

## **Education and the future of work**

Claudia Costin

Humanity has been facing, in recent years, many threats such as growing inequality, populism or ageing societies and the narrowing of the demographic bonus. But an additional one has been consistently present in the headlines, perhaps as frequently as populism and its responses to the so-called migrant crises: the extinction of job posts by automation and robotization in a phenomenon nicknamed The Future of Work.

Don't get me wrong, I don't think that the closure of positions in some companies or the reshoring of others (since it became cheaper with automation to produce goods back in the developed world) will have the cataclysmic consequences that were foreseen by Osborn and Frey (2013). Many job posts might get created by the advances in artificial intelligence. The problem is that they won't employ the same people that will be out of work, since the skills demanded by these new positions will be completely different.

It is, after all, not just drivers that are now facing, in the near future, the chances of losing their work, due to the prospect of having semi-autonomous cars, buses and trucks riding on their own in roads all over in the developed world. Lawyers are already in smaller numbers, since part of the work that was till recently done by novice professionals, has been successfully transferred to software. Journalists have also seen their numbers shrink due to narrative algorithms, where you might just insert facts and dates, which demands lower skilled workers at equally lower wages, and simple news are readily prepared. What will come next? Certainly, more waves of job extinctions, as machines learn to do even more sophisticated tasks.

In this context, it is extremely important to think about how to prepare the workforce of the future for this new reality, where not only new professions might emerge, but the old ones (or at least job posts in them) might be extinguished in successive waves. This means that it is a matter of rethinking curricula in K-12, TVET and Higher Education, but also of constant skilling, reskilling and upskilling of the workforce.

In times of machine-learning and algorithms that substitute intellectual work, it is urgent to define exactly what needs to change in the education and training that is offered to the present generation of learners and to the workforce of tomorrow.

### **SKILLS TO BE DEVELOPED TO PREPARE FOR THE FUTURE**

Joseph Aoun, the president of Northeastern University, in his interesting book *Robot-Proof: Higher Education in the Age of Artificial Intelligence* (2017) developed what he called a "learning model for the future", which includes the literacies that will be needed, such as technological literacy, or knowledge of mathematics, coding and basic engineering principles, data literacy, or being able to understand and utilize Big Data through analysis and Human Literacy, which equips us for the social milieu, giving us the power to communicate, engage with others and assess our "human capacity for grace and beauty". He adds to this four cognitive competencies that might serve the students in the digital economy: critical thinking, systems thinking entrepreneurship – that will help to create new jobs, as the old ones are filled by machines- and cultural agility, which is the capacity to not only understand the complexities of

different values and attitudes of countries and local contexts, but to be able to show empathy and discretion when dealing with people from all over the world.

But even before Higher Education, competences might be taught and learned so as to prepare us for the future. These do not collide with the basic literacies that schools develop today, but complement them in important ways and demand a change in the way we teach.

The competences and attitudes include as a pre-requisite curiosity, creativity and imagination, qualities that make us humans and able to compete favorably with machines. To foster these abilities, teaching has to change in a substantive way, after all, it is not through rote learning that we become creative thinkers or develop the curiosity needed for deep learning.

But they include as well collaborative problem solving, which demands not only the ability to incorporate other people's ideas, but also the preparedness and intellectual leadership to push for our own contributions. Another set of competences that can be learned at school is socio and emotional skills, specially perseverance, resilience, empathy and self-efficacy. These latter were certainly needed for the traditional education as well, but they have become increasingly important in a context of rapid job posts extinction.

In a recent paper, the OECD (2018) has added an important attitude and competence that should be developed in different levels of education: student agency. It refers to the perception that a student should have that she is responsible for her own learning and that includes a commitment to building her own future. This certainly addresses the need for developing a learning to learn strategy, but also means an engagement to her community and to our shared human condition, that is best captured in a Global Citizenship rubric.

At the end of the day, children and adolescents will be the next generation to try to build a better world, facing a situation where populism is growing and work as we know it is being threatened in a growing scale. It is better to have them prepared to do it in a way where we, the generation that is presently going to fix the problems, might eventually have failed.

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Frey, C. B. and Osborne, M. (2013)- The future of employment: How susceptible are jobs to computerization- Oxford Martin Programme on the Impacts of Future Technology

Aoun, J. (2017) – Robot-Proof: Higher Education in the age of Artificial Intelligence, The MIT Press, Cambridge

OECD Education (2018) – OECD Education 2030-working paper