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

- The webinar will use Voice Over Internet. If the sound quality is not good, a teleconference line is available:
  - Phone #: 1-312-878-0222
  - Code: 174-555-634

- To be notified of future webinars:
  - Sign up for the Knowledge Center newsletter at: http://wepanknowledgecenter.org

- Survey following webinar—please respond!
How to Ask a Question

• 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!
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 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
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
“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.” *
Still broken top-down

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


“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.”

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
The generations defined

<table>
<thead>
<tr>
<th>Generation</th>
<th>Born</th>
<th>Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millennials*</td>
<td>1977-1993</td>
<td>18-34</td>
</tr>
<tr>
<td>Gen X</td>
<td>1965-1976</td>
<td>35-46</td>
</tr>
<tr>
<td>Younger Boomers</td>
<td>1955-1964</td>
<td>47-56</td>
</tr>
<tr>
<td>Older Boomers</td>
<td>1946-1954</td>
<td>57-65</td>
</tr>
<tr>
<td>Silent Generation</td>
<td>1937-1945</td>
<td>66-74</td>
</tr>
<tr>
<td>G.I. Generation</td>
<td>Before 1936</td>
<td>75+</td>
</tr>
</tbody>
</table>

*AKA: Gen Y, Net Geners, Digital Natives
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

## Generations & Gadgets

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phone</td>
<td>95</td>
<td>92</td>
<td>86</td>
<td>84</td>
<td>68</td>
<td>48</td>
<td>85</td>
</tr>
<tr>
<td>Desktop computer</td>
<td>57</td>
<td>69</td>
<td>65</td>
<td>64</td>
<td>48</td>
<td>28</td>
<td>59</td>
</tr>
<tr>
<td>Laptop computer</td>
<td>70</td>
<td>61</td>
<td>49</td>
<td>43</td>
<td>30</td>
<td>10</td>
<td>52</td>
</tr>
<tr>
<td>iPod/MP3 player</td>
<td>74</td>
<td>56</td>
<td>42</td>
<td>26</td>
<td>16</td>
<td>3</td>
<td>47</td>
</tr>
<tr>
<td>Game console</td>
<td>63</td>
<td>63</td>
<td>38</td>
<td>19</td>
<td>8</td>
<td>3</td>
<td>42</td>
</tr>
<tr>
<td>e-Book reader</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Tablet, like iPad</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>None of these</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>8</td>
<td>20</td>
<td>43</td>
<td>9</td>
</tr>
</tbody>
</table>

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).
A typical teen sends about 50 texts per day

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

- None: 2%
- 1-10: 22%
- 11-50: 28%
- 51-100: 16%
- 100+: 31%
Girls, Boys & Texting

• 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)
“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)
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
There’s nothing more pragmatic than a good theory,

“There’s nothing more pragmatic than a good theory,”

communications tech

culture

cognition
C3 Feedback Loop

communications tech

culture

cognition
C3 Feedback Loop

- communications tech
- culture
- cognition
The trajectory of C³ evolution
The trajectory of the C$^3$ Loop

**Increasing**
- multi-sensory experiential sharing
- expressiveness
- enlargement of internal realm
- “telepathic” powers = intimacy
- expansion of human sympathy


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.
Let’s play the C³ Loop Game

New Communications tech

Cognitive changes
- _________
- _________
- _________
- _________

Cultural/behavioral Change
- _________

Source of generation gap
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...
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...
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)
10 Mentoring Recommendations

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
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
Hiring millennials

- Prefer online job markets
- 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
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.
‘Mentorcentric’ workplace for millennials

Carl Wieman Science Education 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

OUTCOMES

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

Bibliography

- 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 Study, Mar 31, 2011)
- “What It’s Worth: The Economic Value of College Majors,” Georgetown University Center on Education and the Workforce (http://cew.georgetown.edu/whatsitworth)
- Kit Yarrow, Gen Buy: How Tweens, Teens and Twenty-Somethings Are Revolutionizing Retail (Jossey-Bass, 2009)
- John Beck and Mitchell Wade, Got Game: How the Gamer Generation is Reshaping Business Forever
- Pew Internet Study, Generations and their Gadgets (2011)
- Pew Internet Study, Social Media and Young Adults (2010)
- Pew Internet Study, Networked Learners (2010)
- Sherry Turkle, Alone Together: Why We Expect More from Technology and Less from Each Other (2011)
Questions?

• Remember:
  – Type your question in the “Question” space in the webinar control panel.
  – A presenter will respond as time allows.
Thank You!

- We will E-mail the PowerPoint to you
- We will E-mail the link to the recorded webinar to you—share with your colleagues!
- Sign up for more webinar notifications at: www.wepanknowledgecenter.org