

21st Century Skills – Their Value and Delivery

Ambassador Suzi LeVine (Ret.); 25 April, 2018 @ the ETH KITE awards

Remarks as prepared

Schönen Abend! Bonsoir! Buena Sera! And Buna Saira!

Und Merci Vielmal for die Einladung.

<Honored guests>, and all of you who care about our future generations, it is truly wonderful and quite an honor to be here tonight with you for this important award ceremony.

Teaching is truly the noblest profession and brings to life the Chinese proverb:

The best time to plant a tree was 20 years ago. The second-best time is now.

I'd like to ask you all to close your eyes – I'll tell you when to open them. Take a deep breath and relax into your seat.

For some of you, that tree planting I mentioned a moment ago that led to your being here happened just a few years ago. For others of you – like me, slightly more.

Keep your eyes closed and I want you to think for a moment about your very favorite teacher – picture that person's face, think about what the key lessons you learned from that person were, feel that sense of deep learning satisfaction that you experienced.

Now – open your eyes. I tell you, the look on your faces as you envisioned your favorite teachers was priceless. Thank you for going there with me!

For me, it was Mrs. Thompson – in 7th grade science. She was one of the toughest teachers in the school but that was because her expectations for us were unrelenting. And she was ahead of her time by using project-based learning in her classes as well as some level of personalized learning where she allowed us to pace ourselves. I can still see and feel the box of rocks, excuse me – geologic samples display - I created for the geology lesson that spanned over what felt like months.

She lit me up and inspired me so much that, one day during her class, I created airplane. Now, granted, I should have probably been listening to the lesson that day, but to her credit, rather than take and throw out my plane, she challenged me to figure out how and why it flew so well with this dual wing structure. Because of that moment and her encouragement, one of my degrees is in mechanical engineering with Aerospace applications!

Great Teachers and great teaching have a profound impact on all of us!

Like I said, she used unconventional methods in her teaching. She was not generally using the dominant method in the world at that time: a frontal lecture-based approach.

Manymany.... years later, when I worked at Microsoft from 2009-2012, I learned that what Mrs. Thompson was doing back in the 20th century was quite ahead of its time, and she was delivering what we now call 21st century skills via that project-based learning I mentioned before.

But let me pause there for a moment and take a step back to clarify what 21st century skills means.

Right now, because of the unprecedented pace of change we are experiencing, we are both basking and drowning in Moore's law – whether here in Switzerland, in the United States, or across the globe.

With the acceleration of technology and change in society, many of the careers of today didn't exist 20 years ago, and the careers in 20 years from now, don't exist today.

Web developer, mobile app developer, data analyst, blogger, search engine optimizer, machine learning engineer, human machine interface specialist – these have all come to fruition in the past 2 decades. Last month, I heard an administrator at a Washington State University talk about the new requests being made of Universities serving the agricultural community. Rather than needing people to drive tractors or do meteorology, farms need drone pilots whose analysis will guide where they should be harvesting.

To be ready throughout our lives to navigate these many careers and this rapid change, we need people to know more than just reading, writing, and arithmetic. We need to equip our young people with a deeper and broader set of skills. Education scholars have categorized this broader set of skills that will transcend time and technology and called them "21st century skills.

There are variations to how they are enumerated, but my favorite articulation is the one from the Partnership for 21st Century Learning. I use the mnemonic of 5Cs and a P to remember what they are:

- Communications
- Collaboration
- Citizenship
- Creative and Critical thinking
- Computers or digital literacy
- Problem Solving

This set of skills equips young people with the nimbleness and agility to learn and be prepared for careers far into the future.

<pause>

But it's one thing to list the skills and quite another to make sure that people acquire those skills. Mentioned before, one of the primary and best delivery vehicles for these skills is project-based learning.

Let's go back to Mrs. Thompson for a moment. She could have shown us a list of rocks and required the us to simply memorize their properties. But she didn't. She had us build our own collection boxes, gather our own samples, and then do the cataloging ourselves. We need more instructors like Mrs. Thompson who are going to do more than stand in front of a classroom and lecture.

Another one of my favorite examples of project-based learning and the delivery of 21st century skills is from my time in education at Microsoft. I had the chance to meet a teacher from Scotland named Ollie Bray who used the video game Guitar Hero in his classroom.

He assigned his students to create a fictitious band and put them on a concert tour. Sounds simple and a bit light, right? Au contraire! In this exercise, they honed many different skills as they wrote lyrics, allocated budgets, set the tour routes, marketed the band, and played the music – all while collaborating with a bigger team. The project ensured that they gained all of the 21st century skills – again – 5Cs and a P:

- Communications – how did they market the band
- Collaboration – they worked in teams
- Citizenship – they needed to be aware of borders and have cultural sensitivities
- Creative and Critical thinking – what was going to distinguish their band vs. the others
- Computers or digital literacy – they did this all using their computers
- Problem Solving – they needed to identify and resolve tradeoffs throughout the project such as do you go to more stops in smaller towns vs. fewer stops in larger cities with high costs?

But that innovative approach to teaching was for a high school – or gymnasium - class.

<pause>

For centuries, Universities have been the bastion of frontal learning – with only small pockets of 21st century skills delivery. This is especially the case since, frankly, high quality teaching has not always been – and still is not as valued. Many Universities prioritize tenure based on a professor’s scholarship, publication, and research, not on their students’ skills and knowledge acquisition and engagement. For an educator, it takes extra work, personal motivation and a deliberate focus on teaching and not just research to excel at teaching.

Great teachers such as Prof Roger Boesche at Occidental whom President Obama credits with inspiring him to go into politics are naturally great – and stand out. But how do you standardize that greatness and inspiration?

And how do educators ensure that they’re not just equipping students with rote answers to tests at that moment, but with skills and knowledge for life – these 21st century skills.

This past fall, my husband, Eric – who is here with me now, and I brought a delegation of business, academic, philanthropic, and government leaders led by our Governor from Washington state to Switzerland. During the visit, we met with President Guzzella here at ETH. One point that he raised that is particularly relevant as we think about the need to have a focus on 21st century skills at the University level is that, in light of the incredible pace of technology and the vitality of Moore’s law I mentioned before – we increasingly need to **know less and think more**. We can use technology to access the firehose of data and information, but we must have skills like critical thinking, communications, citizenship and collaboration to parse, interpret, verify and use it!

Tonight’s celebration demonstrates that ETH understands that the success of a University depends on producing graduates who are well equipped for the 21st and 22nd century. It recognizes educators who turn the old frontal model of teaching on its head – a bit like a flipped classroom, perhaps – because the best way to deliver those 21st century skills, again, is in more of a project based and interactive fashion.

Some think that there’s a challenge in balancing great research with great teaching. But the culture @ ETH is strong for both. Because of this ethos, ETH is becoming a global leader in demonstrating that it can be AND, not OR. Just like ETH focuses on innovation in so many areas ranging from environmental science to robotics to biochemistry, so too it is focusing on innovation in teaching.

This KITE award and the spotlight on teaching innovation does a great job highlighting HOW we improve the learning process so that WHAT students learn has more value and more fidelity. And with the focus on 21st century skills you are equipping your students to keep learning, even when they leave these hallowed halls. For the engineers in the room, the technical version of what I just said is that you are figuring out how to increase throughput and efficiency and decrease the friction and transmission decay.

The educators and projects being recognized here today are the epitome of delivering 21st century skills.

And while each of these finalists touches on most of those skills I enumerated before, here are some examples of how they deliver specific skills:

Students participating in ETH Week and who apply Design Thinking learn what it's like to collaborate in teams and then, collectively, communicate their ideas to a broader audience – doing extensive problem solving and creative and critical thinking throughout.

The team from the Center for Active Learning who helps professors transform their classrooms ensures that the students come out of those classes with computer/digital literacy, critical thinking, and profound problem-solving skills.

By working out how companies might integrate sustainability into their product and governance considerations, the Corporate Sustainability effort ensures students are learning citizenship, problem solving, and communications. And, I'll tell you, between our time here in Switzerland and our time back in the States, this ability to help companies do well economically AND do good for the Earth is in high demand right now!

And for the Personal Electronic Learning Environment team, you have struck exactly the right note needed now by equipping students from many different disciplines with those computer and digital literacy skills. These days, leaving school without a semblance of programming skills is like skiing in Zermatt without a jacket.

It is so exciting to hear and see what you all are doing to ensure that ETH grads are so well prepared for the future no matter what it may hold.

And while there were 4 finalists for this year's award, it's clear that all of the nominees are embracing, innovating, and deploying efforts that deliver 21st century skills and especially critical thinking!

What your students will find when they emerge from this prestigious institution is that the days of having a silo'd position and life are done. People don't have the same career for 40 years like they used to. Non-linear careers like mine where I went from engineer to software product manager to social innovation entrepreneur to community organizer to Ambassador are becoming more commonplace – well, maybe not the Ambassador part – but you know what I mean. Our world is evolving faster than we ever could have imagined. It is becoming essential, not just a nice to have, to equip our young people with these 21st – and even 22nd century skills.

Now close your eyes one more time.

And picture one of your students – perhaps the one who recently took extra time to ask you a question or with whom you're working closely on a project. And now recognize that, at some point in the future, you may have the opportunity to be the favorite teacher that they envision when they do this exercise and that they credit with their growth and success.

<Open your eyes>

As a Farmer named Nelson Henderson once said:

“The true meaning of life is to plant trees, under whose shade you do not expect to sit.”

Dearest professors, teachers and instructors here at ETH:

Every time you light up a student, especially with critical thinking and 21st century skills, please know that you are not just planting a tree, know that you are planting a whole forest of trees that will benefit our world for generations to come!

Congratulations to the finalists and to all of you – and thank you for your incredible contribution to the future!