Comment

Teacher Christine Swan on encouraging young women into Computing

To mark International Women's Day, OCR spoke to Christine Swan (pictured second from left), Computing at School Master Teacher and Specialist Leader in Education at The Stourport High School & VIth Form College, about her experiences of encouraging young women to study Computing and closing the computer science gender gap.

How do you think we can encourage young women to consider studying Computing/a career in Computing?

A key motivator for young women is the knowledge that studying Computing will assist them in pursuing their career. They understand that Computing can give them a competitive edge and that success in it demonstrates highly developed technical and problem-solving skills. Encouraging friendship groups to "sign up together" is a great idea, as is permitting them to sit and work together. Parents also have a significant influence. Even if they are not employed in a technical field, in my experience, parents understand the value of Computing in developing transferable skills and knowledge to equip them in the 21st century.

Teachers must also work hard to ensure that the social culture of their school, and their teaching, seeks to undo the influence of stereotypes that divide the curriculum into "boys'" and girls'" subjects. Much of this pressure comes from within the student population itself but we need to challenge preconceptions and reinforce positive stereotypes.

Developing skills in coding and systems development can provide an income for young women but also can provide flexible work for different phases of a woman's life. There is immense satisfaction in solving technical problems – a fact that is often overlooked.

What is already being done to close the computer science gender cap – what do you think is working well?

In our school, we have a number of technical female role models. We also have a very active STEM programme manager who has organised a number of events that would appeal especially to female students. Classroom activities should appeal equally to girls and boys and avoid gender bias. Providing a range of activities is often successful such a programming repeating patterns, wearable computers, computer generated music and the perennial favourite of games programming. Creative thinking appeals to both girls and boys. This can be a great motivator in learning to code. We must be mindful to not perpetuate stereotypes by adopting a "pink it and shrink it" approach. In my experience, some approaches that were successful in the past now appear patronising.

As many young women have high career aspirations, it is important that they see that Computing is a valued discipline. Some students that I have taught worry about their ability to do well in GCSE Computing. I do believe that female students are very good at forming support networks and that encouraging these is definitely a recipe for success.

Forging links across the curriculum is also a mechanism for engaging some girls who might not even have considered studying Computing, for example, a code breaking activity involving mathematics, as previously mentioned, a computer generated art show, music composition, science revision apps…the list is as long as imagination will permit.

However, we still have a long way to go. It certainly is not possible to convince all female students to study Computing. It is interesting to note that ICT courses tend to attract higher numbers of girls than Computing. I believe that the creative element is part of this. Even if the uptake for Computing is not yet 50%, if we offer equality of opportunity, we are certainly half way there.

Would you recommend a career in Computing?

Definitely! I have been very fortunate in my career. I initially taught programming alongside science as long ago as 1984. Since then, I was fortunate to be able to train as a Cisco Networking Academy Instructor and later a wireless, telephony and security specialist. At the time when I qualified, I was one of only 12 women instructors in the UK. The number of female technical leads in large organisations is now significant. There are also large numbers of female entrepreneurs who head up innovative tech businesses. However, from a personal perspective, I enjoy the challenge of solving problems. I was probably raised into it as my mum operated radar and predictor equipment during WWII and dad was very proficient at keeping our elderly car on the road and fixing televisions. There was usually something that needed fixing in our home! I started out teaching science but I believe it is my methodical approach to solving problems, alongside a desire to understand how everything works, that drove me towards Computing. I went back to university in my 30s to study Computing when my children were small. This was an immense revelation that I could be "really good" at a subject. I have never stopped learning. As computer technology has evolved, we need to strive to keep up.

Women in working in technology during WWII. On the left is Hilda Taylor, Christine's Mum.

Women are innovators, we are tenacious and determined. We support each other and are methodical in our approach. We are empathetic with the needs of end users and understand how technology can be put to use for our benefit. We must encourage self-belief, confidence and drive. I am very privileged to have played a small part in engaging more girls in this fascinating subject and hopefully onto successful careers.

Christine teaches OCR's Computing GCSE and is one of the authors and presenters of the first Computing MOOC for schools – www.cambridgegcseComputing.org. You can follow her on Twitter: @chris_swan