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Miss Rona's teaching the 4IR lessons

Colleen Millar 2 Aug 2020



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If there is one lesson the coronavirus pandemic has taught us, it's the need for speed. Many sectors have had to make quick decisions about fully embracing the fourth industrial revolution, especially the education system.

But what makes one organisation or individual adapt quicker than another? One of the many future-focused education skills gaining momentum in higher learning institutes is critical thinking. Defined as a metacognitive process, consisting of skills and dispositions, that, when applied through purposeful, self-regulatory, reflective judgment, increase the chances of producing a logical solution to a problem or a valid conclusion to an argument.

With the world changing at such a rapid pace, it's essential that future-focused skills like this must be taught to children in primary and secondary schools to prepare them for a world in the post-digital age.

According to a McKinsey report, by 2030, 75-million to 375-million workers (3% to 14% of the global workforce) will need to switch occupational categories not just once, but several times during their lifetime to evolve alongside increasingly capable machines. Artificial intelligence, machine learning, automation and robotics is said to make this next shift into the post-digital age as significant as the mechanisation of agriculture and manufacturing experienced in prior generations. Covid-19 has helped speed up the process.

Although most tech-savvy adults understand the urgent need to redesign education, there are still far too many varying schools of thought about the appropriate use of technology in school.

With no real consensus or guidance many parents opt for a school environment they are familiar with. This is often more traditional than it is tech-savvy.

It is impossible to predict the future, but one only needs to look around to see how quickly the world is changing. Yet schools continue to teach the same subjects in much the same way as they did in the 1950s.

Incorporating technology isn't about offering computer science as an extramural activity or teaching children how to use a digital device. It's about teaching the skills so they can create and further develop technologies in fields such as medicine, astronomy, environmental science, transportation, communication, computing, and engineering. Forget the microchip, it's time to think atomic transistors, quantum electrodynamics and nanotechnology.

Subject matter needs to include problem-solving, creative thinking, critical thinking, digital skills and collaboration. Some of the skills taught today like handwriting could become obsolete by 2030, complex arithmetic is already no longer done by hand and the internet has replaced the need to memorise many basic facts.

If 14% of the world's jobs won't exist by the time a grade 4 learner graduates from high school, why aren't more parents and teachers clamouring to redesign our education system? Despite obvious difficulties such as the high cost of data, device theft and a shortage of qualified teachers, there has for far too long been a strong resistance against technology, not only from parents but, it seems, also from teachers.

So where does the problem really lie? Children currently attending primary and high school are part of Generation Z (1997 to 2009) and Generation Alpha (2010 to 2025). Their parents and teachers fall mostly into Generation X (1965 to 1979). Generation Xers are known to be the pioneers of parenting and teaching in the digital age. They are the last generation to remember life before computers and are first of the truly high-tech mentors. They also learned parenting models from their Baby Boomer parents that no longer apply.

Thanks to Covid-19, they've had to put aside their fears, scepticism and confusion about the new world their children are growing up in, ignore the alarmist headlines linking technology to all sorts of psychological and social disorders and dive straight in to becoming digital experts, like it or not. But the resistance is still there.

I am often asked what would happen to the fundamentals of learning if a child were to attend an information technology-biased school. The basics are still crucial and must be included in the curriculum. Reading, writing and maths as well as social, emotional and creative skills are the basis of all education. A modern way to teach fundamentals is to include them in a blended approach to education, which incorporates technology with the more traditional means such as handwriting in the younger grades. The digital device merely becomes a tool to learn and expand upon.

In terms of creativity, this is also essential and, if introduced early on, a grade 1 learner can already create an annotated video clip to present their knowledge to the class. They make digital books with their own images, sentences and added sound to create their own published book. Apps allow their artworks to "speak", explaining the process involved in the artwork and thus elevate their learning to a new technological level.

One of the biggest realisations of modern schooling is that children learn in different ways, which must be celebrated and consciously addressed.

Put into context, to allow for the various styles of learning to take place at one time, the borders of the classroom need to be redefined, and here I refer to the physical as well as the virtual. This better allows for 21st century skills — such as collaboration, communication, negotiation, critical thinking, creativity and problem solving — to be taught.

Technology allows children to learn at their own pace with greater differentiated instruction and is therefore more inclusive. Technology is a tool that is invaluable in fostering a personalised, flexible and relevant learning environment. Teachers and learners must collaborate. The edumentor should be a guide or facilitator, encouraging learners to question, challenge and critically evaluate assumptions and information.

By instilling a lifelong love of learning, it will also prepare children for a future where constant upskilling is necessary if they are to adapt and develop in an ever-changing world.

It is incumbent upon schools to prepare children for a new era of innovation in which different technologies, such as genomics, materials science and robotics, rise to the fore. And it's not just about coding. It is also about computational thinking, interface design, data analysis, machine learning, cybersecurity, networking and robotics. Covid-19 is an opportunity to redesign our education system or be left behind.

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