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FRE MOBIL WHITE

"Dirty, dark, dangerous, and dull"

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An entire generation is retiring from manufacturing, but their grandkids don't want to fill the void. Here's why, and what manufacturers are doing about it.

In a Yahoo chat room, five high school and four college students agree to talk to us about manufacturing. None plans a career in manufacturing, though one's younger brother is enrolled in a vocational school and wants to work at Raytheon. The most vociferous chatter says manufacturing "isn't an option," he being the "creative type." He went by the online identity cartman44, after Eric Cartman, America's single most conspicuous cartoon character, and the addendum "44," because 43 other people had the same idea.

What if the product were interesting, we ask cartman44, like automobiles?

"depends volkswaggens [sic] no way"

"iPods?"

"definitely [sic]"

"Paintball guns?"

"when do I start"



"Orthotic inserts."

"what r they"

"The inserts for shoes if you have bad feet."

"SO not cool."

cartman44 would be easy to dismiss, but for the staggering fact that we may need him. The National Association of Manufacturers (NAM) 2005 Skills Gap Report revealed that 90 percent of manufacturers experienced a moderate to severe shortage of skilled production employees (e.g., machinists, distributors and technicians), and that engineers and scientists are also in short supply. And the outlook is grim; as NAM President president John Engler described to us, "More than 40 percent of America's workforce is within five years of a retirement age, so we've really got an aging workforce. And I'm talking about the skilled workforce, everybody from the CEO to the assistant at the front desk.

"Who's going to replace those folks?"

Presumably, the young, but young people like cartman44 are steering clear of manufacturing, and largely, it's an image problem. That image?

"Dirty, dark, dangerous, and dull," says Director of Operations Leo Reddy of the Manufacturing Skill Standards Council (MSSC). MSSC is the nationwide, industry-led organization focused on the core knowledge and skills needed by US production workers. "There's definitely a concern among educators in attracting young people into manufacturing, a negative perception we have to improve," says Reddy.

Professor Nabil Nasr observes the effects. Nasr is director of the Rochester Institute of Technology (RIT) Center for Integrated Manufacturing Studies. Enrollment at RIT is steady, but he sees more image-friendly fields snatching the talent. "Of course the computing—there are many areas that students typically think are high-tech with potential career opportunities, like in computing and in the bio side. They're seen as exciting, and we don't see the bad perception that manufacturing careers have."

Reddy points to NAM's "Dream It. Do It." campaign as one of the strongest efforts to attract young people to manufacturing, with the message in its literature to "Pass on the drudge jobs out there and find something here you can really get into." The program's Website includes numerous profiles under the title "Cool stuff being made," which stuff includes beer, wine, candy, and running shoes.

cartman44 represents a common perception, that a cool product means a cool workplace. Indeed, Bose (of the legendary sound systems) has little trouble attracting young talent, partly because "it's more a university feel than a plant," one of its engineers told us in confidence. REI, the sportsgear maker, hires a contingent of campers, hikers, and bicyclists who receive free gear as a perk, and REI has been on the Fortune 100's Best Places to Work roster since 1998.

Yet "Dream It. Do It." does not limit itself to food and recreational gear: two videos feature the US Navy's newest ship, the USS George H.W. Bush, and steel at U.S. Steel. As NAM points out, today's steelmaking belies that "dirty" image of soot and smoke and is instead a modern, high-tech industry that relies on the expertise of highly skilled professionals.

But what if the commodity is less conspicuously cool than a paintball gun—again, like orthotic inserts? Then, manufacturers have appealed to the sense of a cool workplace, by luring young people in to see the tools. The Society of Manufacturing Engineers (SME) has a long history of arranging tours of young people to see workplaces. SME is banking that they'll be dazzled by the tools, such as CAD and state-of-the-art computers.

NAM in "Dream It. Do It." also appeals to a sense of entrepreneurship and purpose, profiling CEOs who recall their own youthful reticence. "It was hard for me to focus on one thing. I thought I was going to be

insignificant," wrote CEO Kellie Johnson of aerospace manufacturer Ace Clearwater. "It wasn't until I got to Ace that I realized that even if we're making a tiny widget, that plane can't fly without it."

If all else fails, then manufacturers appeal to the rewards of a steady career in manufacturing. Nasr recalled a Boeing recruiting film at one of the college's career fairs, which showed young Boeing workers surfing in California and "living large," the rewards of a higher-paying manufacturing career.

If the jobs themselves can be made attractive, what of the future? "You hear about the decline of manufacturing in the US," says Nasr of RIT, "that we're losing market share and industry is moving overseas. It creates the impression in a lot of young people's minds, 'maybe I should look for something else.'"

Reddy of MSSC agrees. "The total gross annual income from manufacturing, including the multiplier effect, is eight times that of the GDP of China, but there's an image that US manufacturing is dwindling away, that it's just going to be a services economy in three or four years. But think of Gillette, Bobcat, John Deere, all great, great manufacturing companies. Everyone sees small products made in China, but high-tech expensive goods worth billions will still be made here.

"Lou Dobbs doesn't tell you that on TV," says Reddy, and points out that career counselors in high schools and colleges seem unknowledgeable about opportunities in manufacturing. We pose that to our impromptu Yahoo panel. "gingergrrl" is in high school and plans to study biochemistry, detailing her passion for cancer research. She decided with her guidance counselor to pursue a career "in a research lab, definitely," but at a university or hospital—her counselor hadn't discussed a biotech or pharmaceutical manufacturer. gingergrl writes that she'd consider it for the right research.

The jobs are not going away, but they are narrowing, and focusing. Reddy points to recent research by economist James Orr for the Federal Reserve Bank of New York, who wrote that "While the US manufacturing sector has contracted sharply since the early 1980s, employment in high-skill manufacturing occupations has risen by an impressive 37 percent."

The operative term is "high-skill." Young people are unwilling to become unskilled labor, which is an image that NAM president Engler disputes strongly. "A person just walking in [to a plant] with a good attitude who'll show up every day to do the first job may not be able to do the job. I go to the Hyundai plant in Montgomery, Alabama, and not a single weld on the Sonata is being made by a person. Robots do them all." Thus, the job of welding may not call for a certified welder, but a robot operator.

That is Ron Morin's experience exactly. Morin is a 62-year-old machine operator at Riverdale Mills in Northbridge, MA. Morin began his career at 19, at a company called Whitin Mill Works, and estimates that he has operated 19 machines for various employers. Morin estimates that "every job and every machine you run should take 39 weeks to learn." That's based on his experience at ATF Davidson, the manufacturer of printing presses, which promoted workers every 13 weeks as their knowledge progressed.

"Anybody can learn to run a machine in two weeks," he says, "But you have to learn the effect of the machine, how it fully functions, how it runs. They're always trying to get you to try something that's not in a book, like setups, trial and error. And if you don't have a good basic background with the machine, it'll take you forever to figure that out."

Both NAM and MSSC recognize that gap and joined in September of this year to launch the US's first effort to establish nationally-recognized credentials for qualified manufacturing production workers. The endorsements could not have come any higher. The representatives who met on September 25 at Washington DC's National Press Club included representatives from Ford, Harley-Davidson, and the United Steelworkers Union, among others. MSSC will administer the production technician certification program nationwide.

MSSC has recognized the need to appeal to the sense of "cool," and it does so willingly. "Forty -five percent of our course is in virtual trainers," says Reddy. "Kids these days are so multisensory, whether it's music or MTV—there are screens everywhere you look. A chalkboard and dry eraser is just not cutting it anymore, no matter what

you're teaching." That does not mean the young are unwilling to learn, nor unintelligent. "They're smart," Reddy observes, "absorbing a lot more information than they used to."

MSSC, then, provides learning in the medium the young know well.

Engler too observes tremendous potential in American young people. "Our best students, I think, can compete against anybody anywhere, anytime," he says, but he does observe a lack of forethought.

"You've got somebody who goes to college and is not clear why they're going, gets maybe a poly-sci degree, and comes out and says 'OK, here I am, world,' and [the world asks] 'what can you do?' The next think you know they're part of that 20 percent of the student body in an average community with a four-year degree," returning to college. "Why are they there? They're getting skills training. They're learning a specific kind of career. The tragedy is they didn't do that earlier. They could have been working while going to school, not be mired down in debt, perhaps by student loans, and maybe be highly focused on what they wanted to get out of college."

So young people are out there, willing to consider manufacturing, and worth employing. But are young people like cartman44, who need to be convinced, worth having? Ron Morin has seen his fair share of new recruits who "don't really want to work but want the most they can get paid, whether they can perform the duties or not. Work is the temporary stopping grounds to get money for what they want, and then they quit or get lazy. They're not like the old people; even though you did your bitching, you earned your paycheck. They didn't want anything for nothing."

For now, no one will need to learn Morin's machine. "I'm hoping to retire in January, but I had to buy a new car last January, so I'm not sure I can." He laughs. "Right now I'll work till my health tells me I can't."

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