Plug 'leaks,' create 'cradle to career' education system to meet world challenges: Top US educator

February 29 2012

Plugging major "leaks" of students exiting formal education prematurely is a top priority in all countries -- developed and developing alike -- to successfully address a suite of problems confronting humanity in decades to come, says a leading American educator.

Addressing a Malaysian forum on entrepreneurial education, Nancy L. Zimpher, Chancellor of the State University of New York, noted the rate of kids completing education in her US state was little better than in the developing nation she was visiting.

For every 100 New York kids entering high school, just 57 graduate, 41 immediately enter college, 31 of those are still enrolled in 2nd year, and just 19 graduate with a post-secondary degree of some sort within six years.

By comparison, rough data show that for every 100 Malaysian children, approximately 97 attend (and 78 finish) primary school, 66-69 enter (and 55 graduate) upper secondary school, an estimated 33-37 go on to post-secondary education, and about 10 graduate.

"Such rates of attrition aren't going to build for us innovative societies," says Dr. Zimpher, part of an all-star team of international experts counseling Malaysia in its drive to become a developed country.

She calls for seamless, coherent "cradle to career" national education system administrations that better connect primary, secondary and tertiary education. And such systems begin very early in life with nurturing parents and caregivers who ready their kids for kindergarten by reading to them and equipping them with such basics as knowing their numbers and alphabet.

"Parents are the first best teacher," says Dr. Zimpher, who oversees a state university system with 64 campuses and 460,000 students. "We must help them to better understand developmental milestones -- what children should be able to do, and by when. We can't assume that people know or do this by intuition. "Nearly 50 percent of the little ones who come to kindergarten aren't ready." We have to say: 'this isn't working for us'."

Meanwhile, she notes, the attrition rate for teachers is as high as 50% after just three years in parts of the USA, where compensation is relatively poor making higher-paying professional alternatives compelling -- especially for those with science backgrounds. The teaching profession needs to be universally respected and rewarded, as in countries like Japan, Finland and Singapore.

Also needed are new educational strategies that recognize a large part of the learning experience is migrating to the Internet. Technology, Dr. Zimpher says, is transforming the role of teachers from "sage of the stage," to a "guide on the side." Creating relevant, engaging, inquiry-based real world learning experiences and engaging with organizations like the Girl Guides or Scouts to create informal educational opportunities are among the tactics prescribed.

She presented a roadmap in use in a growing number of US states with specific educational progress milestones which, if met, have been shown to improve the chances of completing higher education, which in turn is

shown to result in an individual's higher income and healthier living in the long term.

Dr. Zimpher was joined in Kuala Lumpur by six fellow members of the Global Science and Innovation Advisory Council (GSIAC), created last year and chaired by Malaysia's Prime Minister, Dato' Sri Mohd Najib Tun Abdul Razak. Its objective: help Malaysia by 2020 join the ranks of "developed countries," defined as per capita income of US$15,000 (up from US$7,000 today).

The Council, convened in partnership with the New York Academy of Sciences (NYAS), includes two Nobel laureates among its 25 international and 10 Malaysian members; all are titans of economics, business, education, science and technology volunteering to help Malaysia ascend the development ladder in a sustainable way.

According to Prof. Dato' Dr. Zakri Abdul Hamid, Science Advisor to the Prime Minister, Malaysia, and Joint Secretary of the GSIAC, the Southeast Asian country aims to double the proportion of students enrolled in sciences to 60%. The country will need an estimated 1.3 million science and technology workers by 2020; it has an estimated 400,000 today.

"A population skilled in STEM -- sciences, technology, engineering and math -- is fundamental to addressing issues such as climate change, safe and adequate water supplies, poverty alleviation and stemming biodiversity loss," says Prof. Zakri. "And we need entrepreneurial skills to translate innovative ideas into products and services."

Comparing the experiences of senior US and Malaysian educators, GSIAC Joint Secretary Ellis Rubinstein, NYAS President and Chief Executive Officer, noted the striking similarities of problems and challenges of developed and developing countries alike.

Says Mr. Rubinstein: "Wise people in many countries know that we need to inspire children with hands-on learning experiences, convey the value of science and math to their parents, and transform the spirit and practice of our teachers. And wise people know scores of proven methods to do all this. But going beyond promising-but-isolated experiments to national scale can only happen if everyone -- the ministries and agencies, the universities and schools, the companies and teachers' unions, and, of course, the parents and teachers -- work together in a systematic manner. I believe Malaysia can do this and the GSIAC would like to partner to help make it possible."

Jerry MacArthur Hultin, President of Polytechnic Institute of New York University noted Malaysia's "smart city, smart community" initiative being mentored by the GSIAC and that the country is well placed to pioneer technologies and systems that improve urban traffic flows and energy efficiencies, and connect people to their municipal governments as never before.

With neighbours like China and India, with urban populations expected to grow by some 400 million and 200 million respectively between now and 2030, providing smart city know-how will give Malaysia a major financial lift.

"You are in a fabulous part of the world," says Dr. Hultin. "Make your neighbours your customers. The growth to come is right where you live, and all of it is yours to capture."

Beyond strategic advice, the Council is actively helping the country increase commercialization, foreign trade and investment, including efforts to convert biomass from Malaysia's massive palm oil industry to high value products, from sugars used to make plastics or bio-fuels for engines, wealth from waste potentially worth billions of dollars per year.

Annalee Saxenian, Dean of the School of Information at the University of California, Berkeley, says models of innovation of decades past, where engineers were isolated on remote corporate campuses to experiment, are long gone.

Innovation today involves global networks, partnerships and supply chains, she says, pointing to the example of Taiwan's linkages with Silicon Valley in California, which helped lift Taiwan from a per capita GDP of US $2,500 to a major Asian economic power.

Aalt A. Dijkhuizen of the Netherlands, President and Chairman of the Executive Board, Wageningen University & Research Centre, suggests teachers, like sports coaches, should be highly paid as long as they are top performers and exit the system when they aren't.

"The difference in impact between a good and bad teacher becomes bigger all the time," he adds.

According to Meghan Groome, Director of the K12 Science Education and Science & the City programme at NYAS, at a very practical level overcoming learning barriers in science and breaking through to higher understanding includes encouraging kids to simply ask more questions.

In some places, asking questions is considered impolite (especially for girls) -- that questions infer that the teacher is doing a poor job, she says.

Other kids, perhaps universally, simply don't want to feel embarrassed asking what peers or a teacher might consider dopey questions.

Says Dr. Groome, having kids write questions for the teacher's later review confidentially breaks down part of the barrier to progress and offers the educator insights into what their students understand and what they don't -- often just basic definitions -- and make adjustments

accordingly. Kids can even use tools like Twitter to submit questions as they occur in real time.

Another prescription: Lavish praise on those who ask questions, encouraging others to follow suit, she adds.

Provided by Malaysian Industry-Government Group for High Technology