Mentoring Millennials: Evolving practices for guiding a new generation of women engineers to career success

David Porush, Ph.D.
MentorNet

WEPAN 2011-2012 Webinar Series

- **Host: Diane Matt,** Executive Director, WEPAN (Women in Engineering ProActive Network)

- **Moderator: Jenna Carpenter,** Ph.D., Associate Dean; College of Engineering & Science, Louisiana Tech University; Director of Professional Development, WEPAN BOD

- **Presenter: David Porush,** Ph.D., President and CEO; MentorNet

Housekeeping Information

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- **Participant microphones are muted for webinar quality.**

- **Type your question in the "Question" space in the webinar control panel.**

- **A presenter will respond as time allows.**

Who's on the Call Today

- **We have almost 300 registered participants.**

- **Thank you to ASEE WIED, ASEE ERM, NAPE Stem Equity Pipeline, PGEList, ADVANCE, and others for helping us spread the word!**

WEPAN
Women in Engineering ProActive Network
Transforming culture in engineering education

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Mentoring for diversity in engineering & science

What's WEPAN? www.wepan.org

WEPAN is the nation's leading organization for transforming culture in engineering education to promote the success of all women.

- mobilize diverse, inclusive and collaborative stakeholders
- foster diversity in engineering graduates
- inspire a network of advocates to empower and advance the education of women pursuing engineering and related disciplines
- translate research into practice and develop national models to attract and retain women in engineering

WEPAN

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WEPAN Knowledge Center

http://wepanknowledgecenter.org

Goal: Increase the number, scope and effectiveness of initiatives to advance women in engineering.

- **Catalogued and fully cited resources**

  Research, reports, data and statistics, agenda papers, bibliographies, best practices, key programs, and more—1,000+

- **Online Professional Community**

  Network, collaborate, identify experts, share information

- **Special online events**

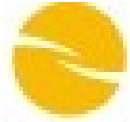 Feature WKC Professional Community and networking opportunities

- **Use** the research, information & data**, Submit** & suggest resources**, Share** the WKC with colleagues

Here, you're a
future professional

learn more »

At a glance

- MentorNet is a 501(c)(3) non-profit educational organization founded in 1997

- Our mission is to help women and under-represented minority students studying engineering and science at the university level achieve their career goals and thereby diversify the STEM workforce

- We are supported by annual fees from corporations and campuses and grants from foundations, government agencies, and private donors

- Our proprietary technology matches mentors to proteges one-on-one over the Web and then guides their relationships with timed prompts for up to eight months.

- Since our founding, MentorNet has matched 30,000 students on more than 250 campuses to mentors in industry and academia from more than 1800 employers.

- 95% of our proteges graduate with a degree in STEM; a majority explore employment with their mentor

Mentoring Millennials: Evolving practices for guiding a new generation of women engineers to career success

David Porush, Ph.D.
David@mentornet.net

www.mentornet.net

Failure of top-down only culture change

- **49% of new hires in 2010 were new college grads**

- 57% = women grads available for hiring

- 34% = women hired by firms *with* diversity recruiting

- 41% = women hired by firms *without* diversity recruiting

- In 1993, 18% of CS bachelors degrees were women

- In 2011, 11% of CS bachelors degrees were women

Nat'l Assoc Colleges & Employers Hiring Survey 2010

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Culture can't be engineered

- "Companies have women's networks, mentoring programs, assertiveness training and special leadership programs."

- "They're designed to teach women to dance, sound and act a bit more like… men."

- "Referring to a majority of your talent and customers as *'diversity'* is hardly promising."

- "**Instead:** Adapt organizational cultures and management styles to new talent and market realities." *

Aviva Wittenberg-Cox Forget Cinderella, Find Fred Astaire
http://changethis.com/manifesto/show/76.01.ForgetCinderella

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- **8.4%** of all new bachelors degrees = engineering

- **16%** of these were women

- Only **1.4%** of all new grads = women in engineering

- Median male salaries in STEM = **$79,000**

- Median female salaries STEM = **$62,000**

"What It's Worth," Georgetown University Center on Education and the Workforce 2011
 (http://cew.georgetown.edu/whatsitworth)

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Institutional top down shut down

"Smartest generation ever. Most engaged….Virtual immersion at work re-charges and energizes them, but boomer managers shut them down."

Don Tapscott, *Growing Up Digital: How the Net Generation is Changing the World* (McGraw-Hill 2009)

"We can either stand by and watch age warfare as the Millennials and Boomers battle it out for dominance in the workplace, or we can find a mutually beneficial common ground…. Ultimately, this is a strategic issue for most businesses. They don't have a real choice in confronting it. … If they embrace it, [they] may well find it a competitive advantage, especially if they do it sooner than later."

Daniel W. Rasmus, *Listening to the Future: Why It's Everybody's Business* (Wiley, 2008)

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What our mentors tell us

- **"I was clueless about how vast the generation gap is. I learned a little about how to bridge it but I'm still mystified by many of her attitudes."**

- "My protégé gave me the tools to understand her generation in a way I will bring back to my own team."

- "My protégé has been networking since she was 12 online but she needs to know the difference between social and professional networking."

- "Need more discussion of ethics in the workplace. I'm not sure my protégé has any."

- "My protégé has no clue how to protect his own identity online. I was shocked when I visited his Facebook page. I spent a lot of time working on getting through to him on this as your discussion topic suggested, but he more or less said 'it's too late.'"

- "She seemed really interested in social outreach programs my company has going, so maybe not all is lost. I think she was more socially attuned than most of my colleagues."

72% agreed or strongly agreed: "MentorNet helped me to bridge the generation gap."

MentorNet end of relationship survey, 2010-11

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The generations defined

Millennials*	Born 1977-1993	Ages 18-34
Gen X	Born 1965-1976	Ages 35-46
Younger Boomers	Born 1955-1964	Ages 47-56
Older Boomers	Born 1946-1954	Ages 57-65
Silent Generation	Born 1937-1945	Ages 66-74
G.I. Generation	Born before 1936	Age 75+

*AKA: Gen Y, Net Geners, Digital Natives

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Today's college grad post-graduation will have 8-9 jobs on average by the time she's 40.

…it's an adventure in the woods

- U.S. Bureau of Labor Statistics, National Longitudinal Survey of Youth 2007

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% of American adults in each generation who own each device

|	Millennials (Ages 18-34)	Gen X (35-46)	Younger Boomers (47-56)	Older Boomers (57-65)	Silent Gen. (66-74)	G.I. Gen. (75+)	All adults (18+)
Cell phone	95	92	86	84	68	48	85
Desktop computer	57	69	65	64	48	28	59
Laptop computer	70	61	49	43	30	10	52
iPod/MP3 player	74	56	42	26	16	3	47
Game console	63	63	38	19	8	3	42
e-Book reader	5	5	7	3	6	2	5
Tablet, like iPad	5	5	4	3	1	1	4
None of these	1	3	8	8	20	43	9

Source: Pew Research Center's Internet & American Life Project, August 9-September 13, 2010 Tracking Survey. N=3,001 adults 18 and older, including 1,000 reached via cell phone. Interviews were conducted in English (n=2,804) and Spanish (n=197).

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A typical teen sends about 50 texts per day

The % of teen texters who send that many texts per day

None	1-10	11-50	51-100	100+
2%	22%	28%	16%	31%

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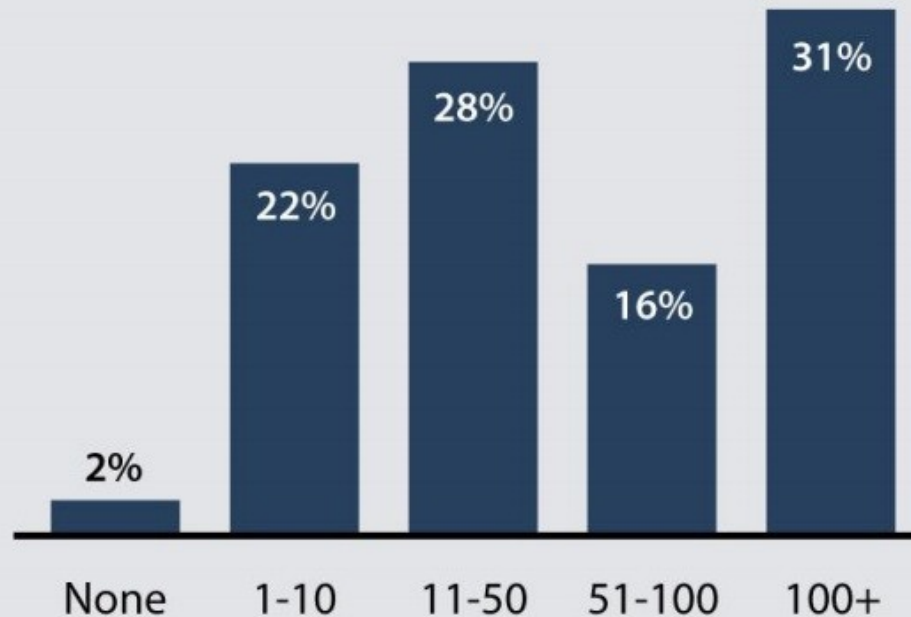
- Girls embrace texting and mobile communication more than boys

- Girls more likely to
  - ➢ Text friends daily: 86% vs. 64%
  - ➢ Call friends daily: 59% vs. 42%
  - ➢ Longer text exchanges: 77% vs. 62%
  - ➢ Longer calls to friends about school, location, intimacies

* Amanda Lenhart, ""*When I text I can say just what I want to say," Gender and Adolescents' Use of Text Messaging with Peers* (Pew Internet Life Report, 2011)

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"Every young person one day will be entitled to change his or her name on reaching adulthood in order to disown what's on their social media sites."

- Eric Schmidt, CEO Google (Aug 15, 2010)

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88%

70%   71%

88% Students 18-22 said there should be laws that require Web sites to delete all stored information about individuals.
UC Berkeley Study 2010

70% U.S. recruiters report rejecting applicants because of online info about them.

Microsoft 2010

71% 18-29 yr olds change privacy settings to limit the information they share.

Pew Study 2010

"It's not that the Web threatens your privacy…it's that there's no way to erase your digital past."   **NY Sunday Times Magazine 7/25/2010**
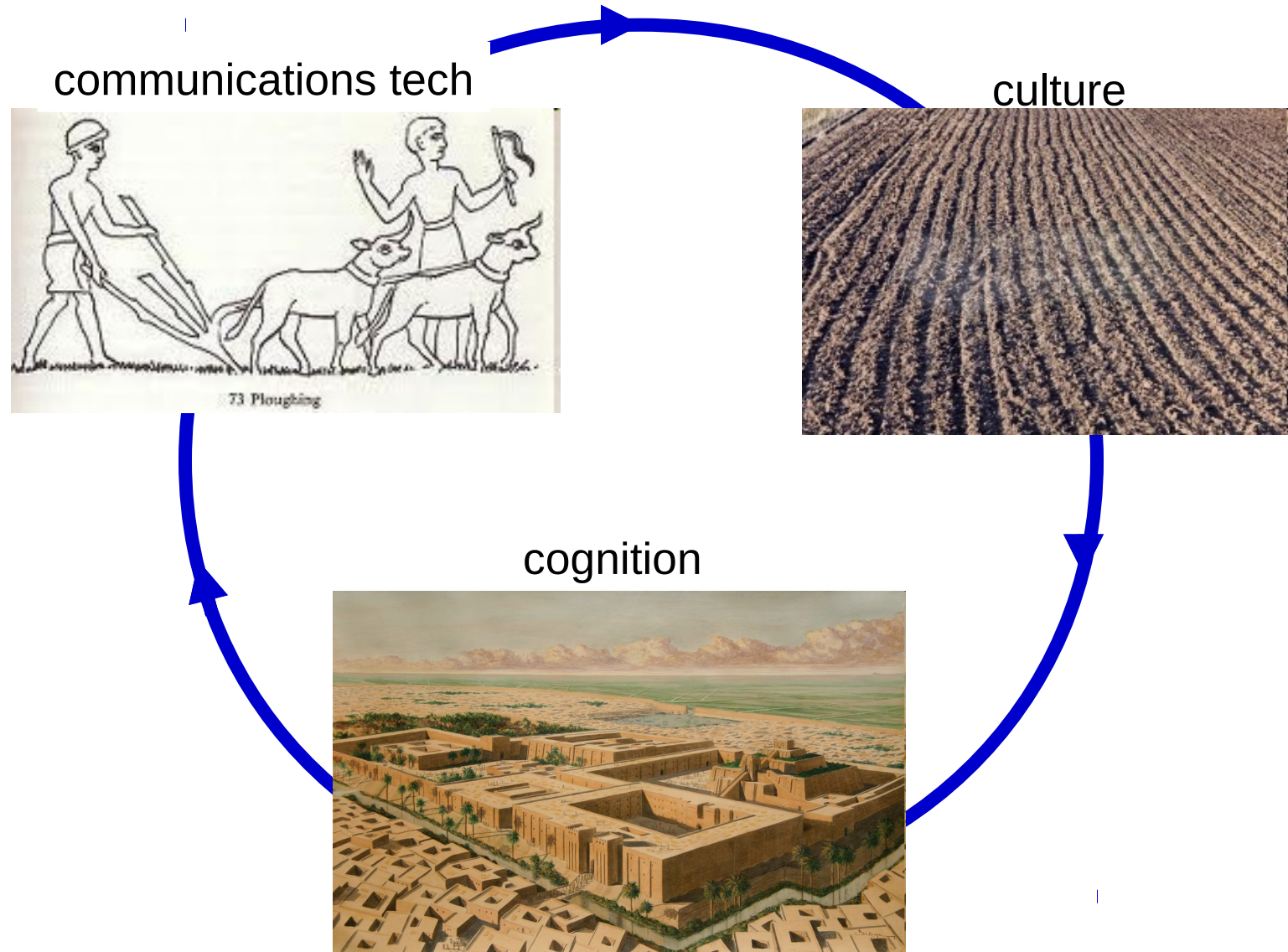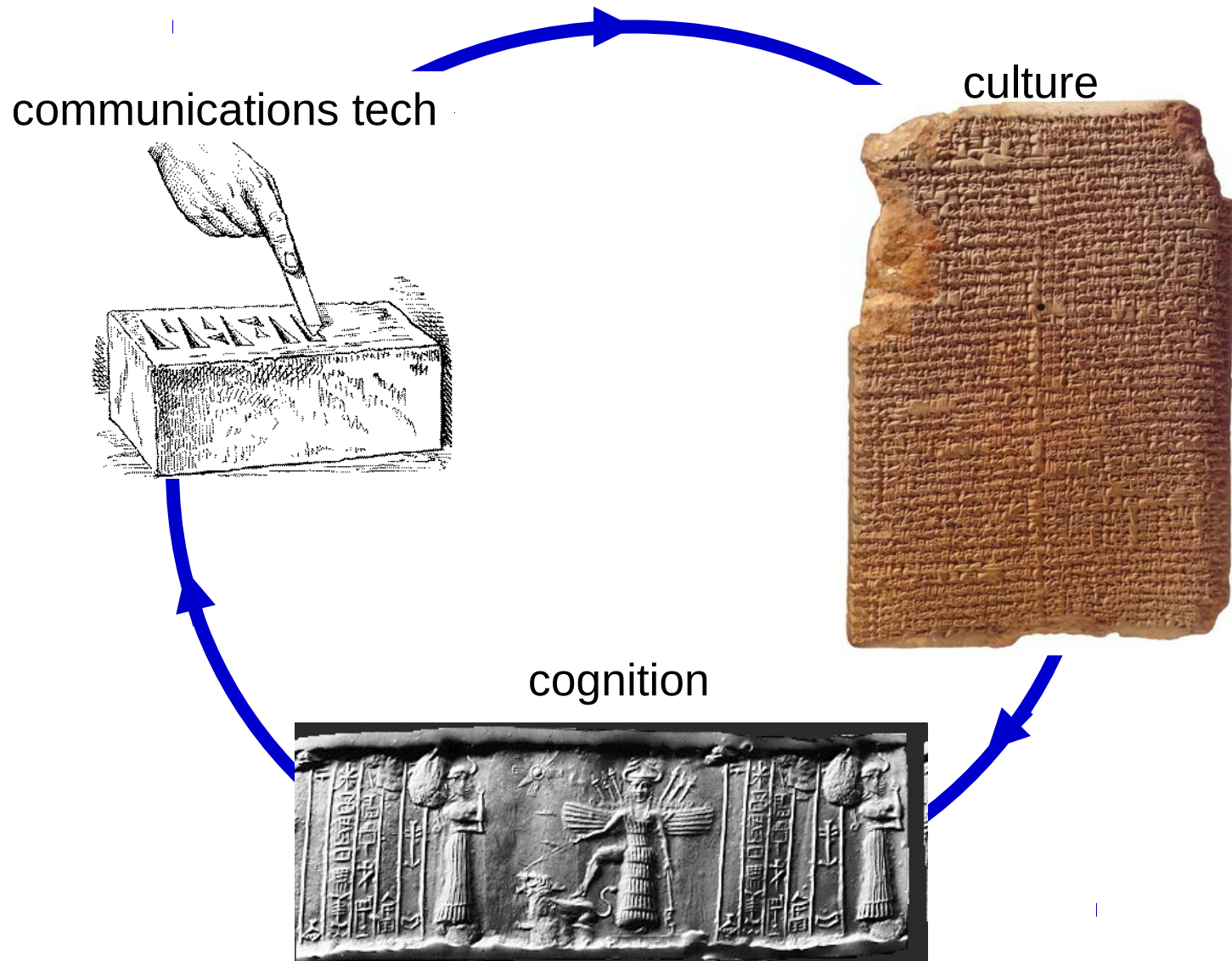
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communications tech

culture

"There's nothing more pragmatic than a good theory,"

cognition

communications tech

culture

cognition

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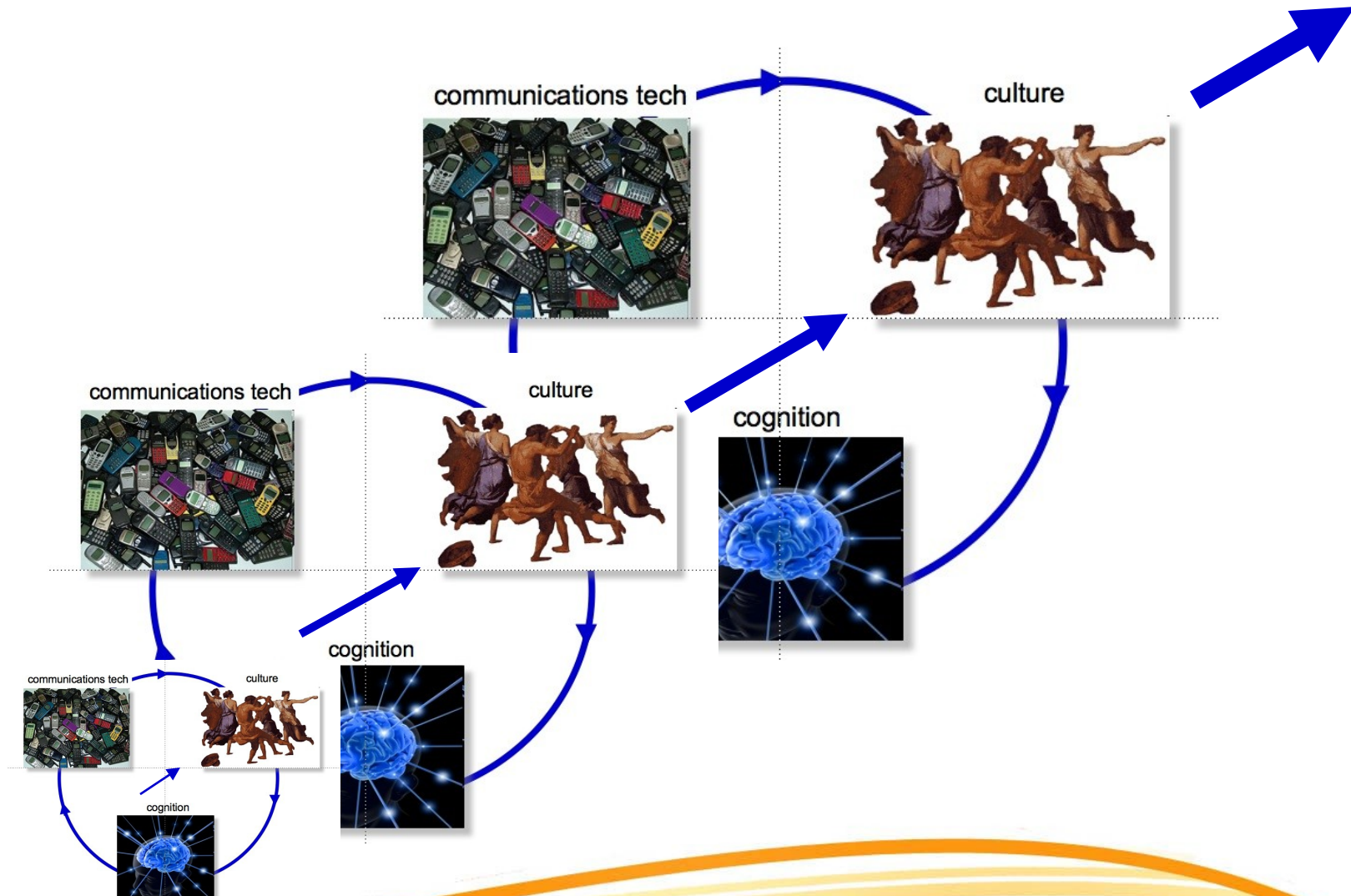
communications tech

culture

cognition

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Increasing

- multi-sensory experiential sharing
- expressiveness
- enlargement of internal realm
- "telepathic" powers = intimacy
- expansion of human sympathy

Steven Pinker, *The Better Angels of our Nature* (2011)

The course of human history shows an undeniable **decrease in violence** due in part to the growing ability to share our experiences across time, space and culture through new communications technologies enable.
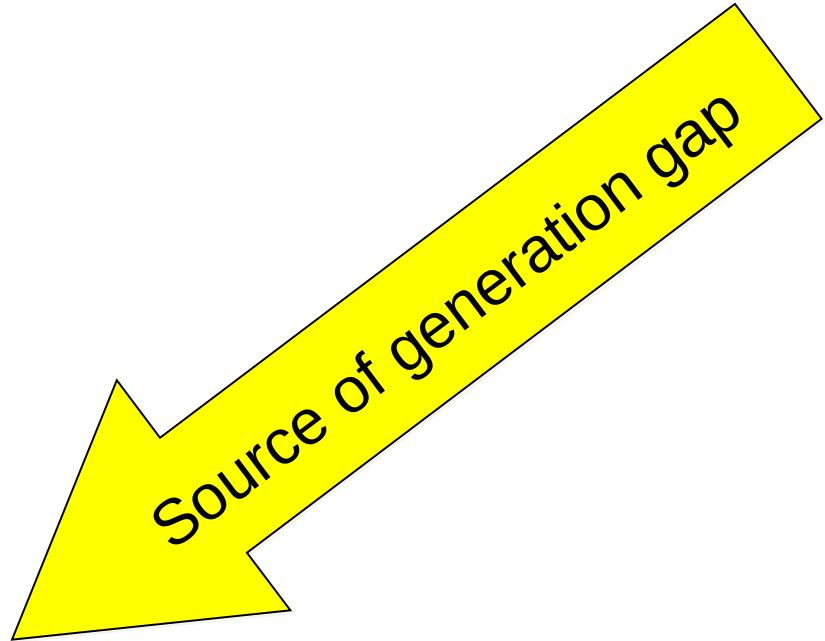
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New Communications tech

Cognitive changes

- _____
- _____
- _____
- _____

Cultural/behavioral Change

- _____

Source of generation gap

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Smart phone

Cognitive changes
- always on
- mobile
- local-global elsew/hereness
- world is my oyster

Culture Change…

Texting

Cognitive impact
- intimate, private one-on-one
- instantaneous
- composed
- transitory but permanent
-

Culture Change…

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Twitter

Cognitive changes
- instant burst publishing
- matrixed personal channels
- personal fame/reputation
- crowdsourcing news/info

Culture Change…

MMPORG video games

Cognitive changes
- simulation **and realism blurred**
- intense effort to get to next level
- instant feedback/affirmation
- "good" addiction
- mmog'ed, mmorpg'ed: *trust and realtime collaboration with strangers*

Culture Change…

Facebook

Cognitive changes
- rating others
- social immersion
- "tag you're it"
- recognition
- informal
- reputation is measurable and real

Culture Change…

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People who use Facebook

- have more close friends
- get more social support
- report being more politically engaged
- are more trusting

… than those who don't.

Social networking sites and our lives by Keith Hampton, Lauren Sessions
Goulet, Lee Rainie, Kristen Purcell Pew Internet Life study (Jun 16, 2011)

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1. Reverse mentoring = bottoms up (Jack Welch, GE)
2. Push back, set boundaries, and check reality
3. Constant feedback … not just affirmation
4. High Touch: collaboration, personalization, contact
5. Give them their toys, learn how to use them yourself, but channel them for work (*2020 Workplace*; Google's GoCrossOffice workplace)
6. Discuss online reputation, networking, career-making
7. Set tasks and expectations frequently and explicitly
8. Embrace the Triple Bottom Line: Provide social context of work product ("Is this a Zyklon B shower head or green energy fuel cell?")
9. Discuss generational style differences explicitly
10. Network the learning

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Corporate Talent Acquisition Now

- 88% still trust campus fairs over Web-based media

- Only 10% new grads get a lead at Career Fairs

- Shrinking minority < 20% attend Career Fairs at all

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Hiring millenials

- Prefer *online* jobmarkets

- Job hunt through *peers, relationships, networking*

- Hungry for *real-world career knowledge, inside connection*

- Looking for *social context* of the mission

- Looking for *social quality* of the workplace

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🏠 **Mentor Profile > Chandra Roberts**

Mentor:

Chandra Roberts
VP, Social Software
Intel

(intel)

Protégés:

Armand Habib
Computer Science
University of Texas
2nd year, Undergrad

Lisa Li
Web Technology
Hawaii Community College
Fourth Year, Undergrad

👥 MY CAREER NETWORK

Add New Contacts

Helen Giovani	Larissa Higo	Dante Thomas
Jo Barton	Samira Hough	Jenny McCall
Ulysses Peters	Heather Sams	Patrick Chow

👤 ABOUT ME

Hi, my name is Chandra, and I am the Vice President of Social Software development at Intel. I've worked this job for the last 5 years. I decided to sign up with MentorNet when a colleague recommended it to me two years ago. I love being a mentor and helping a younger generation succeed, especially in this tough market. Breaking into this field as a young, black woman in the 1980s was not easy, and it's still an uphill climb. I'm happy to be a part of MentorNet and to do what I can to help students find their passion and direction in life. I live in Oregon with my husband, and I have two grown children.

📋 JOB HISTORY

2005 - Present
VP, Social Software
Intel
Portland, OR

1998 - 2005
Manager, Software Development
IBM
San Francisco, CA

🎓 EDUCATION

Master's, 1990
Computer Engineering
Northwestern University

Bachelor's, 1987
Computer Science
MIT

▼ see more

💬 FROM MY FORUMS

MY POSTS

I'm researching female entrepreneurship and am looking for participants for a study. Please email lg2@gmail.com for more info.

posted by: gam2   on 8 Feb 2010   responses: 10

I'm researching female entrepreneurship and am looking for participants for a study. Please email lg2@gmail.com for more info.

posted by: gam2   on 8 Feb 2010   responses: 10

see all my posts

LATEST POSTS

What elective courses would be valuable for someone in computer science? Thanks for your feedback!

posted by: bb123   on 28 Feb 2010   responses: 7

What elective courses would be valuable for someone in computer science? Thanks for your feedback!

posted by: bb123   on 28 Feb 2010   responses: 7

Welcome back, Chandra.

⓵ New contact requests

⚙️ TOOLS

Edit my Profile

Edit Match Preferences

Edit Match Topics

Change my Password

Search Job Board

Scenarios

Complete Survey ⭐

View Latest Newsletter

Search Profiles

Organization Representative:

Lucille Haverson
Human Resources
Intel Corporation

email   t 718-951-5171

QUESTIONS?

just ask us »

INVITE A COLLEAGUE

invite now »

Carl Wieman Science Education Initiative:

- quick tiered activities (rubrics)
- constant feedback
- clear rules and goals
- hands-on activities
- group collaboration
- floating mentoring
- discuss outcomes
- actions for improvement/next steps
- report conclusions

Deslauriers L, Schelew E, Wieman C., Improved learning in a larg
enrollment physics class. *Science*. 2011 May 13;332(6031):862-4

OUTCOMES

Doubled measurable learning over control classroom (lecture, discussion, test)

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login

Matching experience to aspiration, one on one

learn more »

Recruitment

Success

Diversity

What Others are Saying

"This experience gave a much more realistic and broader understanding of the information technology industry than I get from my classroom experiences. I learned about how the real employment world works and operates." – MentorNet Protégé

MentorNet in the News

Rockwell Collins Grant Supports Outreach Efforts For Mentoring For Latinas In Computing

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Contact Us

840 W. California Avenue Ste
Sunnyvale, California 94086
t 408.296.4405 f 408.296.44

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Questions?

- **Remember:**
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