

Written Testimony of Representative Suzanne Bonamici (OR-01)
Make It in America: What's Next?
PANEL 2: Skills Training for the Future

Thank you, Congressman Hoyer and colleagues, for inviting me to testify about skills training programs and the role they play in strengthening America's economy.

The need to close the skills gap is clear. For example, the owner of a marine pipe-fitting manufacturer in Hillsboro, Oregon, has had trouble recruiting qualified employees. Because his company's products contain unique alloys, some of his employees must train on the job for a year or more. In part because of the challenge of identifying workers with requisite skills in welding, this company is pursuing a new internship program with a local high school.

And in rural Yamhill County, Oregon, a polymer and composite manufacturer was having trouble finding people to fill positions, so they worked with other businesses and started a manufacturing class in the local high school. These examples show that there is a growing problem. A recent study titled "The Skills Gap in U.S. Manufacturing: 2015 and Beyond" found that manufacturing executives remain deeply concerned about the skills gap. More than 80 percent of executives who participated in the study said the skills gap would eventually prevent their companies from satisfying customer demand. Overall, the study predicted that roughly 2 million manufacturing jobs will go unfilled during the next decade because of the skills gap.¹

So what can federal policymakers do to help close this gap? An important starting place is to consider what skills our economy will require in the future.

A few years ago, IBM conducted a major survey of CEOs worldwide to ask what they viewed as the most important skill for their companies' success. The CEOs said that creativity was more valuable than any other skillset.² This finding is not surprising. Innovation—a byproduct of creative thinkers—has always been a key ingredient to our country's economic success. As we discuss the future of American manufacturing, it's important to remember our history: Ours is a country that doesn't just make things, we create them.

Our legacy of innovation is visible in today's companies and products. Apple is an example of how companies benefit from blending superior engineering with creative design. During the company's development of the iPod, for example, Steve Jobs was said to have rejected early prototypes that worked well because they were too large. As the story goes, after Apple engineers insisted the device could not be made smaller, Jobs carried the device to a fish tank and dropped it in. After a moment, several air bubbles emerged, exposing empty space inside the device, and Jobs pointed out to the engineers the iPod could, in fact, be made smaller. The ubiquity of Apple products is linked to the company's obsession with design and the fusion of technology with artistry.³

¹ <http://www.themanufacturinginstitute.org/~media/827DBC76533942679A15EF7067A704CD.ashx>

² http://www.businessweek.com/innovate/content/may2010/id20100517_190221.htm

³ <http://www.businessinsider.com/steve-jobs-threw-ipod-prototype-into-an-aquarium-to-prove-a-point-2014-11>

Skills training should prepare workers for this kind of innovation. Of course there is more than one model for preparing an innovative workforce, but as the co-chair of the Congressional STEAM Caucus, I have a particular interest in the ability of STEAM education—STEM that incorporates arts and design broadly defined—to prepare workers who have advanced technical skills as well as an aptitude for problem solving and creative thinking.

Across the country, schools are integrating the arts and creative learning opportunities into traditional STEM subjects. This does not dilute learning or minimize the importance of science, technology, engineering and math—it enhances STEM by challenging both halves of students’ brains. Combining arts and design with computer engineering, for example, is more representative of the kinds of cross-disciplinary collaboration that is so critical in workplaces in the real world.

Another benefit of STEAM education is that it can help attract underrepresented groups to STEM fields. Although women make up roughly half of the workforce, they hold only about one-quarter of STEM-related jobs.⁴ And only about 12 percent of engineers are Latino or African-American, even though these groups account for a much larger share of the overall workforce.⁵

There’s a lot we need to do to encourage people from underrepresented groups to enter STEM fields. We need more diverse role models in classrooms and boardrooms. We need higher education institutions and industry groups to target resources and experiential learning opportunities to low-income and minority students. But STEAM education can play a part in the effort to change the perception of STEM fields and make them more inclusive of diverse skills and approaches to problem solving.

Companies don’t want a workforce of static manufacturers; they need dynamic thinkers and diverse perspectives. In short, we need workers who can learn quickly and adapt along with their companies. Employers understand this. One survey found that more than 80 percent of business leaders prefer employees who can continuously learn skills, even if these employees do not possess an in-demand skill when they’re hired.⁶

Our primary focus should be fostering a diverse workforce that knows how to innovate. And these two objectives go hand-in-hand. In a Forbes survey of hundreds of global companies, the vast majority cited diversity as an essential component to their ability to innovate.⁷

None of this is to suggest education programs should not teach specific skills. Indeed, secondary and postsecondary career and technical education programs should be informed by the needs of industries, should include “stackable” CTE credits, and should lead to a recognized credential or degree.

The needs of companies evolve rapidly, so Congress should reauthorize the Carl D. Perkins Career and Technical Education Act with a goal of having CTE programs keep pace with corresponding careers. One barrier is equipment. A recent survey of CTE instructors found that 80 percent would use additional federal funding for new classroom equipment.⁸ We should no longer expect schools to spend considerable resources on

⁴ <http://www.esa.doc.gov/sites/default/files/womeninstemagaptoinnovation8311.pdf>

⁵ <http://www.usnews.com/news/stem-solutions/articles/2015/02/24/stem-workforce-no-more-diverse-than-14-years-ago>

⁶ <http://www.fastcompany.com/3028811/in-defense-of-a-liberal-arts-degree>

⁷ http://www.huffingtonpost.ca/2011/07/29/workplace-diversity-innovation_n_913214.html

⁸ https://www.acteonline.org/uploadedFiles/Assets_and_Documents/Global/files/CTE_Info/Research/ACTE%20Report%202013_Print%20Version_HighRes-Final.pdf

equipment when it often loses relevance quickly. Instead, we should identify opportunities to support public-private partnerships that can help equip classrooms with the most up-to-date tools.

In addition to helping classrooms get modern equipment, reauthorization of a new CTE law should prepare instructors to provide curriculum that is relevant to employers. This means the Perkins CTE Act should continue to promote quality professional development and support frequent opportunities for teacher training, including through opportunities provided by companies and industry groups.

Of course, some of the most effective examples of industries partnering on career and technical education are programs in which companies become active participants in students' education. In Oregon, a number of universities have partnered with leading companies—like Boeing, Intel, Genentech, and Georgia Pacific—to develop the Multiple Engineering Cooperative Program, which was established in 1978.⁹ The program places engineering students in credit-bearing internships, and the universities and companies share responsibility for preparing students for the workforce. All parties continuously evaluate the program and share recommendations for improving students' learning.

As Congress continues to support the development of a diverse and innovative workforce through quality secondary and postsecondary programs, we should remember that, ultimately, skills training programs rely on adaptability—just like the economy they support.

Thank you for the opportunity to testify today. I am happy to answer questions.

⁹ <https://www.mecopinc.org/>