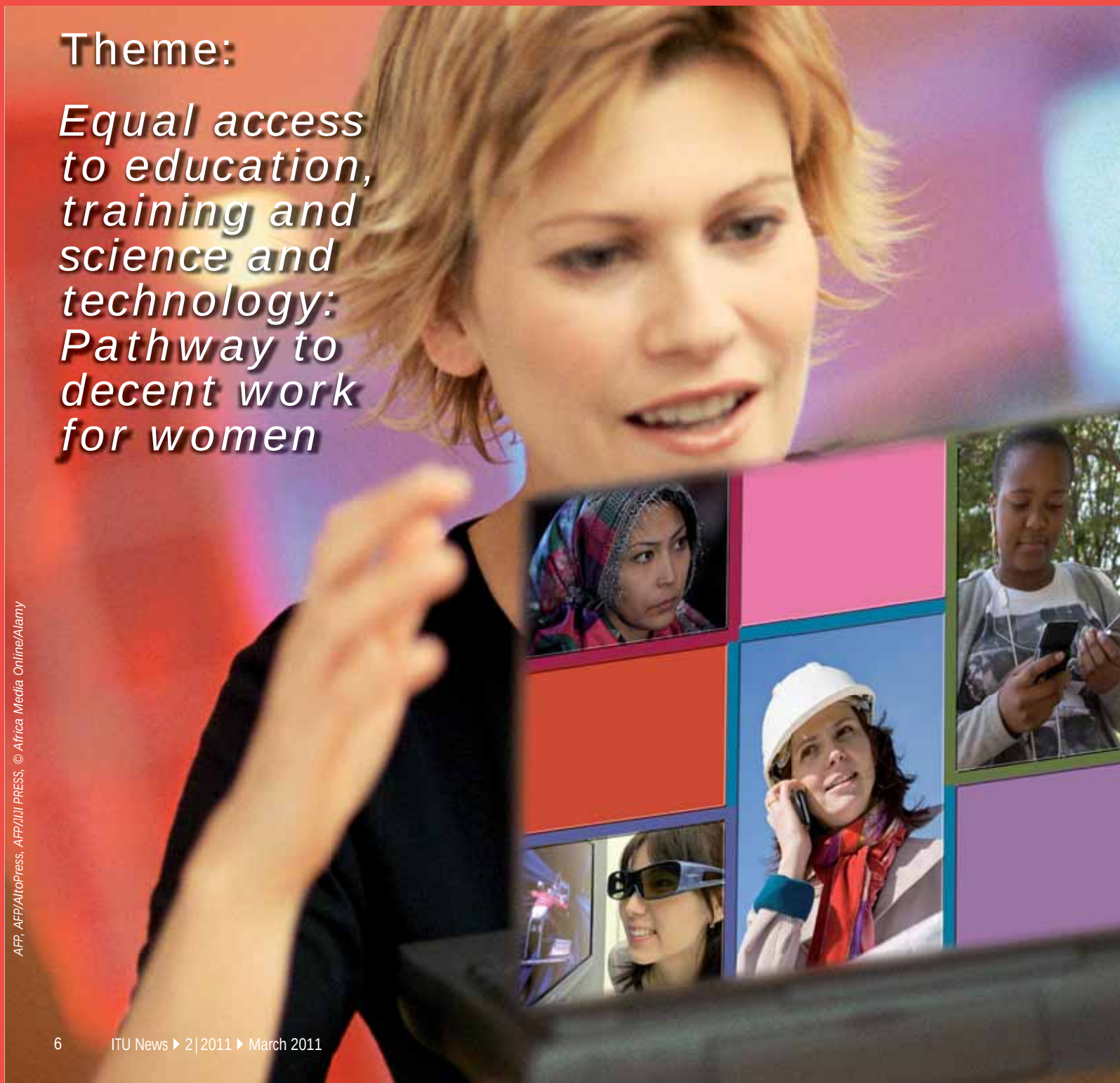
Celebrating the centenary of International Women's Day

Theme:

Equal access to education, training and science and technology: Pathway to decent work for women



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From left to right: Suvi Lindén, Finland's Minister of Communications; Doreen Bogdan-Martin, Chief of ITU's Strategic and Membership Department; and Jasna Matiæ, Serbia's Minister for Telecommunications and Information Society

High-Level Panel debate

Why are young women turning their backs on technology and how can this trend be reversed?

International Women's Day celebrated each year on 8 March marks the economic, political and social achievements of women. The theme for 2011 is "Equal access to education, training and science and technology: Pathway to decent work for women". The very first International Women's Day was held in 1911.

ITU organized a high-level debate on 10 March 2011 to celebrate the centenary. Opening the discussion, Doreen Bogdan-Martin, Chief of ITU's Strategic and Membership Department, said: "This is particularly important for me personally as a woman who works for ITU, the United Nations specialized agency for information and communication technologies (ICT), and as an individual who is passionate about seeing women achieve their full potential."

The following quote from *The Economist* — "Forget China, India and the Internet: economic growth

> *"Forget China, India and the Internet: economic growth is driven by women."*
>
> The Economist

> *"What girl wouldn't want to go into a field where there is a clear need for the skills, where the salaries are among the best in the jobs market, and where she can make a real difference in advancing social and economic development?"*

is driven by women" — deserves to be posted up above the desk of every working woman, commented Ms Bogdan-Martin. She stressed the importance of getting girls into school, and ensuring they stay there. As the United Nations Educational, Scientific and Cultural Organization (UNESCO) reports: "Educating a girl dramatically reduces the chance that her child will die before age five… And educated girls are more productive at home, better paid in the workplace, and more able to participate in social, economic and political decision-making."

ICT professionals are well paid but a worldwide shortage seems to be imminent. The European Union estimates that in 10 years time there will be a lack of some 300 000 people to fill ICT jobs in the region; globally, the projected shortfall is closer to 1.2 million. Highlighting these statistics Ms Bogdan-Martin added: "Let me ask this: What girl wouldn't want to go into a field where there is a clear need for the skills, where the salaries are among the best in the jobs market, and where she can make a real difference in advancing social and economic development?"

Ms Bogdan-Martin then led distinguished panellists from government, the private sector, academia and the media in an interactive debate entitled "Goodbye to the IT girl? Why are young women deserting technology?" In the following highlights, Ms Bogdan-Martin asks the questions.

Sharing experiences on women and technology

Minister Matiæ, as a woman who chose to study engineering, you must have some experience of attitudes to women joining a predominantly male domain. How important is support and encouragement for women joining traditionally male fields?

Jasna Matiæ: In both the construction engineering degree and MBA courses, I was among the few women chosen to be there. But my experience actually started earlier than that, in high school, when I chose maths as my major. When I was 15 years old I was in a class with two other girls and 24 boys. We three girls were the top students in the class. We dared to make maths our career path, but the girls who were not quite as good at maths as we were did not dare even to try the subject because they did not have any encouragement. We three had encouragement at home, with parents who said we could be whatever we wanted to be. Boys obviously were encouraged and supported by their families, and they pursued their dreams regardless of their talent. When I was at university studying construction engineering, one of our teachers said to the class: "Oh but the girls are only here to get married, right?" So that kind of attitude starts early on and continues all the way. I still experience it today. I know that I have to spend the first 10 minutes

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of every meeting establishing my competence and expertise. Only then can I move on to the actual topic of the meeting.

Role models are really important. When UN Women was launched in New York in February 2011, one of the ladies present, an astronaut, said that you need reality to create fantasy. Young girls need to see something in order to dream about it. If they have never seen a woman astronaut, they will never dream about becoming an astronaut. So it is important for all of us who have made careers in ICT to encourage young girls to pursue their dreams, to pursue education and to think about careers in our sector.

The ICT sector has really changed the world in the past couple of decades. It has changed the way we work, the way we learn, the way we get our health care, the way we get justice, and of course the way we entertain and communicate. There are endless opportunities for young women to pursue careers in ICT, and these are good careers. We women need to play our part to make it an easier task for them than it was for us. ■

Doreen Bogdan-Martin has been Chief of ITU's Strategic Planning and Membership Department since the beginning of 2008. She was previously the Head of the ITU/BDT's Regulatory and Market Environment Division. Before joining ITU, she was a Telecommunications Policy Specialist in the US National Telecommunication and Information Administration (NTIA). She holds a Masters degree in Communications Policy.


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Jasna Matić is Serbia's Minister for Telecommunications and Information Society. She holds an engineering degree and worked as a civil engineer before becoming a government adviser and then consultant to the World Bank in Washington. She then held several high-ranking government posts before becoming Minister for Telecommunications and Information Society in 2008.


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Victor Agnellini is Global Senior Vice-President, Transformation, at Alcatel-Lucent, where he manages the strategies and programmes that are keeping his company at the forefront of ICT evolution worldwide.


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Suvi Lindén is Finland's Minister of Communications. She has a degree in Computer Science as well as a Master of Science degree. She made headlines in 2010 when Finland became the first country in the world to make broadband access a legal right for every citizen.


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Anastasia Ailamaki is Director of the Data-Intensive Applications and Systems Laboratory, School of Computer and Communication Sciences at the Ecole Polytechnique Fédérale de Lausanne (EPFL), and Associate Professor, Carnegie Mellon University.


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Aurora Velez is Chief Producer of Euronews's flagship educational series Learning World, a weekly programme that takes viewers around the world to look at challenges, trends and success stories in global education.


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Inal Uygur is Head of Processes and Projects at the International School of Geneva, where he teaches the theory of knowledge. He holds a BSc. in Computer Science and Engineering from Massachusetts Institute of Technology (MIT), and spent over 20 years as an ICT professional before taking up his present role.


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Alethea Lodge-Clarke is Microsoft's Programme Manager for Public-Private Partnerships and DigiGirlz, with a special focus on programmes that can empower girls and women. She was born and raised in Jamaica, and is now based in the United States.


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Gitanjali Sah is a Policy Analyst at ITU, where she specializes in implementation of ICT4D and e-governance projects. She has contributed to National and State Policy processes in India, including the draft policy on ICT in education.


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Speranza Ndege is Director of the Institute of Open, Distance and e-Learning at Kenya's Kenyatta University and was formerly Head of the African Virtual University Learning Centre. She is an ICT/e-learning specialist with a Master of Science in computer-based information systems.

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Mr Agnellini, your company is one of the biggest R&D players in the world. Are you worried about a skills shortage because girls are turning their backs on ICT studies?

Victor Agnellini: As a global company, with a presence in 130 countries, one of the challenges that we are facing in trying to increase gender equality in all the different branches within the company is that the dynamics are not the same in every country. We realize that we have to try to push harder to increase the percentage of female participation in entry-level jobs and then to nurture women in ICT careers. We have discussed this a lot within the company, and we have identified potential bottlenecks, not just at college level but also at earlier stages.

In order to help increase the opportunities for girls to engage in this domain, the Alcatel-Lucent Foundation, which I have the honour to chair, has put together a global programme. The Foundation particularly targets teenage girls; our programme will reach 13 500 young people throughout the world, and 70 per cent of them will be women. Through this programme, we would

really like to help these young people get to the point where they can engage more actively with the educational system and potentially use ICT as a way to become much more involved in society as a whole. ■

Minister Lindén, in the OECD's Programme for International Student Assessment 2010, Finland ranked in 2nd position in mathematics and 1st position in science. Finnish girls were better than boys in science, and in maths girls and boys did equally well. But fewer than 25 per cent of students studying technology at university level are women. Why?

Suvi Lindén: In Finland we are facing the same challenges as everywhere else in attracting girls to ICT careers. Studies show that there are not enough role models. Girls think of technology as being too nerdy and as not being trendy. Finland is a very ICT-driven country because of Nokia. But even though girls study mathematics and sciences in high school and are very good at those subjects, they still want to be doctors or nurses or teachers. They don't want to go into engineering.

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We are working hard in Finland to make engineering more appealing to women. In fact, we have too many engineers in Finland, and too many engineering students, so finding an ICT job is not easy. But the real problem is one of perception.

Through the digital revolution in Finland we are already talking about the ubiquitous information society, where devices communicate, not just people. You have technology everywhere. I think that this opens up big possibilities for women. When women see that ICT permeates every aspect of life — in elderly care, in nursing, in teaching — it will make the field much more interesting. For example, women will be able to combine elderly care and engineering, because a lot of devices need to be invented to help in caring for the elderly.

I think that women have a great capacity to create user-friendly interfaces, to make things that are simple for people to use. I've always said that, in Finland, because we have so many engineers and all the devices are made by them and for them, there is a lack of user-friendly applications and user-friendly devices. I think that women can make a difference, so I am quite optimistic that — hopefully in the near future — there will be more and more women in engineering. One of the most important things is to make girls realize that by combining ICT with the caring professions — the careers that usually attract women — they will be able to make a difference. ■

Ms Ailamaki, why did you choose computer science studies, and what was it like being one of just nine girls in a class of more than 150?

Anastasia Ailamaki: I wanted to become a chemical engineer because I liked chemistry. I had never seen a computer before the age of 17, when I went to university. When I was completing the forms and ranking my choices of

university, someone said to me "Do you know that there is a new computer engineering school in Greece? But don't bother to apply because it's too selective". Now my problem is that when someone tells me not to do something (even my parents) that is exactly what I choose to do. So I put computer engineering as my first choice, and I got into the school.

Computer science was far removed from my everyday life, unlike nowadays when ICT products are in everybody's home and everybody's pocket. Going into computer science was a revelation. I really fell in love with computer engineering. Yes, there were 9 women and 149 boys in my class, but it was just a fact of life. We didn't think about it a lot — we just concentrated on what we were doing.

Now if we fast forward to today, we see that the percentage of women enrolling in EPFL has started dropping, after a peak around 2003/2004. Young people are reluctant to go into computer science for two reasons. One is that girls have an image of the computer scientist as an unwashed boy in front of a computer, fascinated by programming and oblivious to the empty pizza boxes around him. The other is that when they see the product — the iPhone, the iPad, the computer itself — they don't see the science behind it. They need to see the engineering element to understand that they could do this. But in today's devices and services, this element is hidden.

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Young people want to make a difference, but they need to be educated to understand why and how the science behind computers can become an enabler to solve very important problems in the world in such areas as medicine, life sciences and astronomy. For example, computer science and technology are enabling the life sciences to advance. Education is the key; if education changes with the times, more girls will go into computer science. ■

In Norway, the Renate Centre in Trondheim uses a variety of creative approaches in recruiting girls to study sciences and technology, including a catwalk show of women wearing scientists' work wear and graduate students talking to high school girls, who are yet to make their career choices — according to Euronews's flagship education series *Learning World*.

Ms Velez, do you think European governments need to follow in Norway's footsteps and be more proactive and innovative when it comes to girls' education? In researching your stories, have you ever seen examples of governments and the private sector teaming up in this way?

Aurora Velez: While I cannot speak for governments, I would like to stress that education is a duty of government. In Learning World, we have singled out the northern European countries in terms of their approach, particularly the contact with students. Finland, Sweden and Denmark stand out as models

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for education. And you have just watched a video on Norway.

The European Union does not have a Union-wide approach to education. There are regional programmes such as Leonardo and Erasmus, but education is primarily a national government responsibility.

Learning World is a global weekly show, with 300 million viewers in 151 countries. We try to showcase good examples in the world of education. Obviously we mention private initiatives as well as public education. We recently made a film in Kenya, where a private school partnered with local authorities to give a chance to girls — boys too but mostly girls — who need a bit of help to give them the opportunity to develop their knowledge and to be in a position to achieve their own aims.

My message is that let's look to northern Europe where good examples are being set. At the same time, let's look outside Europe to the South to see how they are dealing with the same problems. ■

Mr Uygur, how much influence do you think teachers have over students' career choices? And do you think teachers are deliberately putting girls off science and technology, or is it more insidious than that?

Inal Uygur: If we put ourselves in the position of the student, which we all were at some point, we see that parents and teachers have enormous influence. When we were children, we assumed that parents provided love and teachers held the authority on knowledge.

I am aware, as a teacher, that I have a huge influence on my students. As a child, you don't have much to build your dreams on except the dreams of your parents, your teachers and your peers, but their own thinking colours their dreams.

So when a young person is asked "what are you going to do in life?" That is a very difficult question to

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answer. Even parents and teachers don't know what the world is going to look like in five years time. Do teachers have influence on choices? Yes. Do they do it on purpose? It might be more subtle than that.

I have colleagues who discourage female students from studying maths and sciences. Most of them do it sincerely believing that they are trying to be helpful, because they think girls aren't good at these subjects. Now why do they think that? It is a generational thing. When these teachers were growing up, that is what was programmed into them. And they are passing it on. I think that this explains part of the problem.

Today, the world is moving so fast that there is a change from generation to generation. This creates a problem upstream in schools because teachers may transmit something about the world they grew up in, which isn't the world that their students are growing up in. And although teachers think they are helping, they may unconsciously be part of the problem. ■

Ms Lodge-Clarke, what is Microsoft's DigiGirlz programme and how does it work?

Alethea Lodge-Clarke: DigiGirlz started about 10 years ago. It was the brainchild of a few female developers at the company, who saw that there was a shortage of girls interested in computer sciences and ICT overall. If you look at statistics for advanced placement exams in the United States, in 2008 17 per cent of test takers at senior high school for maths and computer science were girls. In 1985, 37 per cent of all computer science graduates were women. In 2008, that number was 18 per cent. This downhill trend is a big concern because computers and information technology are the foundation of everything we do today. We have heard a lot about the "leaky pipeline" — girls studying science at school but moving into other areas at university. We have also heard about all kinds of pipelines. But the truth of it all is that we needed to do something to get more girls into the pipeline. DigiGirlz is a one-day event held at multiple Microsoft locations worldwide and there is also a DigiGirlz Boot Camp, a two-day event. The aim is to dispel the myths about maths and science, and get girls' confidence levels up. We share with them what it is like to work in the high-tech industry, and they get the chance to meet one on one with employees at Microsoft. They see demonstrations of products and how things work. They get behind the scenes and see how maths and science learned in the classroom apply to real life. ■

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Ms Sah, what makes girls in South Asia and India study science and engineering?

Gitanjali Sah: Women in general are under-represented in science and technology, although South Asia and India have done better comparatively. In traditional societies like ours, we are expected to be super mums, super cooks, super wives and super employees. It is not easy to juggle it all.

Traditionally, being a doctor or an engineer has been a coveted profession in India. Our parents have often motivated us — even at times pressurized us — to take technology courses. This might be one reason why a lot of girls and boys study technology in India. It not only lands you with a prestigious and lucrative job, but it also brings you social standing. Studying technology and engineering can even increase a woman's prospects of a good marriage. You can often read in the matchmaking sections of newspapers and websites that a man is "seeking an engineer bride". Being an engineer could get you a good husband. So in India and in South Asia, the willingness of women to become engineers could be more of a cultural and social thing than to do with other aspects. ■

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Dr Ndege, you met with resistance from male colleagues when you opted to further your studies in the ICT field. What were their objections to a woman moving into this field?

Sperenza Ndege: In Africa, we have been left behind for far too long. We want to catch up with the rest of the world, and it is high time for us to embrace technology, despite our problems of ICT infrastructure. The African Virtual University (AVU) was established as a project of the World Bank, and officially launched in 1997. AVU was originally designed as a technology-based distance education network to bridge the digital divide in Africa, especially by building capabilities in science and engineering. Kenyatta University was a participating

institution in this project from its inception.

It was around 1999 when I did my first computer-literacy courses. Having a background in social sciences and literature, I decided to try computer literacy. Then I decided to venture into computer technology, and I did an IT course in Belgium for four months.

When I went back to my country, I was asked to help create a website for the university. At that time, websites were something completely new in the country and not many people knew about website technology. People asked why someone like me from the social sciences, with a Masters in literature and a PhD in linguistics, was helping to do a website for the university. It was a big deal.

Then I realized that I was not welcome in the university ICT department. There were no women in that department. One of the men told me that I was not welcome there because I was a woman and because I had only done a certificate course, rather than the B.Sc. degree course offered by AVU. The subtext was that one of the men in the ICT department should have got the job of helping to create the university website.

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I would go to meetings with the men and they would tell me "You are not ICT-compliant, you are not supposed to come to meetings where technology is discussed". I was very nervous in those meetings. So one day I decided enough is enough! I enrolled for a Masters course in computer-based learning systems with a university in the United Kingdom. I put in some of my savings and my husband added some of his to pay my fees. It cost about USD 15 000 for me to do the seven-month M.Sc. course in information systems. That qualification made me ICT-compliant, and better accepted by my male colleagues.

I am particularly interested in the benefits that e-teaching can offer a country like mine. I am very happy that the Government of Kenya has now introduced e-learning in secondary schools, and included computer studies in the curriculum. It is not yet compulsory, but I think that will be the next step.

Every first-year university student must do computer literacy studies. That is where we are now, and I am so happy to hear students saying "I am going to be an expert in ICT". The girls now coming up through the Kenyan educational system are ready to embrace technological subjects. ■