The Importance of the Next Generation

Recruiting, Developing & Retaining The Engineers of Tomorrow

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Executive Director/CEO
ASME

STM US Society Day
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The Rising Generation of Engineers

How do they differ from their professional predecessors?

- Younger Engineers have new and different
  - Skill sets
  - Attitudes
  - Learning Styles

- HOWEVER - just like earlier generations of professionals:

  Young Engineers are also “born problem solvers who are insatiably curious about the way things work”

ASME/YouGov Study 2018
Engineers are Lifelong Learners

...who aspire to make the world a better place

To be successful, engineers must be continually learning and pursuing knowledge

96% agree

Engineering is about solving problems in creative ways

96% agree

Engineering can change the world to impact millions of lives

97% agree
“Old School vs. New School”

Differing Attitudes between Established & Rising Generations of Engineers

AGREEMENT WITH STATEMENTS

- Today’s new engineers rely too much on software at expense of understanding traditional engineering theory
  - Student: 56%
  - Early Career: 66%
  - Mid Career: 78%
  - Later Career: 74%

- I am concerned that as a field we are losing our “engineering intuition”
  - Student: 45%
  - Early Career: 56%
  - Mid Career: 62%
  - Later Career: 66%

Elders believe younger engineers too software-focused
I absolutely consider being a mechanical engineer a part of my identity... I grew up in a family of engineers, and the drive to create something by harnessing the cumulative knowledge of science has always been there for me. That's not going to leave me anytime.
Increasing Knowledge

Engineers of all ages seek to do so continuously...

...but younger engineers are especially interested in knowledge that can help them to:

- **Build Their Careers**
  - 83%
  - vs. 59%

- **Be Seen as an Innovator**
  - 62%
  - vs. 53%
# Learning Their Way

## Young Engineers More Likely to Consume Content via Video, Online/Interactive & MOOCs

### RESOURCES USED AND ACTIVITIES ENGAGED WITH IN PAST YEAR

<table>
<thead>
<tr>
<th>Activity</th>
<th>Students</th>
<th>Early Career</th>
<th>Mid Career</th>
<th>Later Career</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journals/Conference Proceedings/Books</td>
<td>48%</td>
<td>50%</td>
<td>53%</td>
<td>52%</td>
</tr>
<tr>
<td>Conferences</td>
<td>51%</td>
<td>44%</td>
<td>55%</td>
<td>59%</td>
</tr>
<tr>
<td>Codes &amp; Standards</td>
<td>50%</td>
<td>22%</td>
<td>67%</td>
<td>55%</td>
</tr>
<tr>
<td>Training</td>
<td>46%</td>
<td>37%</td>
<td>55%</td>
<td>38%</td>
</tr>
<tr>
<td>Certifications &amp; Licensures</td>
<td>29%</td>
<td>17%</td>
<td>39%</td>
<td>29%</td>
</tr>
</tbody>
</table>

### FORMS OF PROFESSIONAL DEVELOPMENT INTERESTED IN WITHIN THE NEXT 24 MONTHS

<table>
<thead>
<tr>
<th>Activity</th>
<th>Students</th>
<th>Early Career</th>
<th>Mid Career</th>
<th>Later Career</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading professional/scientific journals, industry magazines, blogs, etc.</td>
<td>92%</td>
<td>87%</td>
<td>92%</td>
<td>97%</td>
</tr>
<tr>
<td>In-person seminars/classes</td>
<td>86%</td>
<td>91%</td>
<td>88%</td>
<td>73%</td>
</tr>
<tr>
<td>Videos of lectures, processes and practices</td>
<td>85%</td>
<td>89%</td>
<td>90%</td>
<td>73%</td>
</tr>
<tr>
<td>Interactive online courses</td>
<td>82%</td>
<td>78%</td>
<td>89%</td>
<td>87%</td>
</tr>
<tr>
<td>MOOCs (Massive Open Online Courses)</td>
<td>72%</td>
<td>69%</td>
<td>85%</td>
<td>75%</td>
</tr>
</tbody>
</table>
Staying Engaged

...through Content Consumption & Professional Development

**MOST COMMON STEPS TAKEN WHEN NEEDING TO EXPAND ENGINEERING KNOWLEDGE**

- Search online using a mainstream search engine like Google or Bing: 76% agree.
- Talk to colleagues/friends in or outside my organization: 61% agree.
- Go to my organization’s intranet, library, etc.: 38% agree.
- Search online using an academic search engine or social sharing site: 35% agree.
- Go to professional association/society websites: 28% agree.
- Reach out to experts who I do not know outside of my organization: 17% agree.

**PERCENTAGE WHO USE AN ACADEMIC SEARCH ENGINE OR SHARING SITE TO EXPAND ENGINEERING KNOWLEDGE**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>53%</td>
</tr>
<tr>
<td>Early Career</td>
<td>38%</td>
</tr>
<tr>
<td>Mid Career</td>
<td>30%</td>
</tr>
<tr>
<td>Later Career</td>
<td>21%</td>
</tr>
</tbody>
</table>

I try to take a course every semester in something new just so I can keep up. And that might not be a formal course, but I’m watching something online, I’m engaged in something [I receive] by mail, [etc.].

EARLY-CAREER ENGINEER, CALIFORNIA
The ASME Mission

“To serve **diverse global communities**
by advancing, disseminating and applying
**engineering knowledge**
for improving the quality of life —
and communicating
the excitement of engineering.”
What is ASME Doing

To Get – and Keep – Connecting Young Engineers

ASME E-Fests
Brought to you by ASME Engineering Festivals™

E-FEST NORTH
April 5th - 7th, 2019
Michigan State University, Michigan, USA
Register

E-FEST SOUTH AMERICA
August 8th - 10th, 2019
Pontificia Universidad Católica del Perú
Lima, Peru
Register

E-FEST ASIA PACIFIC

An ASME EFx will take your engineering skills to the next level

ASME EFx NYU: MakerHack
SPECIAL EVENT, WORKSHOP
Thank You!
Questions?