

The Vocational Education and Training System You Need Depends on the Kind of Economy You Want

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Poor VET. In recent decades, in many countries, vocational education and training (career and technical education in the United States) has fallen on hard times. It is not hard to see why. Families ambitious for their children do not need to see the statistics to know that the returns to university education have been skyrocketing, both in money and status.

The effect on vocational programs that do not terminate in a bachelor's degree has not been benign. What happened in Denmark a few years ago says it all. A new prime minister, on taking office, decided to create a commission on the future of the Danish economy and the skills needed to drive it forward. The issue was so important to him that he chose to chair it himself. The commission concluded that the future of Denmark lay in high technology and that Denmark and Danes could only succeed in that future with advanced education and skills. Denmark, in the eyes of many of us who study these things, had at the time one of the finest vocational education and training systems in the world. But the commission report convinced Danish parents that their children would have no future if they pursued anything other than a university education, and VET enrollments plummeted.

In recent years, as VET systems in many countries have become the education of last resort, the option of students who have no other option, governments all over the developed world began to have second thoughts.

Yes, it became difficult to find competent people to come to one's home to fix the plumbing, remodel the kitchen, and install more efficient lighting systems. But it slowly became

clear, in some countries, that much more than that was at stake. The whole economy was becoming unbalanced. In some places, young people with university degrees who could not find jobs roomed with their parents, unwilling to accept jobs they saw as beneath them, while companies in those countries were taking their work offshore to find the workers with the skills they needed at much lower wages. Companies with mushrooming demand could not meet it because they could not find the highly skilled technicians they needed to make and service their product. Hospitals that could find the physicians they needed could not find the technologically sophisticated staff to install, monitor, use, and service the complex medical technologies on which new and better diagnostics and treatments depended.

It was hardly surprising, then, that politicians in many countries found that they were striking a chord with the electorate when they said that perhaps not everyone needed a university education. There seems to be widespread agreement now on that point. But there is much less agreement on what the new VET system, one better suited to the modern economy than the old VET system, ought to look like.

The National Center on Education and the Economy (NCEE) has been studying the world's most effective primary and secondary education systems in the world for three decades. From the start, we have been observing how the VET systems in these nations have evolved in the face of tumultuous shifts in the dynamics of the global economy and rapid changes in technologies, particularly digital technologies. Some countries appear to have adapted to these changes very nimbly. Others, at their risk, hardly at all or, at best, very slowly. And still others in surprising ways.

We decided a few years ago to take a closer, more systematic look at these developments in a set of countries that are very different from each other in the nature of their economies and

also in the design of their VET systems. The result was a series of monographs on the VET systems in four countries: Vivien Stewart wrote on the People's Republic of China, I wrote on Singapore, and Nancy Hoffman and Robert Schwartz wrote on both Switzerland and the United States. The first three were first published as independent monographs by the NCEE's Center on International Education Benchmarking under the general editorial direction of the Center's director, Betsy Brown Ruzzi; these essays have been updated for inclusion in this volume. The fourth, on the US, is published for the first time here.

We did not select these four countries because we think they have the world's best VET systems—although, if pressed, we would confess that we think Singapore and Switzerland would be very strong contenders for that title. We selected them because we think there is a great deal to be learned by studying them closely and comparing them even more closely.

Perhaps the most widespread image of a successful VET system in the world today is the dual-system model that is center stage in central and northern Europe, most notably in Germany, Austria, Denmark, and Switzerland. All of these countries' VET systems grew from the same medieval roots. Young people in those times were apprenticed to accomplished craftsmen who took them in, trained them to a standard set by the guild of which they were a member in exchange for their labor, and then, when they attained journeyman status, either employed them or sent them off to another master craftsman who would do so. The guilds kept their standards up and their numbers down to keep the standard of living of their members up. This system is the quintessence of an employer-based system of vocational skills training. It was not until the late nineteenth century that it was married to some formal schooling for the apprentices and that the government got involved. Later, the modern corporation began to replace the guilds in their

central role as providers of training. For a variety of reasons, we see Switzerland as the best current example of the employer-based, apprentice form of vocational skills development.

Singapore may offer the world's best example of a school-based VET system. It is very closely tied to a well-developed, explicit, and articulated economic development plan, a feature that should be of particular interest to governments that also see VET as a key strategy for economic development. It may also reflect the greatest and most sustained effort to build a system based on careful study of all the other systems that have preceded it. The Singaporeans are the most adept benchmarkers in the world. In that sense, to study Singapore is to access a unique window onto all the other VET systems. Singapore's VET system has developed almost in lockstep with its evolving economic development priorities and, at the same time, with the evolution of its primary and secondary education systems. Indeed, more than in any other country we have studied, these three systems function in Singapore like three very closely aligned subsystems of one human resources system. So why, if the world is agreed that the dual system of apprenticeship in the firm combined with classroom study of theory is the best way to learn how to do almost anything, analyze a school-based system, one in which most opportunities for students to actually do the work are in schools, not in workplaces controlled by employers? The reason is simple. We know of no country that has successfully built an employer-based system of apprenticeship that did not have guilds that took in apprentices in medieval times. If that is true and your country, state, or province is looking for a model that gets as close to the European model as possible, your best bet may be to study Singapore, not Switzerland.

These two countries are our candidates for world leaders in VET. They are also among the world's most successful economies, which lends some credence to the proposition that a

strong VET system is a vital component of a strong national economy. Yet, the old caution that correlation is not cause applies here. And that is why we chose two other countries to study, the PRC and the US. These are the two largest and most dynamic economies in the world, but we would not nominate either of these countries for world leaders in VET. So if we maintain that a strong VET system is vital for a strong economy, what is wrong with our logic if these two economies lead the world in size and dynamism? There is something important to be learned here.

The case of China is fascinating. Prior to and during the Mao years, it never had a very strong VET system. Then Mao closed the schools and universities, so the country had hardly any education system at all for a long time, until Deng Xiaoping took over and began to build a new education system from scratch. Deng's economic development plan for China was very ambitious, but the country was practically bereft of the kind of skilled technicians required for his foreign-invested industrial development plan to work. Who would build the factories, bridges, airports, and all the other infrastructure that would be needed? Where would their skills come from? Later, when the PRC was becoming the "workshop of the world," turning out products that in some cases met the highest quality standards in the world, someone on the shop floor and among the supervisors had the high skills needed to meet the high ISO quality standards that these firms had to meet to get the work. Where did they come from? We wanted to get some insight into how the China had managed to develop the skills needed to become the workshop of the world. We also sought to understand where it wanted to go from here as it set out to wean itself off of an economy based on cheap labor and become an economy that could provide a solidly middle-class standard of living for its people based mainly on internal

consumption in a country that was rapidly automating the jobs that is manufacturing workings used to do.

In an odd way, we saw the United States as similar to China in one respect. Like China, the US VET system is, by any measure, nowhere near as strong as those of Singapore or Switzerland. In both countries, VET is seen by parents and students as the education option for students who are not very good at academics. And like China, the US has a booming, dynamic economy. Yet, the education cultures of the United States and China are very different. Americans travel to China to find out why Chinese students do so much better than American students on international comparative tests of academic performance, passing planeloads of Chinese who are traveling to the US to find out how the Americans teach creativity and innovative behavior to their children (answer: They don't; it's in the culture).

When thinking about these issues, I am reminded of a phone conversation I had many years ago with Peter Drucker, the renowned management consultant. I was seeking Drucker's view as to whether it made sense for NCEE to try to persuade American policy makers to adopt the formal skills training systems we had seen in Europe and in the former colonies of Europe, systems that are based on formal systems of occupational skills standards developed by employers. I'll never forget his response. He got very angry and warned me in the strongest possible terms not to do any such thing. The glory of the American economy and of its labor market, he said, was its flexibility, its fluidity, which enabled it not only to turn on a dime but to do so with the expertise it needed when and where it needed it. One of the country's great assets, in Drucker's view, was the lack of formal qualifications of the kind developed in the countries that had had guilds from medieval times. He saw those standards as slow to change, exercising a very conservative influence on companies and the national economy at a time when countries

would win or lose based on their ability to respond very quickly to shifts in markets, technology, and work organization. Better to have a system with few formal credentials and many opportunities to learn new skills quickly, from the firm or from a plethora of other providers.

If you take Drucker's perspective seriously—and I do—then it is possible that the wise policy maker needs to understand that while there is a strong argument for national systems for education and skills development that focus like a laser on the complex technical skills needed for particular occupations requiring less than a university degree, there is an equally compelling argument for building a system emphasizing not the development of the particular skills needed for particular occupations but, rather, the kind of broad education and knowledge that will make our workers nimble in an environment in which new digital technologies are likely to wipe out whole legions of jobs overnight with increasing frequency. If that is true, then perhaps Drucker was right, and it is dangerous for countries to build their VET systems on the models developed by the countries that have what many regard as the best VET systems. Or maybe not.

We chose these four countries not because we knew which models of VET would work best as the future unfolds but because we did not know and wanted to study a group of countries that would make us think hard about what would make sense now and in the near future. Our hunch when we picked these countries was that Drucker was both right and wrong—that the rigidities of the old European system were indeed a problem of increasing importance, but that more recent developments there had gone some distance toward addressing those concerns; that Singapore was in the process of moving toward the best of the European system while still holding on to what it most prized about its own system; that China was most certainly aware of the shortcomings of its system and determined to overcome them in ways that would turn out to

be very interesting for the rest of us; and that the United States, in its usual way, would start to muddle through to a unique version of the future that would fascinate the world.

But don't misunderstand me. These hunches don't lead to an on-the-one-hand-but-on-the-other-hand resolution of the issues I have briefly raised here. This book is not intended to be another set of case studies held together by little more than a common binding. The chapters are intended to help you think about what kind of VET system makes sense for your country in a very complex environment. In the last chapter I draw those threads together in an argument I hope will be helpful.

There is a lot at stake for the leading industrial countries. Well-regarded scholars tell us that more than half of the jobs now being done by American workers can be automated by currently available technology. National incomes are rising, but average real wages have not increased in decades. As machines take over the less-skilled jobs, low-skilled workers will have to acquire higher skills. And as higher-skilled jobs are taken by the machines, the humans who held them will have to learn new and even more complex skills or they will be jobless. Get it wrong and income disparities will increase to the point that countries' economies could fail and their social and political systems could be torn apart.

So while it's important to have enough electricians and carpenters, this is not about having enough electricians and carpenters. It is about having enough skilled technicians to run a successful economy, it is about greatly upgrading our education and training systems so that the adults in our societies have an opportunity to lead fulfilling lives, with the dignity that comes from doing work that is valued by others, and it is about maintaining democracies that can easily come apart when some people have much and a growing number have nothing.