

Pathways into Engineering Careers

Rebekah Heppner, Ph.D.



“The Skills Gap”

- ◉ Manufacturing Gap Analysis
 - > August 2013

“The highest shortages were for the most advanced jobs, such as machinists and technicians.”

Employer interviews

- ◉ 26 companies, 22 used in this analysis
- ◉ Range from under 25 employees to thousands
 - > Most are small to mid-sized & locally owned
- ◉ Focus: Advanced Manufacturing
 - > Range from machine shops to phosphate processing . . .
 - . . . Power generation to plastic cups!

Questions Asked

- ◉ Semi-structured interviews of employers who hire engineering technicians:
 - > What skills are you looking for in engineering tech employees?
 - > How could employees be better prepared for engineering technology jobs?
 - > Do you have any engineering technology internship or apprenticeship positions in your company?

“Gaps” identified

- ◉ College degree (4 year) as the goal
- ◉ Public perception of manufacturing
- ◉ Community College ET programs
- ◉ Hands-on training/internships

The internship paradox, Part I

- ◉ Hands-on training is considered the best way to train engineering technicians
- ◉ Small manufacturers don't offer internships
- ◉ Mid & large manufacturers provide internships - but fill them with students from 4-year engineering programs

The internship paradox, Part II

Students from 4-year engineering programs are doing the work of engineering technicians . . .
reducing their access to training and job opportunities . . .
resulting in a shortage of engineering technicians!

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The Evidence from Employers

- ◉ 7 recommend internships for technicians
- ◉ 4 have technician interns (CC)
- ◉ 10 have 4-year engineering degree seeking students as interns - doing engineering tech work.

Machine Shops



Computer Aided Design



Robotic Manufacturing



Computer controlled machine



3D Printer Programmer



Clean Room Workers



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