

NATIONAL COMMISSION ON

Teaching and
America's
Future



Information and Communications Literacy in 21st Century Learning

- Setting the context: Map of Future Forces
www.kwfdn.org/map
 - Trends, Hotspots, Dilemmas
 - (What's a Principal to do??)
 - Today's problems/challenges in a new context

Trends

*Driving Forces --Shifts, Phenomena,
Important Concepts Impacting Education*

- Grassroots Economics
- Smart Networking
- Strong Opinions, Strongly Held
- Sick Herd
- Urban Wilderness
- The End of Cyberspace

HOTSPOTS

Within these trends, some with especially broad impacts on education

- Deep Personalization
- An Explosion of Learning Agents
- Media Rich Pervasive Learning
- And, the dreaded, VUCA Communities

Grassroots Economics

From economies of scale to economies of groups

HOTSPOT: AN EXPANDED LEARNING ECONOMY

- A diverse market for educational and learning experiences—
 - Home schooling, courses on demand, Leapfrog, Baby Mozart, games, travel learning

HOTSPOT: AN EXPLOSION OF LEARNING AGENTS

- New roles in learning economy=new career paths
 - Content experts, learning coaches, network navigators, classroom managers, cognitive specialists

Open Source Software

“Open Source” refers to software that is created by a development community rather than a single vendor

- Programmed by volunteers from many
- organizations
- Free and available to anyone who would
- like to use it or modify it
- Examples:
 - Curriki (www.curriki.org)
 - Tapped In (www.tappedin.org)

A more efficient economic model

Tuition and taxes



1/3 Infrastructure & Operations



1/3 Published Materials



1/3 Instructors



Tuition and taxes



1/3 Infrastructure & Operations



2/3 Instructors, Professors, Researchers, & Curriculum Specialists



Free and Customized Materials

Smart Networking

From informed citizens to engaged networkers

Note the changing preferences:

- *Gen X: email and face to face*
- *Gen Y: instant messaging, shared presence*
- *Gen Z (!): simulation, alternate realities*

Unbundled education—open content and curriculum

HOTSPOT: MEDIA-RICH PERVASIVE LEARNING

Immersive media=anytime, anyplace learning

Strong Opinions, Strongly Held

From global media culture to splintered interest groups

Hot Spot: Deep Personalization

Reject mass product and service offerings, engage in do-it-yourself designs

(personalized setup of cellphones, desktops, facebook pages)

Not just “Multiple learning styles” but brain research showing different ways of accessing information

Sick Herd

From steadily improving quality of life to increasing signs of distress

Population density, environmental crises

Health issues: Huge increases in diabetes, obesity, asthma

HOTSPOT: VUCA COMMUNITIES

- VOLATILE
- UNCERTAIN
- COMPLEX
- AMBIGUOUS

Urban Wilderness

From predominantly rural to predominantly urban spaces

Result: **HOTSPOT More VUCA Communities** with overcrowding, overtaxed resources and overstressed population

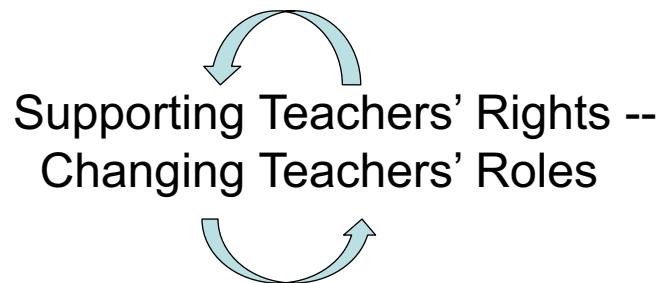
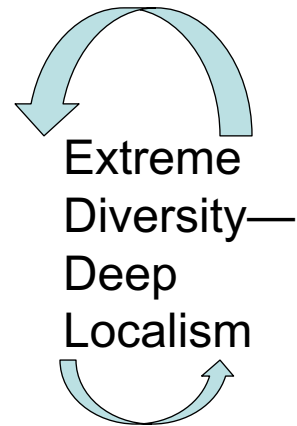
(Beijing Olympics: shut down the economy in order to have air that won't hurt the competitors!)

The End of Cyberspace

From physical VS. digital to seamless integration

- The community is the classroom
- Kids augmented with pharmaceuticals, digital technologies, surgeries to improve learning=new kinds of “digital divides”
- Cheap mobile devices for learning
- Agile, smart schools that adapt to changing needs
- Serious games

DILEMMAS (beyond either/or thinking)



International Studies

Conclude

- ✓ **Personalized learning** through technology is key route to educational improvement
- ✓ Having a **high level of technology will dramatically improve performance**, so long as there is the right support and enthusiasm to embrace it

Harnessing Technology Review 2007: Progress and impact of technology in education: Summary report – Becta, the U.K. government agency for technology in learning June 2007 -- June 2007

And Yet the Research Says.....

Whether it has been in Asia, Europe or the Nordic countries, impact of ICT in education has not yet profoundly changed teaching.

UNESCO report Dec. 2003 examining use of technology in 30 countries in S.E. Asia

*The ICT Impact Report: A Review of Studies of ICT Impact on Schools in Europe, Dec. 2006
European Schoolnet*

E-learning Nordic 2006

Digital Natives vs. Immigrants See the World Differently

Over 50% of students in grades 3-12 would like to see more educational gaming in their 21st century school

Only 16% of teachers, 15% of administrators, and 19% of parents want this.

And 53% of middle and high school students are excited about using mobile devices for learning

Only 15% of school leaders support that idea.

(“Speak Up” Project Tomorrow survey 2007)

More Digital Immigrant/Native Disconnects

Twice as many students as parents see a place for online learning in the 21st century school.

Even fewer teacher, parents and school leaders want students to have access to emails and IM accounts from school.

New Technology School for Ideas:
Cell Phones ON!

More Disconnects Between the Natives and Immigrants

U.S. Teachers

- 63% of teachers say their technology skills are “somewhat advanced” or “advanced”
- Yet most using technology for e-mail & Internet research, not to change teaching

CDW-G Teachers Talk Tech Survey 2006

U.S. Students

- Find the typical classroom doesn't reflect the rich technology they enjoy outside of school
- Express growing frustration that schools are “irrelevant”

http://www.tomorrow.org/speakup/speakup_reports.html

Direction of Change

Centralized control Empowered periphery

Stable professions Dynamic, entrepreneurial ones

One size fits all Custom-fit

Computer Labs Pervasive, media-rich learning

Proprietary knowledge Collectively generated knowledge



**Future Forces, Opportunities,
and Dilemmas**



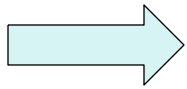
**What It Means For Principals:
Future Forces and School Staffing**



Moving Forward



Future Forces, Opportunities,
and Dilemmas



**What Does It Mean For Principals?
Future Forces And School Staffing**



Moving Forward

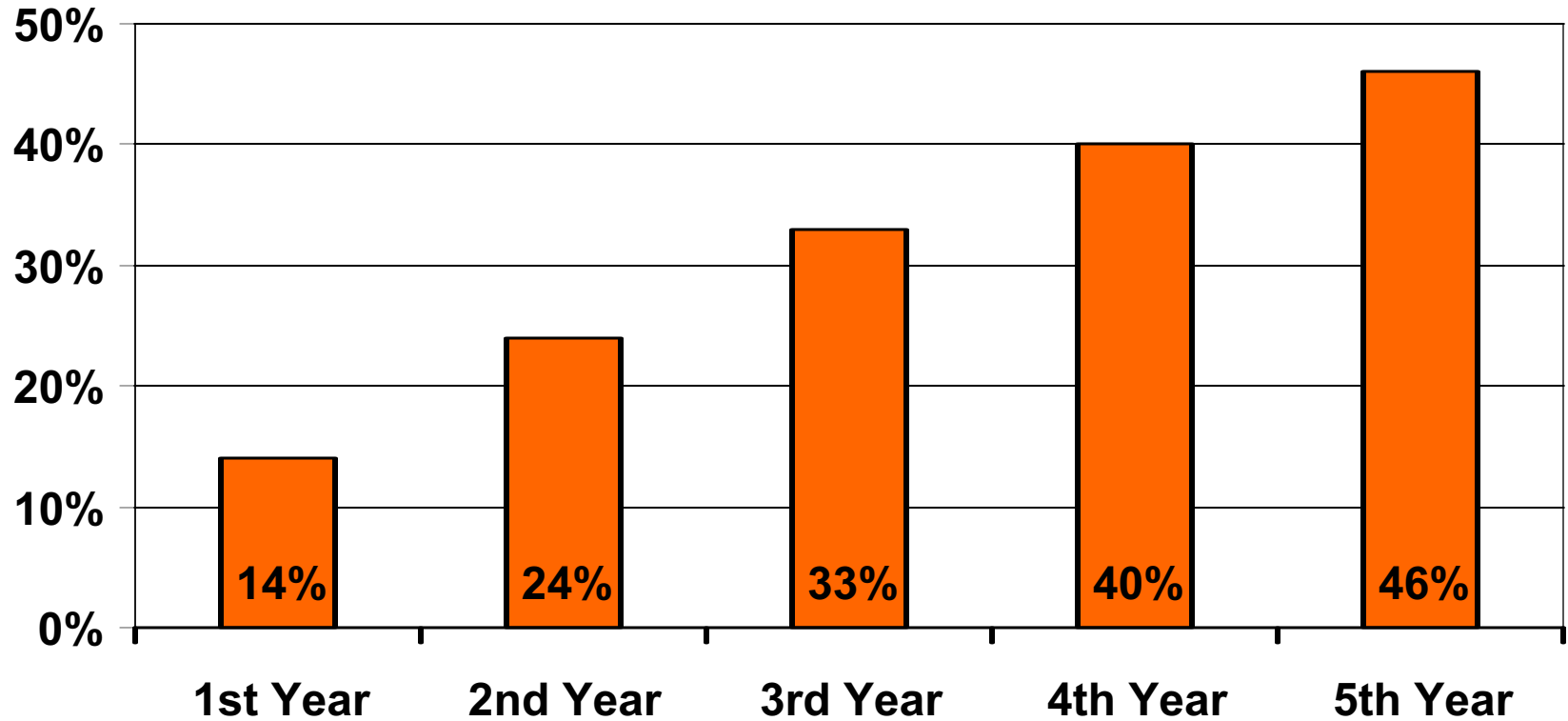
NATIONAL COMMISSION ON
**Teaching and
America's
Future**

A blue swoosh that curves upwards from the bottom left towards the right, ending in a sharp point.

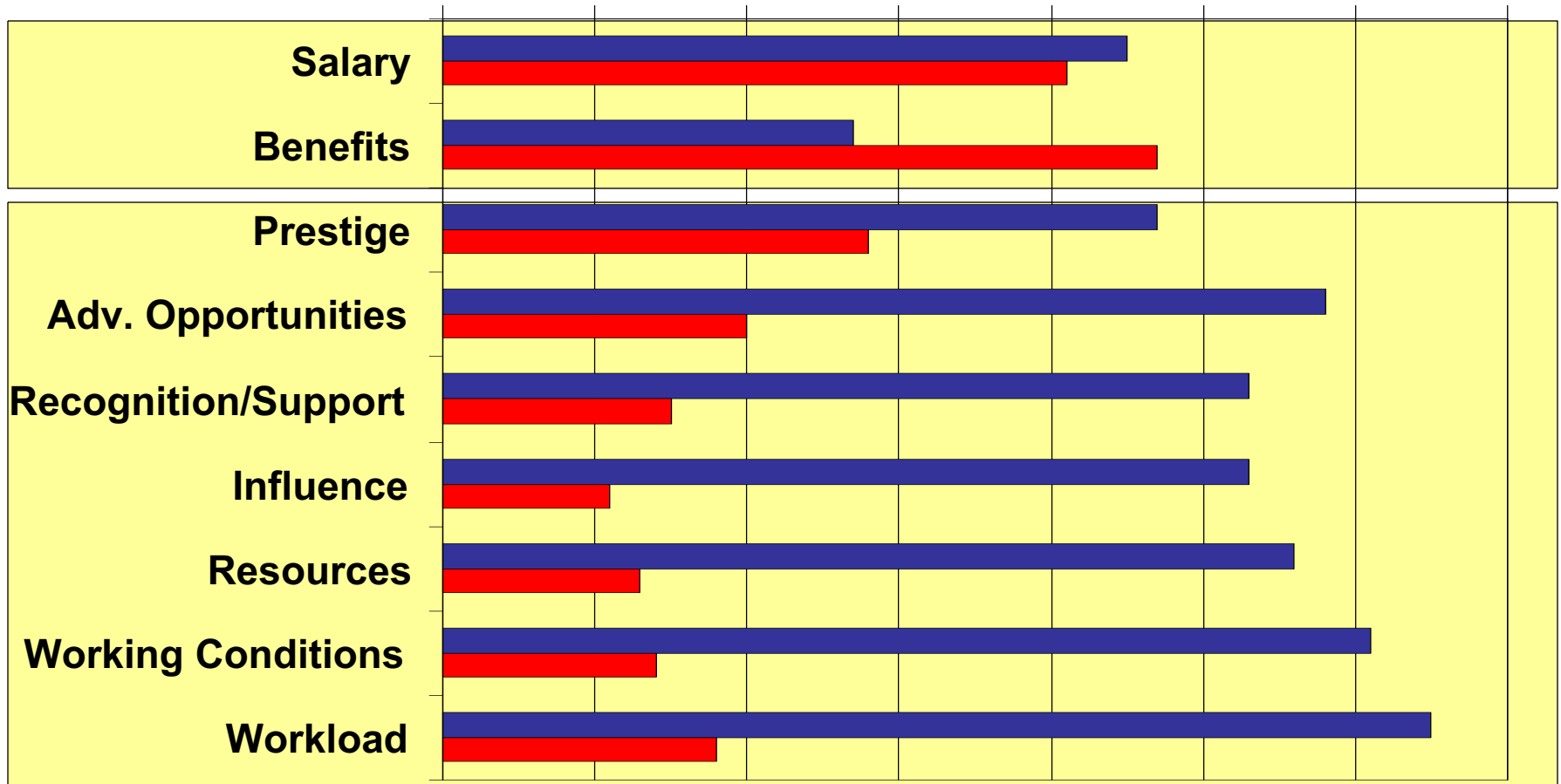
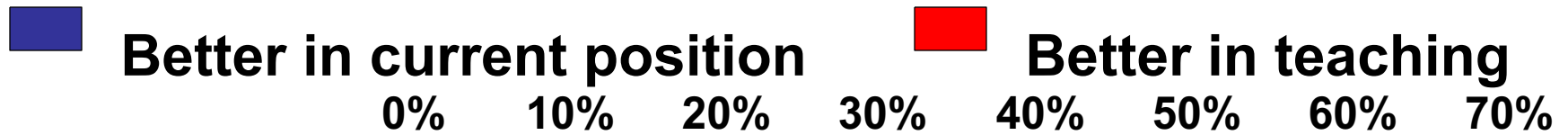
Dangerous Demographics.....

- Losing novice teachers at the front-end
- Losing retiring teachers at the end-end

Beginning Teacher Attrition is a Serious Problem



Teacher Leavers



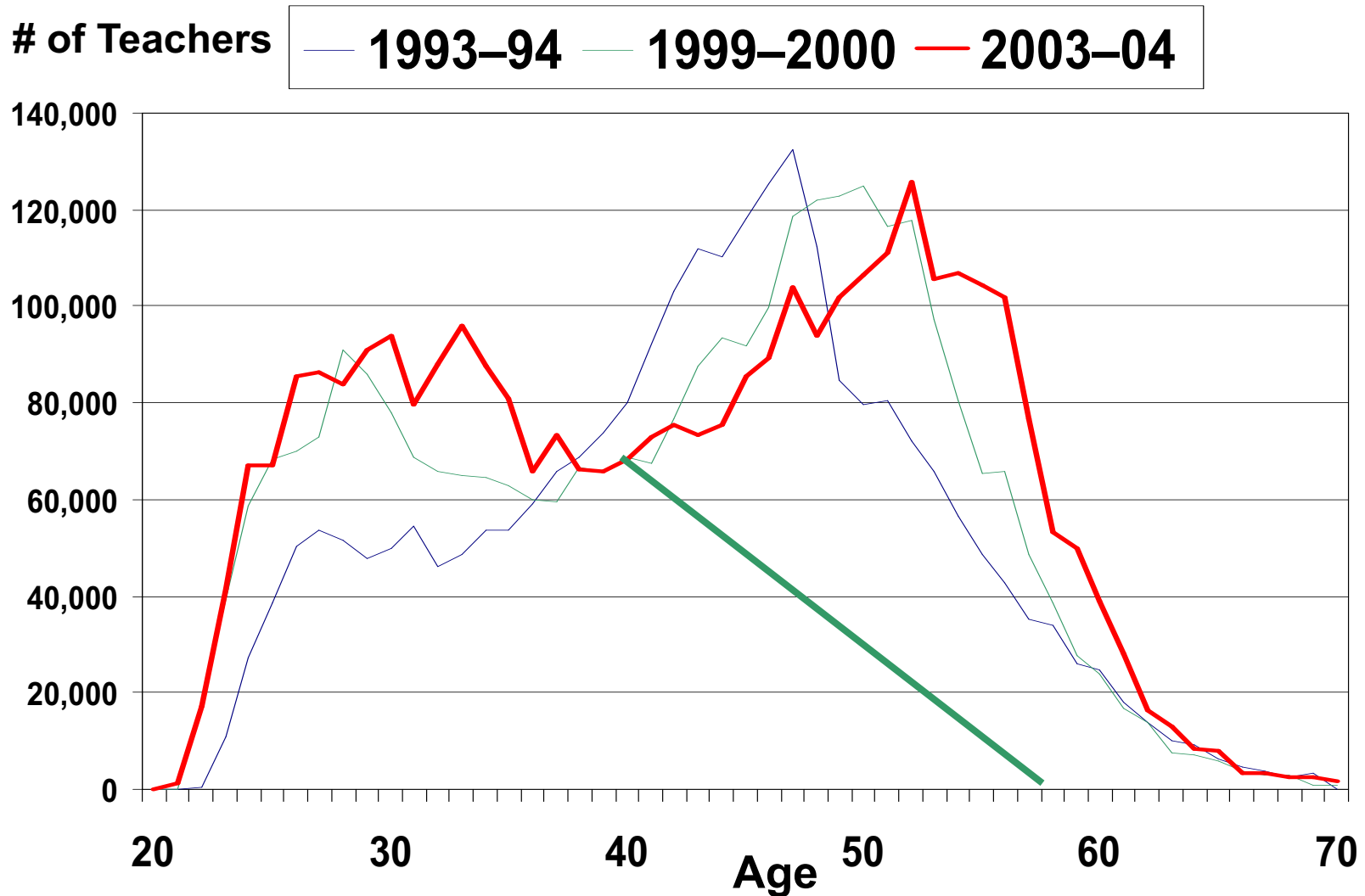
Teacher Turnover is Expensive -- \$ 7.3 Billion A Year

High turnover schools struggle to improve teaching quality and rarely close the student achievement gap because they are constantly rebuilding their staff.

Public School Teacher Age Distribution (2003-2004)

Total Teachers (Public Schools)	3,250,625
Younger than 40 (Gen X & Y)	1,338,039 = 41.2%
Between 40 & 58 (Boomers)	1,732,134 = 53.3%
Over 58 (Veterans)	180,462 = 5.6%

Age Distribution of Public School Teachers



**Teacher Attrition + Teacher Retirement =
*A School Staffing Tsunami***



The Great Wave by Hokusai 1832

BABY BOOMERS (43-62)

- ★ 76 million Americans
- ★ Enjoy and value teamwork
- ★ Want to get with the program
- ★ Are willing to go the extra mile
- ★ Have good people skills
- ★ Embrace equity and fairness
- ★ Like to receive credit and public recognition
- ★ Less flexible when it comes to change
- ★ Retiring but want to stay engaged



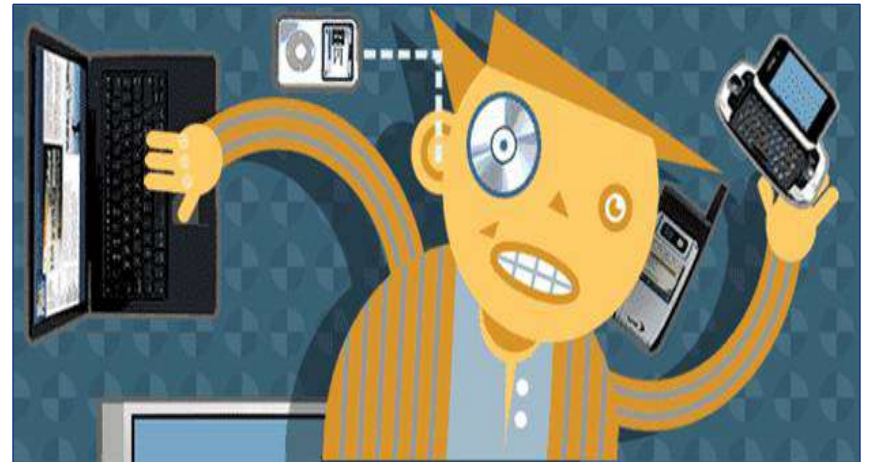
GEN-XERS (26-45)



- ★ 39 million Americans
- ★ Technical savvy and creativity
- ★ Work best with members of their own choosing
- ★ Self-reliant, skeptical of authority
- ★ Embrace alternative workplace structures
- ★ Prefer informal roles and freedom to complete tasks their own way
- ★ Willing to challenge higher ups
- ★ Core of the work force —but the trough in the teaching chart!

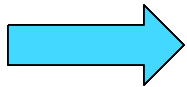
NEXTERS (25 and under) GEN Y or MILLENNIALS

- ★ Diversity as a norm
- ★ Idealistic
- ★ Collaborative
- ★ Communication is constant
- ★ Open to new challenges
- ★ Prefer a flattened hierarchy
- ★ Wired – grew up digital
- ★ Should be replacement for retiring teachers





Future Forces, Opportunities,
and Dilemmas



Moving Forward

.... from Teaching 1.0 to Teaching 2.0

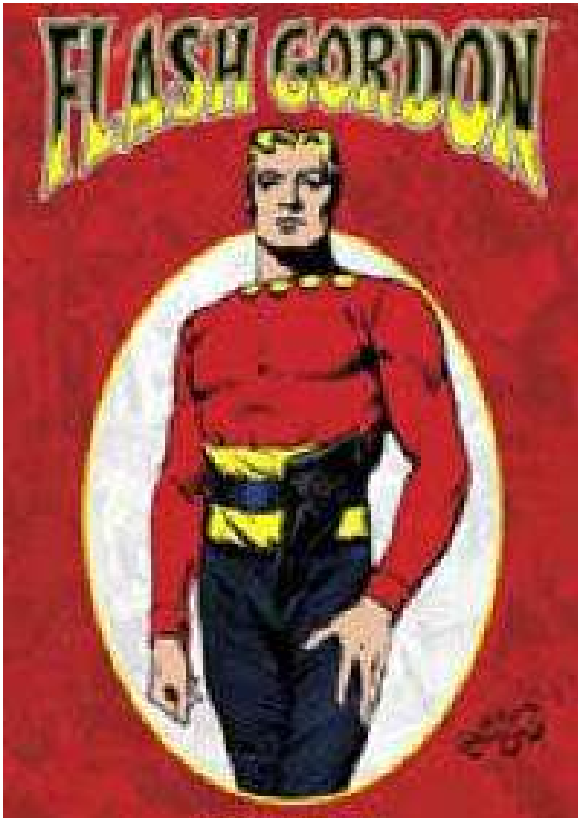
From Dr. Kildare to Medical Teams



From Perry Mason...to Legal Teams

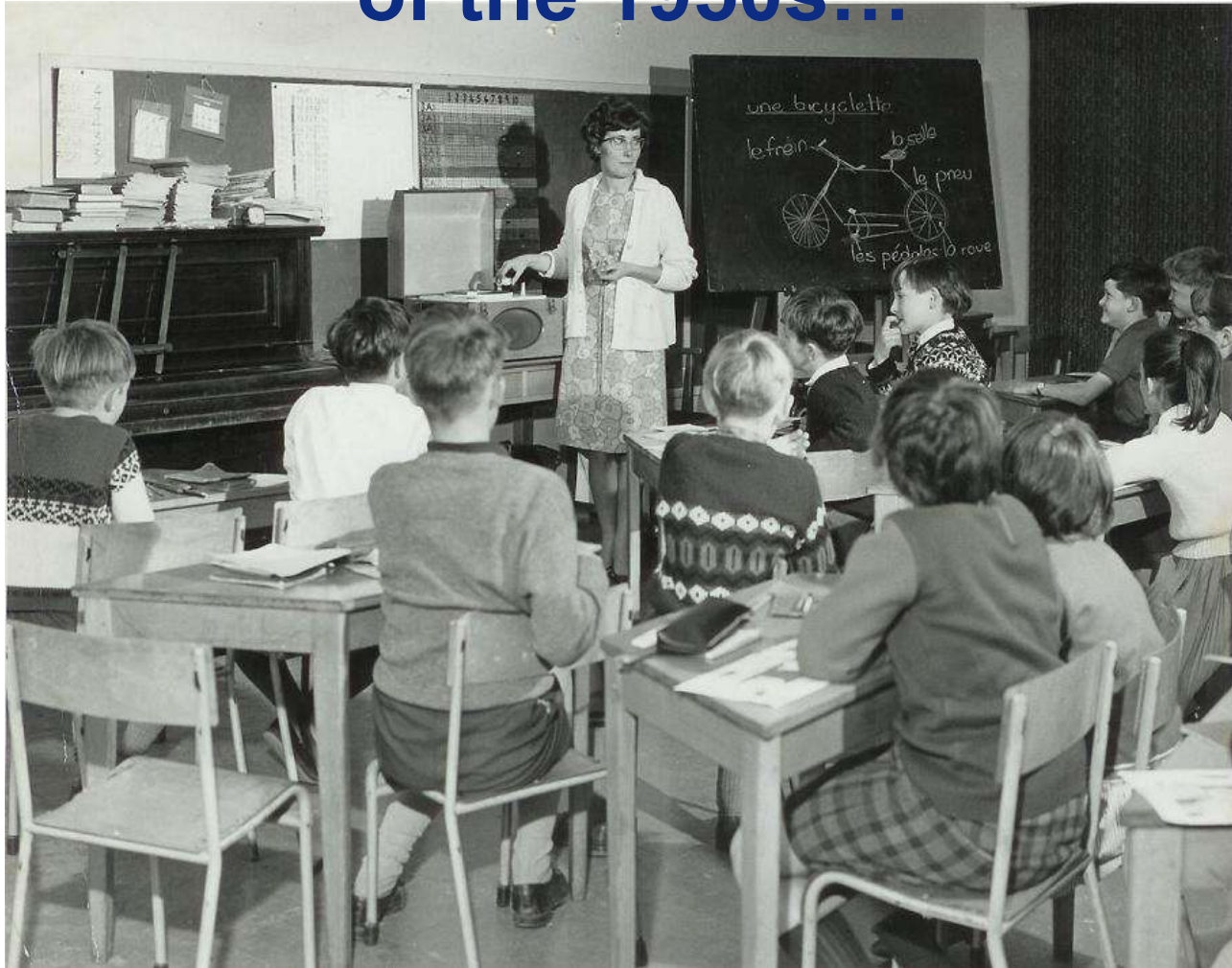


From Flash Gordon to NASA

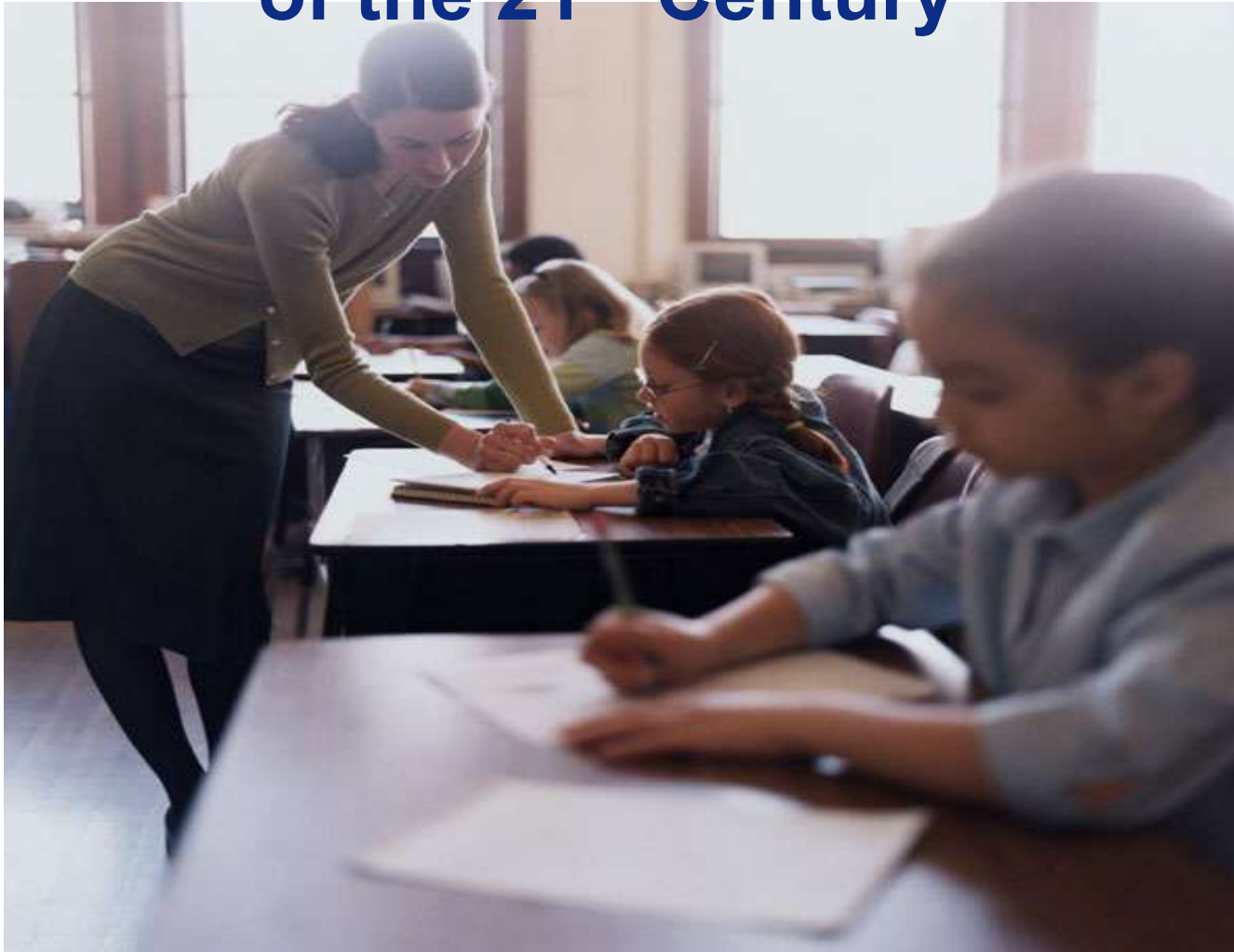


FROM: NASA

From the Stand Alone Teacher of the 1950s...



...to the Stand Alone Teacher of the 21st Century



**In short, it is time to think
differently.....**

Three Generations of Education

Method	Educ. 1.0	Educ. 2.0	Educ. 3.0
Professor/ Teacher	Source of knowledge	Guide & source of knowledge	Collaborative knowledge creation
Content arrangements	Traditional copyright materials	Copyright & free OER for students	Free OER created & reused by students
Learning activities	Traditional essays, assignments, tests, etc.	Coursework transferred to open technology	Open, flexible learning; social networking
Institutional arrangements	Fixed boundaries; Assessment/accreditation provided by one institution	Increase collaboration between institutions (also globally)	Institutional affiliations & relations; breaking down boundaries
Student behavior	Passive absorption	Passive to active absorption	Active, strong sense of ownership of own education
Technology E-Learning	Remote learning management system	Collaborations/ consortiums; integrated applications	Driven by individualized distributed learning environments

In Teaching 2.0...

Teaching is a Team Sport

- ★ Staged entry – tiered expertise and certification.
- ★ Entry through extended clinical practice and teaching residencies.
- ★ Multiple teaching roles, positions, and levels of expertise during a teaching career.
- ★ Staged options for exiting the profession: part-time positions, mentors, coaches, job-sharing, team leaders, tutors, digital media specialists, etc.
- ★ A blend of face-to-face and online teaching & learning created and led by teachers who become learning experts. (Bricks and Clicks Schools).

When educators join forces, they can improve learning beyond what any of them can accomplish alone!

In Teaching 2.0...

Multigenerational Teams Create Genuine Learning Organizations

- ★ Collaboration – will eventually replace solo teaching in self-contained classrooms.
- ★ Modularized and personalized.
- ★ Constant communication and assessment to improve teaching and learning.
- ★ Digital technology is fully exploited.
- ★ A user driven learning economy.

Suggested Resources

- *“Building a 21st Century U. S. Education System”* (available at www.nctaf.org)
- *KnowledgeWorks Foundation, “Map of Future Forces”* (available at www.kwfdn.org)
- *NCTAF web site* – www.nctaf.org

NATIONAL COMMISSION ON
**Teaching and
America's
Future**



2100 M Street, NW

Suite 660

Washington, DC 20037

202-429-2570

Kathleen Fulton

Director, Reinventing Schools for the 21st Century

kfulton@nctaf.org

WWW.NCTAF.ORG