GEIS 2015

Transcript of dinner speech

19 October 2015, Helsinki, Andreas Schleicher

Good evening, I know I am holding up your dinner, but allow me to share a couple of thoughts on this summit.

We saw in our discussions this afternoon that people have quite different views on the role that digital technology can and should play in education. But we just can't ignore how digital tools have so fundamentally transformed the world around schools. And that has huge implications on the type of knowledge and skills that make people successful these days.

Together with Sweden, Finland tops the list of countries with the largest share of technologically literate adults, when me measured these with our Survey of Adult Skills. But even in Finland we are just seeing 40% of the work force equipped with the digital problem-solving skills that you need to navigate the flat world. So when you leave this beautiful restaurant tonight, imagine that every second person you are going to meet on the street of this high-tech country isn't ready. And this is not just about older adults not catching up with technology. In countries like the UK or the US our data show the young entering the labour-market not that much better skilled than those leaving for retirement.

What is clear is that students unable to navigate through our complex digital landscape are no longer able to participate in our economic, social and cultural life.

In the past, education was about teaching people something. Now, it's about helping students develop a reliable compass and the navigation skills to find their own way through an increasingly uncertain, volatile and ambiguous world. These days, we no longer know exactly how things will unfold, often we are surprised and need to learn from the extraordinary, and sometimes we make mistakes along the way. And it will often be the mistakes and failures, when properly understood, that create the context for learning and growth.

A generation ago, teachers could expect that what they taught would last for a lifetime of their students. Today, schools need to prepare students for more rapid economic and social change than ever before, for jobs that have not yet been created, to use technologies that have not yet been invented, and to solve social problems that we do not yet know will arise.

So how do we foster motivated, engaged learners who can conquer the unforeseen challenges of tomorrow, not to speak of those of today? Your dilemma as ministers and innovation leaders is that the kind of skills that are easiest to teach and easiest to test are also the skills that are easiest to digitise, automate and outsource. Half of the jobs that we know in OECD countries can already be overtaken by digital technology. And it's not just about robots taking over whole factories. In a presentation in 2006 I used the example of a taxi driver as a low-skilled job that was hard to automate. Well, today the Google car has driven a million kilometres through dense traffic without an accident and just occasional human intervention.

There is no question that state-of-the-art knowledge in a discipline will always remain important. Innovative or creative people generally have specialised skills in a field of knowledge or a practice. And as much as the "learning to learn" skills that people talked about this afternoon are important, we always learn by learning something. But educational success is no longer mainly about reproducing content knowledge, but about extrapolating from what we know and applying that knowledge in novel situations.

Put simply, the world no longer rewards people just for what they know – Google knows everything – but for what they can do with what they know. Because that's the main differentiator today, education is becoming more about ways of thinking, involving creativity, critical thinking, problem solving and decision making; about ways of working, including communication and collaboration; about tools for working, and that includes not just the capacity to use technology but to recognise its potential for new ways of working; and, last but not least, it's about the social and emotional skills that help people live and work together. Think about courage, integrity, curiosity, leadership, resilience or empathy.

Conventionally our approach to schooling is to break problems down into manageable bits and pieces, and then to teach students the techniques to solve them. But today we create value by synthesising the disparate bits. This is about curiosity, open-mindedness, making connections between ideas that previously seemed unrelated, which requires being familiar with and receptive to knowledge in other fields than our own. If we spend our whole life in a silo of a single discipline, we will not gain the imaginative skills to connect the dots where the next invention will come from. Our hosts here are trying to get there with Finland's new cross-disciplinary curriculum, but even that can just be the beginning.

The world is also no longer divided into specialists and generalists. Specialists are those who know a lot about very little and generalists are those who know little about a lot. What counts today are people who are able to apply depth of skill to a progressively widening scope of situations and experiences, who gain new competencies, build new relationships, and assuming new roles. They are capable not only of constantly adapting but also of constantly learning and growing, of positioning themselves and repositioning themselves in a fast changing world.

Perhaps most importantly, in today's schools, students typically learn individually and at the end of the school year, we certify their individual achievements. But the more interdependent the world becomes, the more we rely on great collaborators and orchestrators who are able to join others in life, work and citizenship. Innovation, too, is now rarely the product of individuals working in isolation but an outcome of how we mobilise, share and link knowledge. That's why this year's technology-based PISA assessment measured collaborative problem-solving skills for the first time.

Some people criticise PISA for reaching beyond subject matter disciplines towards assessing social and emotional skills. But the reason for that is simply that they are no longer a nice to have but a must have for success today.

Our schools need to become much better at preparing students for a world in which most people need to collaborate with people of diverse cultural origins, and appreciate different ideas, perspectives and values; a world in which people need to decide how to trust and collaborate across such differences;

and a world in which their lives will be affected by issues that transcend national boundaries. Expressed differently, schools need to drive a shift from a world where knowledge that is stacked up somewhere depreciates rapidly in value towards a world in which the enriching power of communication and collaborative flows is increasing.

All this demands new and innovative approaches to education where technology is central. Technology can no longer be on the margins of education but needs to be central to any solution.

I know teachers and school leaders are working hard to make this work. But our latest PISA results show that the reality in our schools lags considerably behind the promise of technology. In 2012, virtually all 15-year-old students in OECD countries had a computer at home, but less than three quarters used a computer or tablet at school, and in some countries it was fewer than half. In fact, the first thing we usually tell students entering their school is to turn off anything that has an on-or-off switch.

But far more importantly, even where computers are used in classrooms, their impact on student learning outcomes is mixed at best. Students who use computers moderately at school tend to have somewhat better learning outcomes than students who use computers rarely. But students who use computers very frequently at school do a lot worse in most learning outcomes. Imagine that, the more intensively students use computer at school, the less digital literate they seem to be, even after accounting for social background and student demographics.

Our results also show no improvements in learning outcomes in those countries that have invested most heavily in digital technology in schools.

And perhaps the most disappointing finding is that technology seems of little help in bridging the skills divide between advantaged and disadvantaged students. Put simply, ensuring that every child attains a baseline level of proficiency in reading and math seems to do more to create equal opportunities in a digital world than subsidising access to high-tech devices and services.

What do we make out of those realities?

One interpretation is that education is a largely social enterprise and that building deep, conceptual understanding and higher-order thinking will always hinge on high-quality teacher-student interactions, to which technology not automatically adds. Another interpretation is that we simply haven't become good enough at the kind of pedagogies that make the most of technology; that adding 21st-century technologies to 20th-century teaching practices and 19th century learning environments will just dilute the effectiveness of learning.

If students use smartphones to copy and paste answers to prefabricated questions, it's not going to help them become smarter. And if we want students to become smarter than a smartphone, we need to think harder about the pedagogies we are using to teach them and about the people that we want to become teachers and how we want these people to work. Technology can amplify great teaching but great technology isn't replacing poor teaching.

The reasons why the impact of technology on education delivery remains poor, is that we tend to overestimate the digital skills of both teachers and students, that we often have naïve policy design and implementation strategies, because of a poor understanding of pedagogy, and because of the often poor quality of educational courseware. Let's be honest about this. How many of your children would choose to play a computer game that has the quality of the software that still finds its way into classrooms?

So it's clear that more of the same cannot be the answer. But it's also clear that we need to get this right if we want to provide teachers with learning environments that support 21st-century pedagogies and, most importantly, if we want to provide children with the 21st-century skills they need to succeed in tomorrow's world.

Technology is the only way to dramatically expand access to knowledge. Why should students be limited to a textbook that was printed two years ago, and maybe designed ten years ago, when they can have access to the world's best and most up-to-date textbook?

Technology also provides great platforms for collaboration in knowledge creation where teachers can share and enrich teaching materials. And indeed, if you look at the countries with the most technology-savvy students, they

typically start with connecting teachers before pushing technology into classrooms. I came back from China this afternoon. In Shanghai, they have a great digital platform where teachers can upload their lesson plans. And the more other teachers look at their lesson plans, comment on them, criticise them and improve them, the more these teachers gain in status and respect. And at the end of the school year, when teachers are evaluated, the principal will ask them not just about what they did with their students, but how they have helped transform their profession across the province. In China, teachers also very naturally engage with their parents through qq-discussion groups, which is their version of Facebook.

But we also need to become much better at using technology to support new pedagogies that focus on learners as active participants with tools for inquiry-based pedagogies and collaborative workspaces. That's something we are going to focus on that tomorrow morning. Technology is our best bet to enhance experiential learning, foster project-based and inquiry-based pedagogies, facilitate hands-on activities and cooperative learning, deliver formative real-time assessment and support learning and teaching communities. And there are plenty of good examples around, such as remote and virtual labs, highly interactive courseware that builds on state-of-the-art instructional design, sophisticated software for experimentation and simulation, social media and serious games. It's great that we have someone like Chris Dede here who has made those approaches work at scale.

And all of this is isn't just about 21st century learning. The teachers of today's "connected" learners are confronted with lots of other tough issues, from information overload to plagiarism, from protecting children from online risks like fraud, violations of privacy up to setting an appropriate media diet. We expect schools to educate our children to become critical consumers of Internet services and electronic media, to help them make informed choices. And we expect schools to raise awareness about the risks that children face on line and how to avoid them Think about online bullying. 15-percent of Estonian school children were the subject of online bullying last year. And whereas traditional bullying stops when you get home, online bullying can follow you everywhere and leave traces for the rest of your life.

To better deliver on the promises which technology holds, countries will need convincing strategies to build teachers' capacity. And policy-makers need to become better at building support for this agenda. Given the uncertainties that accompany all change, teachers will always favour the status quo. If we want to mobilise support for more technology-rich schools, we need to become better at communicating the need and building support for change. We need to invest in capacity development and change-management skills, develop sound evidence and feed this evidence back to institutions, and of course back all that up with sustainable financing.

And none of this is going to work without teachers becoming active agents for change, not just in implementing technological innovations, but in designing them too.

Last but not least, we need to build a strategic framework for educational transformation rather than flooding schools with individual technological solutions. This summit is a start for this and the OECD stands ready to support and facilitate the dialogue between Ministers and the Education Industry to take this discussion forward.

Thank you very much.