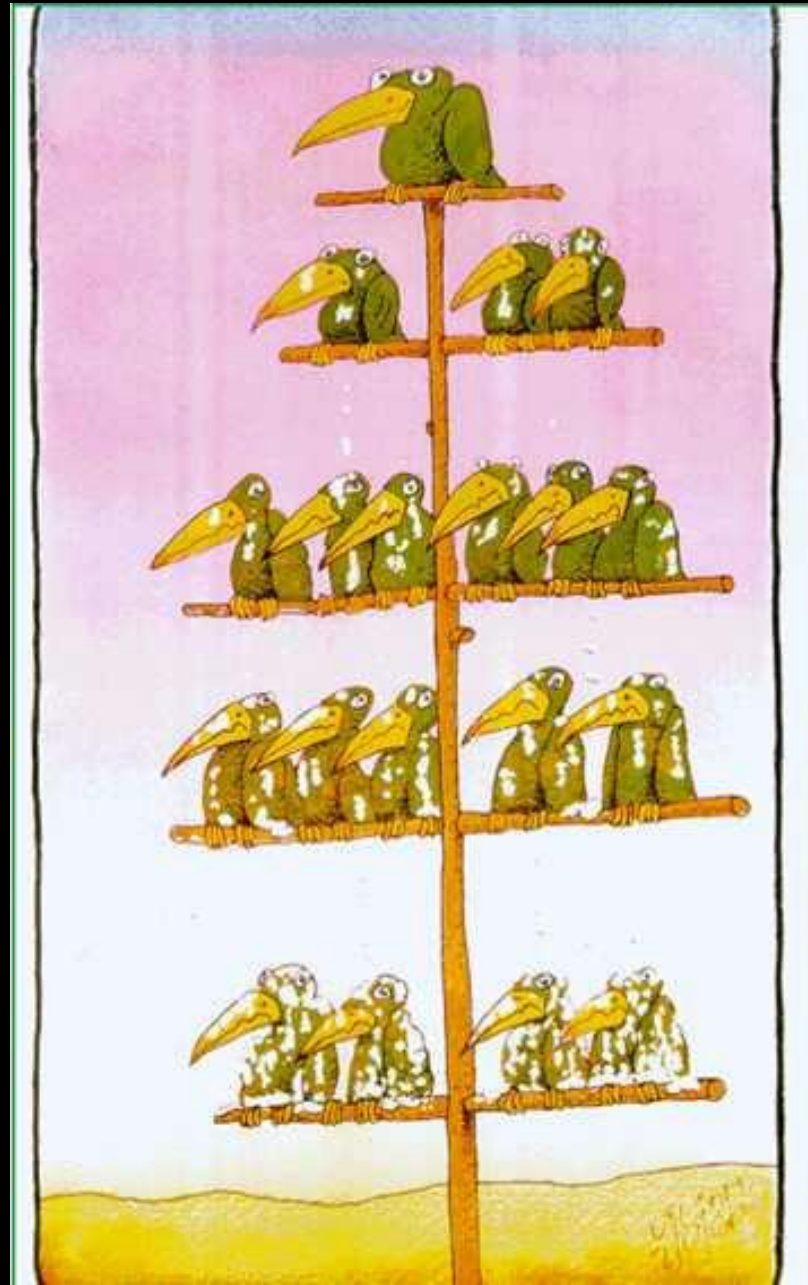




Top Down



Top Down



In the 21st century

**Work can't be dropped on
younger workers**

***They have to
WANT
To do it***

In the 21st century

**We can no longer just TELL
employees what is right/best**

***We also have to
ASK!***

In the 21st century

**We can no longer just
hand workers “tasks”**

***They have to find them
WORTHWHILE!***

In the 21st century

**We can no longer just
hand workers “tasks”**

***They have to help
design them!***

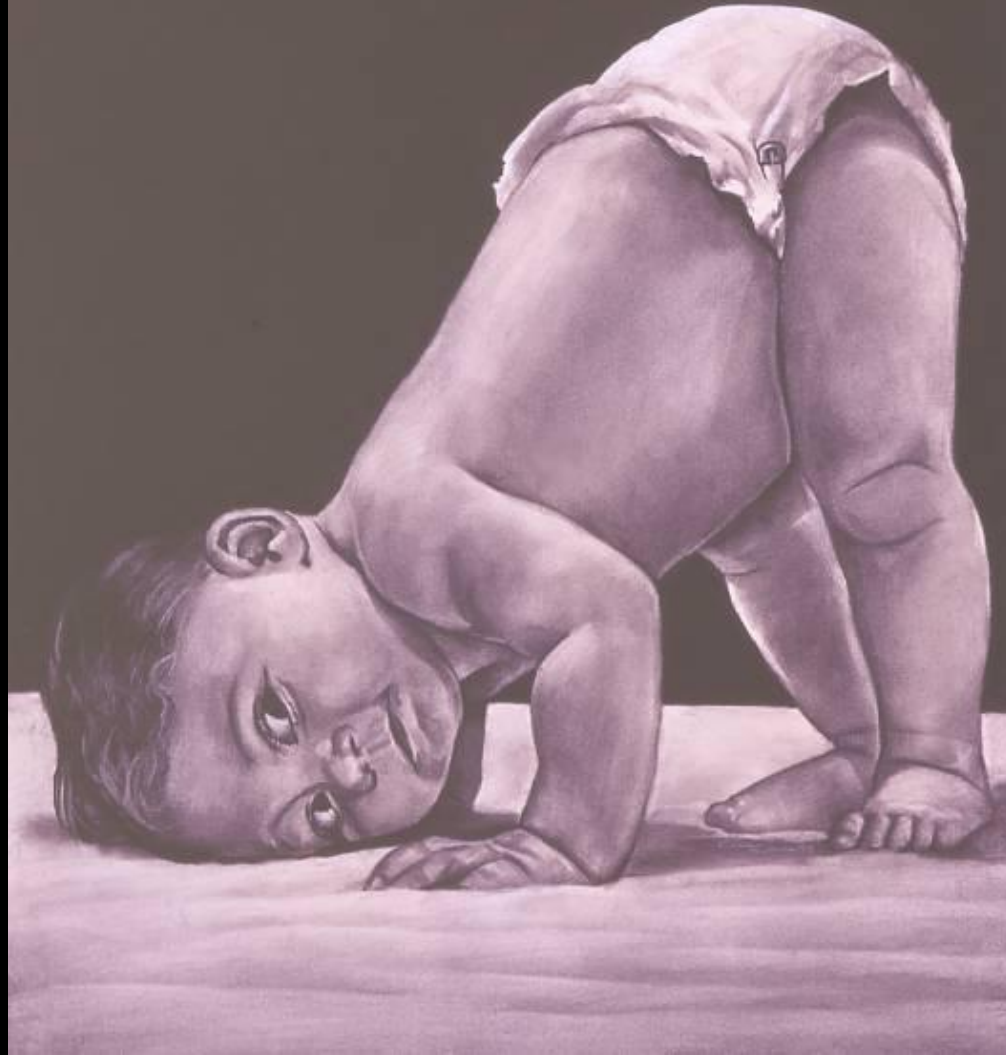
In the 21st century

**We can no longer just
hand workers “tools”**

***They want to bring
their own!***

**“It’s best when you
can create your own
way of getting there
and use your own
technology.”**

Bottoms Up!



A man in a dark suit, light blue shirt, and striped tie is shown from the chest up. He has a wide-eyed, open-mouthed expression of surprise or confusion. A large white speech bubble with a black border is positioned on the left side of the image, containing text. The background is slightly blurred, showing what appears to be an indoor setting with some greenery.

**What the
hell is
“Bottom
Up?”**

It's Listening!



So What Should I Do?

Observe young workers

Ask them

Listen to them

Value them

Challenge them

Set them free

Accept/Use their ideas

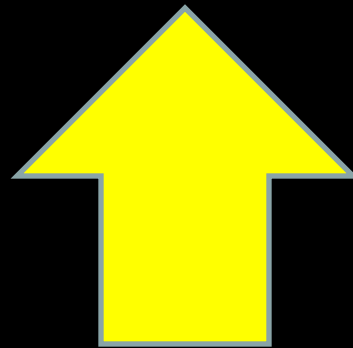
**We have to
Involve Our
Younger Workers
in everything we do**

The Balance is Important!

Top Down



BALANCE



Bottoms Up

Bottom-up Change has happened in:

- **Finance** (Financial Derivatives)
- **Distribution** (P2P)
- **Politics** (Blogs, Online Contributions)
- **Software** (Internet, Open Source)
- **Entertainment** (YouTube, Music)
- **Military** (Equipment)
- **Procurement** (eBay)

***Why we
are having problems:***

1. The World is changing

2. Workers are changing

3. Work is changing

**HOW IS
THE WORLD
DIFFERENT?**

The 21st c. environment is

change

**How many of you
have sent an email
in the past 24 hours?**

**“Email is for
old people”**

– A student

– A headline in The Chronicle of Higher Education

Sky (b. 2008)





**We need to understand both
the **speed** and **magnitude** of the**

change

that's here...

...and the

change

that's coming

**People are shaped by their
environment**



In 30 years...

**...if technology
continues to
double in power
every year...**

$$2^{30}$$

$$= 1,073,741,824$$

**Our technology will be
1 BILLION TIMES
more powerful than today**

1 BILLION TIMES

(2^{30})

1960's
main-
frame

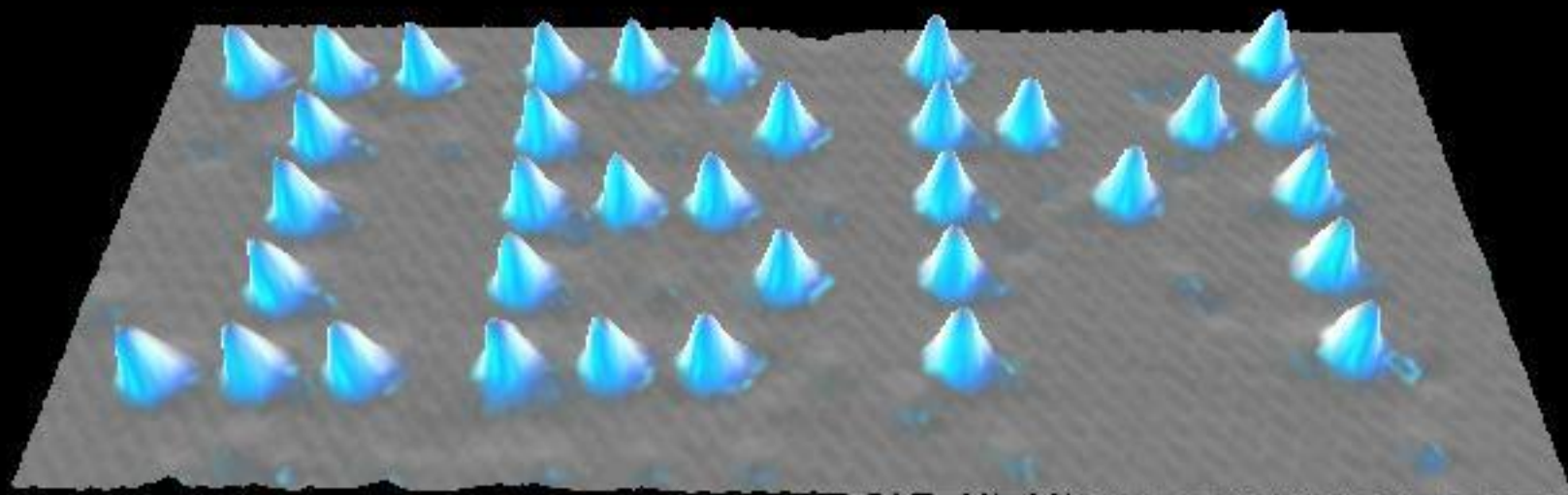
x 1B =

Today's
cell
phone

x 1B =

???

**...and today we are
already working at the
ATOMIC level**



**“Most of us prefer to
walk backward into
the future...”**

**...a posture which
may be
uncomfortable...**

**...but which at least
allows us to keep on
looking at familiar
things as long as we
can.”**

-- Charles Handy



**Change is not just the
Far Off Future**

**Life is different
Every Day!**

**You have probably changed
the way you do**

Banking

Phoning

Travelling

Reading

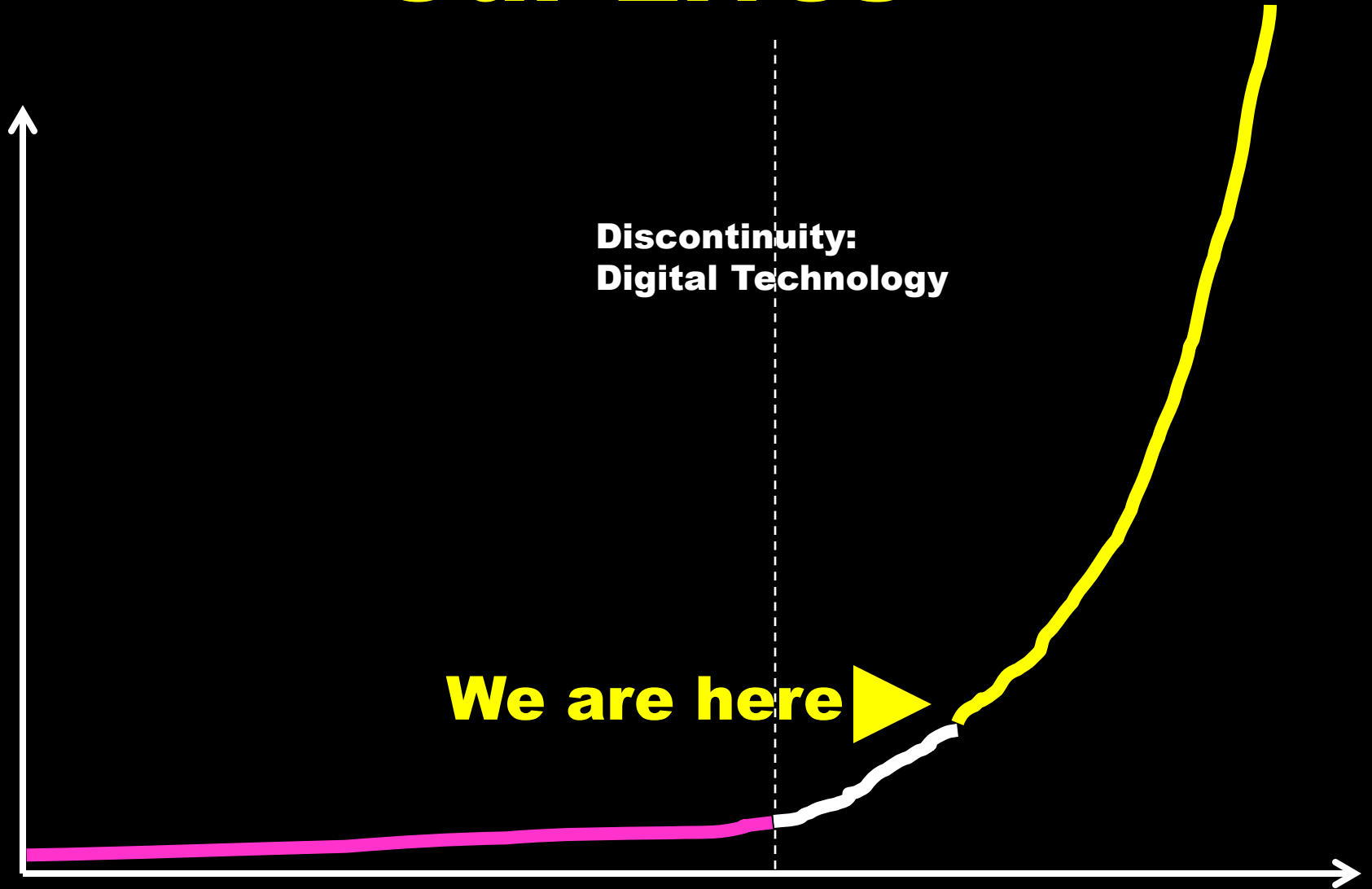
Buying/Selling

Obtaining Info

But...

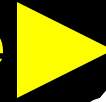
Our Lives

CHANGE



**Discontinuity:
Digital Technology**

We are here



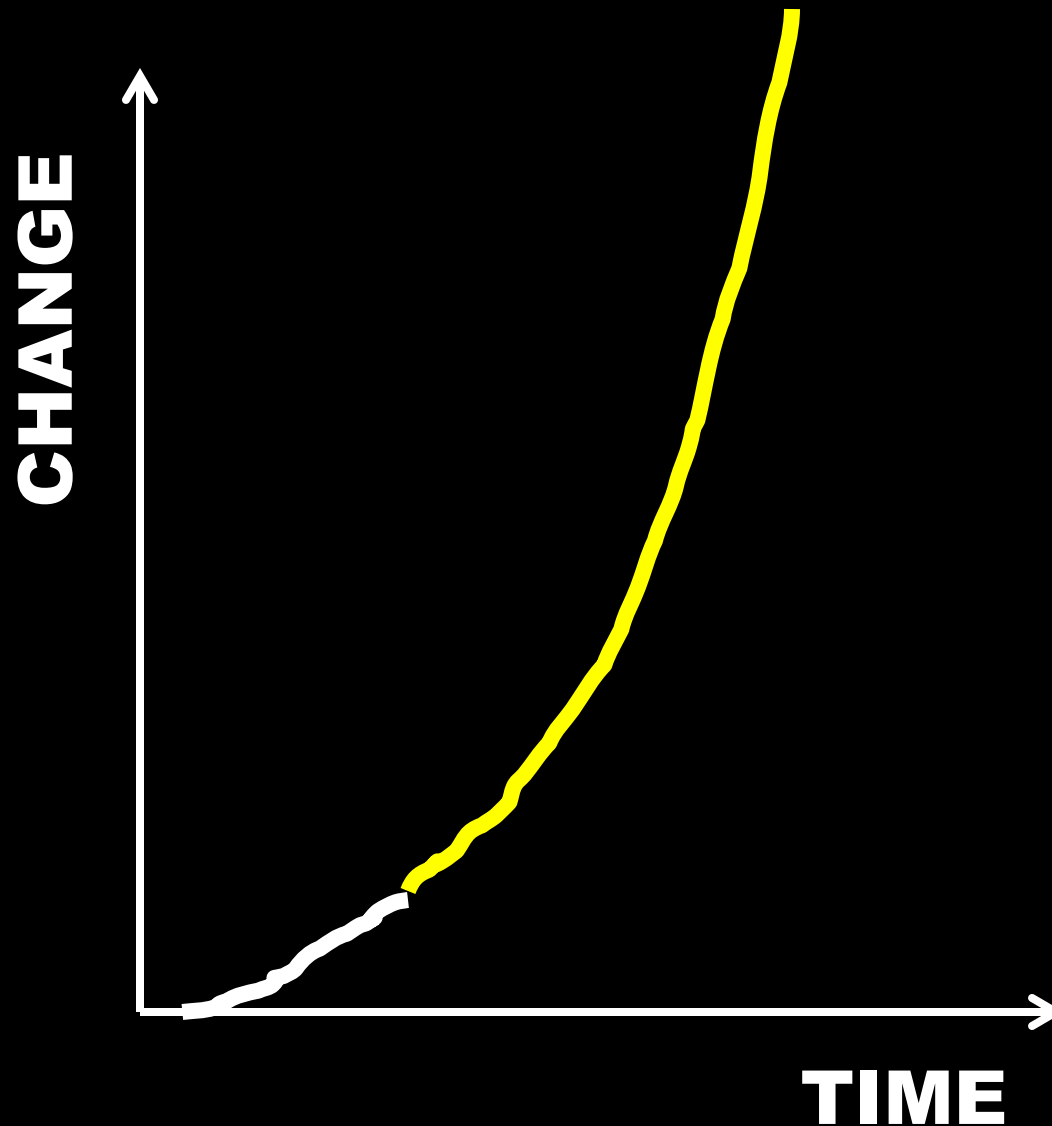
TIME

Exponential Change

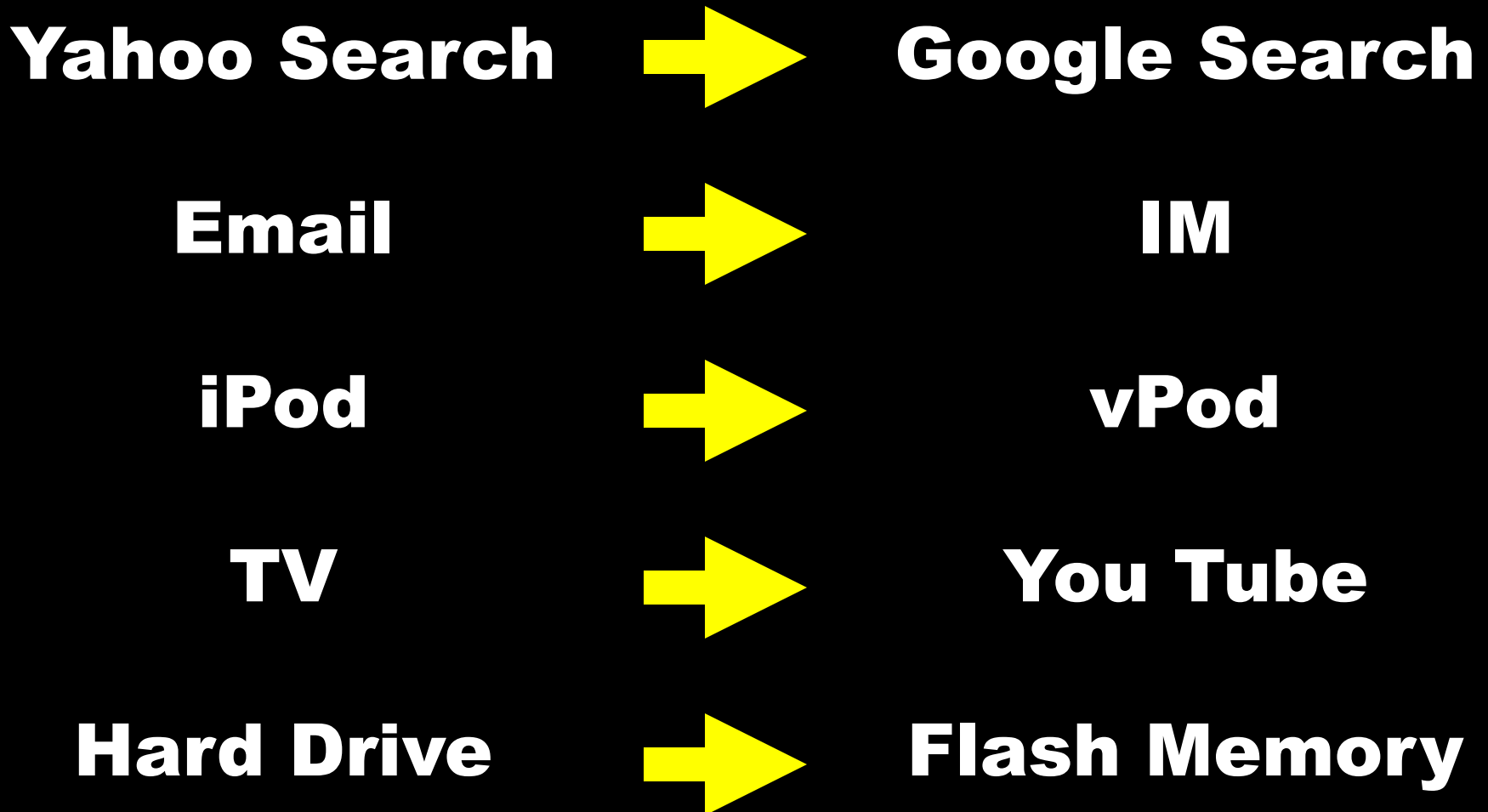
Fueled by

DIGITAL TECHNOLOGY

Our Younger Workers' Lives



***Already, tool switching is
close to instantaneous***



***Within the next few years
they'll all be switching to...***

- **Ubiquitous free broadband**
- **Small individual devices**
- **Being always on, always connected**
- **Software that teaches and adapts**

CHANGE

**Mobile phone
wallets**

**Direct mind-machine
interfaces**

**Implanted / wearable
Real-time environments**

**Technology 1 billion
times more powerful**

**Machines more
powerful than the
human brain**

5 10 15 20 25 30

YEARS

**HOW ARE
YOUNGER WORKERS
DIFFERENT?**

[today's young people are]

**“born to the idea
of rapid change”**

-- Nicola Griffith in *Slow River* (1995)

**“Teachers
should change
how they teach
every couple of
days”**

– young students

**Today's younger
workers are *NOT*
“little us-es”**

Today's Workers are
different

Why?

- **5-10,000 hours Video Games**
- **250,000 emails & IMs**
- **10,000 hours on cell phones**
- **20,000 hours TV**
- **500,000 commercials**

- **< 5,000 hours book reading**

Digital Natives

- **2 billion** ring tones per year
- **2 billion** songs per month
- **6 billion** text messages per day

**“Brains like ours alter
profoundly to fit the
technologies and
practices that surround
them.”**

-Andy Clark

Director, Cognitive Sciences Program. Indiana University



Digital Natives

Conventional Speed



TWITCH
SPEED

Step-by-Step



R A N D O M
A C C E S S

Linear Processing



P A R A L L E L
P R O C E S S I N G
P A R A L L E L

Stand-Alone



CONNECTED

“[Young people] are not just using technology differently today, but are approaching their life and their daily activities differently because of the technology.”

--Net Day “Speak-up Day” Summary

The emerging
ONLINE LIFE
of the
Digital Native

The Digital Natives

e-Life

Communicating

IM, chat, texting

Sharing

Blogs, MySpace, Facebook

Buying & Selling

ebay, papers

Exchanging

P2P

Creating

sites, avatars, music

Meeting

3D chat rooms, dating

Collecting

mp3, video, sensor data

Coordinating

Projects, workgroups,
MMORPGs

Evaluating

Reputation systems -
Epinions, Amazon.com,
Slashdot

Gaming

World of Warcraft, small &
large groups

Learning

About stuff that
interests them

Evolving

Peripheral, emergent
behaviors

Searching

Hyperconnections,
people

Analyzing

SETI, drug molecules

Reporting

Moblogs, photos

Programming

Open systems, mods
search

Socializing

Learning social
behavior, influence

Growing Up

Exploring,
transgressing

REFERENCE

The **Digital Natives**

e-Life

Communicating

IM, chat, texting

Sharing

Blogs, MySpace, Facebook

Buying & Selling

ebay, craigslist

Exchanging

peer-to-peer

Learning

Wikipedia, You Tube, search

Meeting

Virtual Worlds

Gaming

Online, MMORPGs, Cell Phones

Coordinating

Projects, workgroups, MMORPGs

Evaluating

*Reputation systems–
Epinions, Amazon, Slashdot*

Collecting

Mp3s videos, sensor data

Creating

Sites, avatars, mods

Evolving

Peripheral, emergent behaviors

Searching

Info, connections, people

Analyzing

SETI, drug molecules

Reporting

Moblogs, photos

Programming

Open systems, mods search

Socializing

Learning social behavior, influence

Growing Up

Exploring, transgressing

**“You look at technology
as a tool. We look at
technology as a
foundation – it’s totally
integrated into what we
do.”**

– a student

SHARING

Younger workers love to share...

**(be the first to post:
Sharing is Power)**

...but older workers often don't

**(keep it close to the chest:
Knowledge is Power!)**

**Which means that
younger workers
learn faster!**

and
Teach each other!

You Tube: Getting away with texting in class



Young people use **NEW TOOLS** ***THAT TODAY COME FAST...***

- **Sped-up video**
- **Picture Search**
- **IM/texting**
- **Blogs**
- **Wikis**
- **Wikipedia**
- **Podcasting**
- **Phone polling**
- **My Space**
- **Handhelds**
- **P2P**
- **Complex Games**
- **Web 2.0**
- **Web 3.0**
- **Augmented Reality**
- **Phone cameras**
- **Phone videos**
- **GPS**
- **You Tube**
- **MoSoSo**

AND GO FAST...

- Sped-up video
- Picture Search
- IM/texting
- Blogs
- Wikis
- Wikipedia
- Podcasting
- Phone polling
- My Space
- Handhelds
- F2P
- Complex Games
- Web 2.0
- Web 2.0
- Augmented Reality
- Phone cameras
- Phone videos
- GPS
- You Tube
- MoSoSo

2015-1-1
EXPIRED

**They want their own
Tools!**

**“It’s best when you
can create your own
way of getting there
and use your own
technology.”**

**“ I haven’t picked
up a print
newspaper in
forever”**

– 24 year-old girl

**“ Why do I have to
invest three minutes
of my life listening to a
message, when I can
just ping someone
with an IM?”**

-- 24 year-old girl

And...
Long before
Their tools wear out
They throw them away!

**“I won’t
work in a
cubicle.”**

-- New workers at Cisco

WHICH IS CHEAPER?

Changing furniture?

Or changing Workers?

**“The single largest
differentiator ...
is the social
network.”**

-- Jack Mckenzie, SVP Frank N. Magid Associates

**“I Facebook my
way through
work.”**

-- A college student

**Instead of giving young workers
interesting,
engaging,
difficult,
communication-filled
tasks to do...**

We say to them

**“Pay Your
Dues!”**

- Bosses

**“The single biggest
differentiator
of the soci
network**

-- Jack Welch, GE Associates

*They can do **so much**,
but nobody asks them to*

***The change that is
EMPOWERING
to younger workers...***

*The change that is
EMPOWERING
to younger workers...*

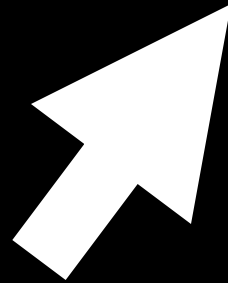
*...is often
THREATENING
to their bosses*

Why?

Because
all this change means
the nature of
work
is changing!

21st Century+

New problems

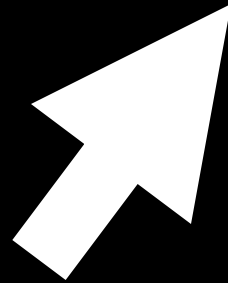


Pre - 21st Century

Same problems

21st Century+

***Inventing new tools
to solve problems***



Pre - 21st Century

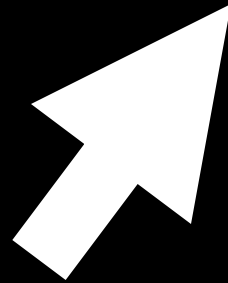
***Solving problems
with the tools we have***

We need new tools for:

- **Managing People**
- **Managing and Using Information**
 - **Intellectual Property**
 - **Ethics**
 - **Public Policy**
 - **Business**
 - **Managing conflict**
 - **Conflict Resolution**

21st Century+

Future uncertain

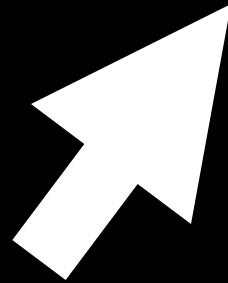


Pre - 21st Century

Future known

21st Century+

***Font of knowledge
Is the Internet***



Pre - 21st Century

***Font of knowledge is
The boss / trainer***

*We will all be living in a
future of
Exponential Change*

**“It’s all about the
future – that’s what
young people are
really thinking
about.”**

– A Student

“Prensky’s Window”

***When you hire a new employee,
You have only **Three Days**
To ask them:***

***“What do we do here that’s
REALLY STUPID?”***

***On the fourth day the answer becomes:
“That’s how we do it here.”***

The change that is
THREATENING
to the older folks...

...is

EMPOWERING
to the younger ones!



***When
will all this
change
END!??***

IT WON'T !!!

By 2010
Millennials will
outnumber Boomers & Xers
in the 18-49 age group

**There's no
Destination...**



...only
Acceleration!

Right now,
FEW PEOPLE
get this

**Unfortunately,
those who
DON'T
get it...**

...will be
CREAMED
by it!



**BUSINESS
"LEADER"**

While those who
DO
get it...

...will
SUCCEED
because of it!

WANTED

**A Better
Prediction
Algorithm**

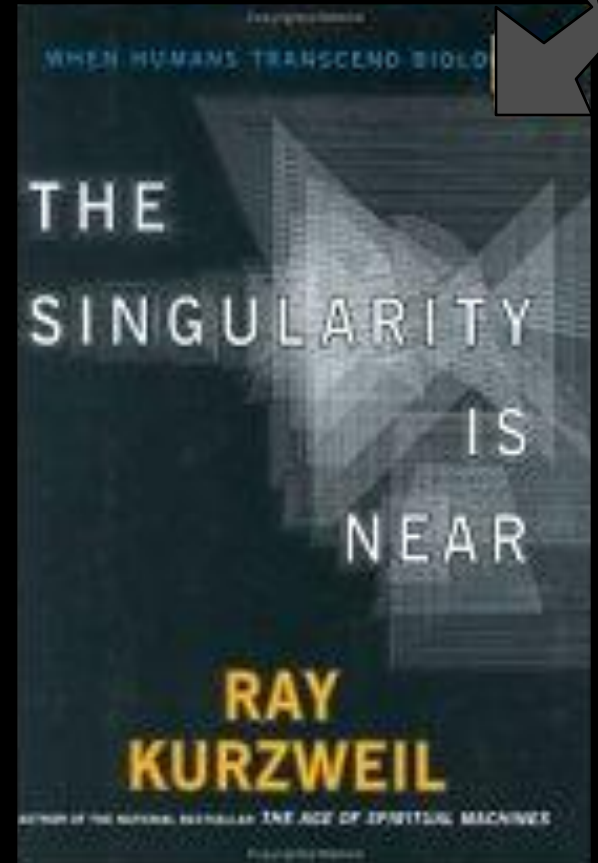
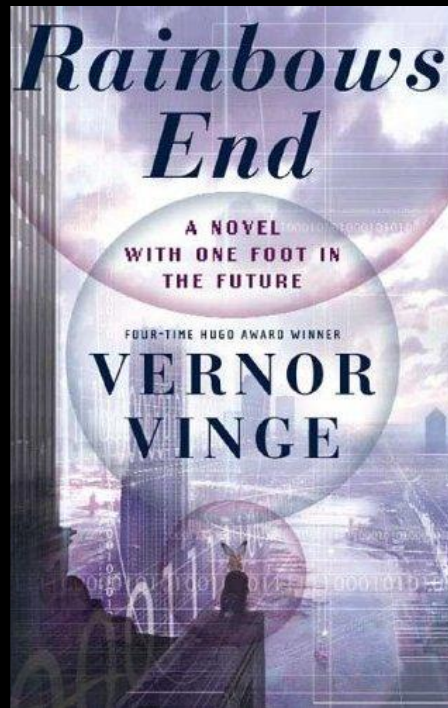
**\$ 1 MILLION
REWARD**

**Right now,
the only ones who
DO get it**

Are the
young people

***...their technology
changes monthly!***

***e.g. PHONES: voice, text, cameras,
videos, mp3, sky tunes , GPS, motion
sensors, diodes***



Digital Natives



Digital Immigrants

***What percentage of
people in this room
are under 25?***



We have a **“Digital Immigrant Accent”**

- **Printing out our e-mails**
- **Knowing DOS commands**
- **Not seeing the Internet as the first place to look**
- **Not sharing: thinking Knowledge is Power**
- **Thinking “Real Life” happens only off-line**
- **Separating work and play**



**“Work is Work,
Play is Play”**

Agree? Disagree?

***Yes, work takes
Effort, but***

Effort can
FEEL LIKE
WORK



OR



Effort can
FEEL LIKE
PLAY

Work feels like play
when you have

ENGAGEMENT

=

Motivation, passion

Today's young people

***UNDERSTAND
ENGAGEMENT***

**“I could have nothing
to do and I can always
find something on the
Internet.”**

– A High School Student

“On the Internet you can play games, you can check your mail, you can talk to your friends, you can buy things, and you can look up things that you really like.”

– A High School Student

**Yahoo
Born
to be
Wired
Conference**

Young People

are

***Re-inventing
their life***

They could be
Re-inventing
your business

Today's Young People
are
Empowered

**“Young people
want to put their
own mark on the
site.”**

– Deborah Schwartz, MOMA

**“What people put into
the Internet is much
more important to them
than what they take out
of it.”**

- Tim Berners-Lee

**What if what they create
better ways to get
*Customer Info?***

Today's Young People
have
Tools

**What's different about
the new technology is
that it is
*programmable.***

- Alan Kay

What if they program
New Business Tools?

Today's Young People
Embrace
Complexity

**“[They are] living in
dataspace, begging to
handle more simultaneous
data streams than their
parents ever imagined.”**

-- Beck and Wade: *Got Game*

**What if they find new
ways to deal with
your business'
*complexities?***

Today's Young People
are
Hands-On

**“Players are producing
as much as they are
consuming
– perhaps more.”**

– JC Herz

What if they produced new
Customer Tools?

Today's Young People
want things to be
Fun

**“Fun is the act of
mastering a
problem
mentally.”**

-- Rafe Kotter: A Theory of Fun

**What if that problem
were
*Market Share?***

Today's Young People
Know What
Engagement
Feels Like

**They want to
feel engaged
*all the time***

Especially
At work!

**But for too many of our
young workers today,
work
is
*BORING***

**“Whenever I go
to work I have
to ‘power down’”**

– a high school kid

**“When you talk to
bosses you
definitely have to
slow down a bit.”**

– a high school student

**“30 percent of
workers
admitted playing
games during
work .”**

- Pew study

“The cookies on my daughter’s computer know more about her interests than her bosses do.”

– Henry Kelly, President, FAS



Still...

...everything we want :

l.e. young ...

...efficient...

***...inventive,
competitive,
collaborative ...***

***... intensely
motivated
workers...***

...hard at work...

...Is already happening

... after hours...

... on their own!

complex

GAMES

***The ENGAGING
work system***

***If you only listened
to the Press...***

***...you might think
Computer and
Video games...***

***... were the worst
things in the world
for kids.***

*But the **TRUTH**
Is that*

Games are an
intense training arena
for 21st century workers

Today's Games: Complexity Matters



“Mini”

**5 min-2hours
TRIVIAL**

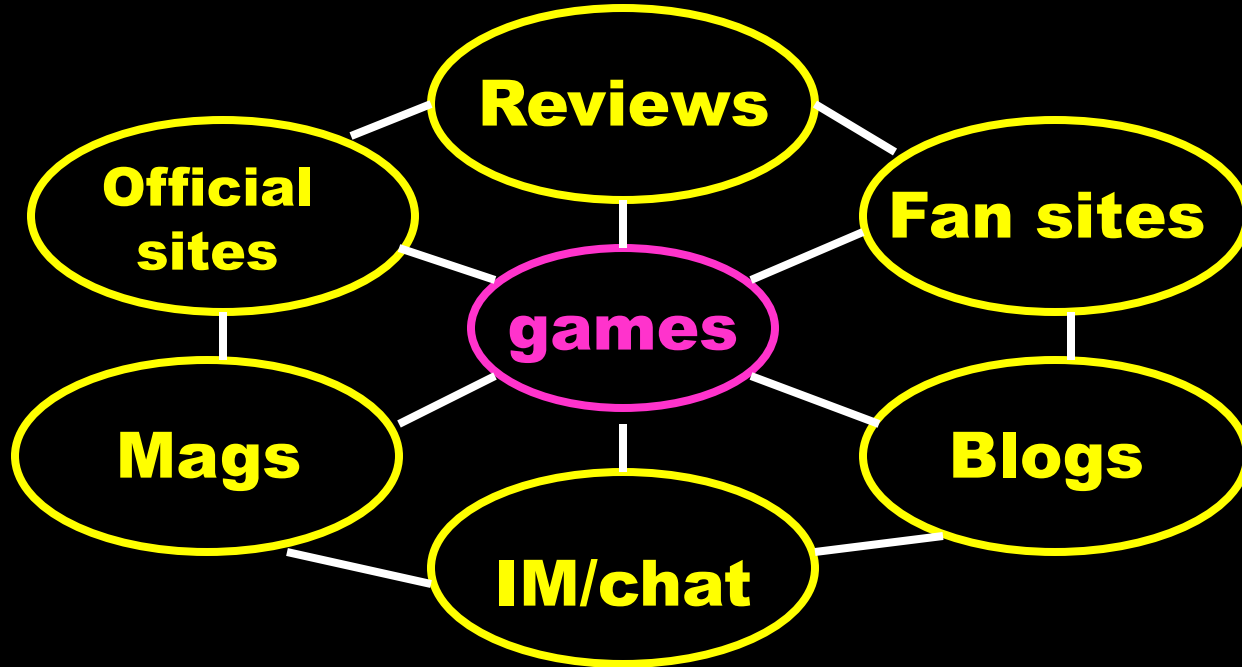
**Or, at best,
One-Noted**

“Complex”

**8-100 hours
NOT TRIVIAL**

**Complex Games take
the same amount of
time as a course (30-
100 hours)**

and the *Game System*



*is a big part of the
process*

What Kids Learn from Games

complex

**To cooperate, collaborate & work in teams,
i.e. to work effectively with others**

To make effective decisions under stress

To take prudent risks in pursuit of objectives

To make ethical and moral decisions

To employ scientific deduction

To quickly master & apply new skills and information

To think laterally and strategically

To persist and solve difficult problems

**To understand and deal with foreign
environments and cultures**

To manage business and people

Game Promises

There's a Place We Can All Be Heroes

The Entire Span of Human History is in Your Hands

Rise through the ranks to General

Create, Customize and Control Your World.

Tell Your own stories.

Mix genes from one generation to the next.

Meet your friends and tackle a quest together.

***Your accomplishments have a
unique influence on your future***

Game Promises

Create
Encounter
Engage
Explore
Master
Amass
Build
Perform
Research
Lead

Thrilling
Fun
Exciting
Challenging
Action-packed

Gameplay!

includes

- **Continuous decision making**
- **Level Ups**
- **Good pacing**
- **Complexity**
- **Important choices**
- **Immediate feedback**
- **Adapting to the player's skills**

*Young people **know**
what they learn from
games is
VALUABLE*

**“I’ve learned to think
really fast, and to take
risks.”**

– 4th grader, Age 10

“Things like strategy, multi-task processing, problem-solving, symbols & map-reading, and media literacy are skills that I will use no matter what profession I elect.”

- a high school student

***And many people in their 20's
attribute their success in***

- ***Leadership***
- ***Business***
- ***Medicine***
- ***Law***
- ***Military Roles***

directly to their game playing

GOT

How the Gamer Generation
Is Reshaping Business Forever

GAME



John C. Beck • Mitchell Wade

BARBARA BOSSINDE SCHULZ PHOTO

“Gamers have amassed thousands of hours of rapidly analyzing new situations, interacting with characters they don’t really know, and solving problems quickly and independently.”

-- Beck and Wade, *Got Game*

Gamer Attitudes

From Beck and Wade: *Got Game*

- **Don't be Afraid to Fail – Take risks to get rewards**
- **Winning Matters**
- **Work in Teams**
- **Take Responsibility**
- **Add Value**
- **Be a Hero**
- **Immerse Yourself in Data**
- **Make the Tough Calls**
- **Take different perspectives**
- **Make Things Better**

**“I remember my
parents yelling at me
for playing games.
They never know I had
a 300 person guild to
manage.”**

-- Successful entrepreneur

Game Training For Laparoscopic Surgery



Dr. James Rosser, Beth Israel Hospital NYC

***What young people
HATE is***

Hypocrisy!

Hypocrisy!

**When
you mean:**

- **Problem**
- **Boring**
- **Game**
- **Sucks**

**But you
have to say:**

- **Opportunity**
- **Dry, Technical**
- **Simulation**
- **Nothing**

ENGAGEMENT



*There's a reason that
in games,*

***BOSSES
are the ENEMY!***

Downsides?

***Attitudes are changing
towards:***

Secrecy

Privacy

Retaliation

Intellectual Property

Can we still have proprietary?

Bottom Line:
What Can I
Do?



(Just Kidding)

Remember...

***Your Digital
Native Workers
are...***

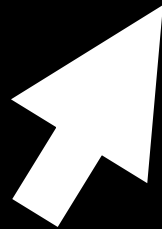
A close-up photograph of a middle-aged man with a balding head and blue eyes. He is wearing a dark suit jacket, a light blue dress shirt, and a dark tie with thin white stripes. His mouth is wide open in an expressive gesture, and his hands are raised in front of him, palms facing each other, as if he is making a point or explaining something. The background is dark and out of focus.

**Your hidden
*competitive
advantage!***

We need new tools!

21st Century

***Inventing new tools
to solve problems***



Pre - 21st Century

***Solving problems
with the tools we have***

*Change is **Bottoms Up**
as well as **Top Down***



...and

Doing Something

Worthwhile

is important

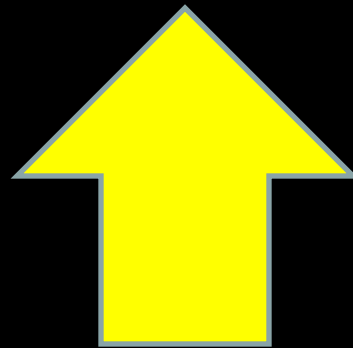
to young workers

The Balance is Important!

Top Down



BALANCE



Bottoms Up

So What Should I Do?

Observe young workers

Ask them

Listen to them

Value them

Challenge them

Set them free

Accept/Use their ideas

A close-up photograph of a man with short brown hair and glasses. He is cupping his right hand behind his ear, suggesting he is listening intently. The background is blurred, showing what appears to be a white wall and some papers.

Remember to Listen!

**“Don’t
Suck the
Fun Out”**



**“If the market doesn’t
find ways ... natives
will continue to find
solutions for
themselves.”**

Who does it Right?
(video clip of Google)

To Do Today:

- **Survey what tech skills your younger workers have:**
 - Modding, Web Design, Video prod., Podcasting,
 - Second Life, etc.
- **Post a list of known problems that need solutions:**
 - Offer bounties for solutions
- **Offer 10% of time to work on company-benefitting stuff:**
 - Offer prizes
- **Organize people by “classes” (cohorts):**
 - Meet regularly; decide unique contributions

Use Their Imagination!

A man with a goatee, wearing a black baseball cap and a grey t-shirt, is sitting at a desk in a classroom, focused on his work. He is using a computer mouse and keyboard. The background shows other students in a classroom setting.

***“USE ME
or
LOSE ME”***



Let's Go Do It!



Thank You!

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