Education in the Fourth Industrial Revolution

With a report by technology company, Dell estimating that 85 per cent of jobs that will exist in 2030 haven’t yet been invented, today’s school leavers are facing a future in an uncertain job market. Find out how schools are helping students to develop skills that will make them work-ready.

The following article is from Relocate Global's Guide to International Education & Schools 2018/19 which is packed with expert tips and information for those relocating and the professionals supporting them. For co-branded or bespoke editions for your employees, contact Fiona Murchie on +44 (0)1892 891334 or
Many experts believe that we are now in the early stages of the Fourth Industrial Revolution, an era combining digital, physical and biological systems in a way never seen before. Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI) and robotics are changing the way that we live and work and the rapid pace of change is disrupting almost every industry in every country. Whilst technological advancements are undoubtedly increasing productivity, concerns over job losses due to automation are rife. However, for school leavers equipped with the correct skills the opportunities appear endless, but the challenge for schools is how to prepare them well.

According to a 2018 report by The Economist: Intelligence Unit, very few countries have begun to address the impact of automation through educational policy. “Intelligent automation is expected to boost the importance of both education related to STEM (science, technology, engineering and mathematics) and of so-called soft skills, which allow workers to trade on their uniquely human capabilities,” explains the report, The Automation Readiness Index: Who is ready for the coming wave of automation? “However, in all but the highest-scoring countries, little has been done to prepare future workers through school curricula or, just as importantly, teacher training. At the same time, some experts warn that a focus on soft skills would be a distraction in countries where basic education is still not up to scratch.”
What are the skills that employers seek?

Speaking at the 2018 Global Education and Skills Forum (GESF) in Dubai, Dr Reuben Abraham, CEO of Think-Tank the IDFC Institute, said, “We have always had a fear of new technology, even as far back as the industrial revolution, but those fears have been largely unfounded, so why is it different now? Well, it’s the speed in which technology has come to the fore. The risk factor we are dealing with is on a grand economic; political and social level.” Klaus Schwab, founder and executive chairman of the World Economic Forum (WEF) and author of The Fourth Industrial Revolution believes that the pace of change is creating opportunities like never seen before. “The possibilities of billions of people connected by mobile devices, with unprecedented processing power, storage capacity, and access to knowledge, are unlimited. And these possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.” Interestingly, amidst this high-tech landscape with automation replacing low-skilled jobs, it is the demand for human skills that is outstripping supply as revealed in a WEF report,
The Future of Jobs. The report surveyed CEOs across nine industries in 15 of the world’s largest economies to discover how technological advancements are likely to change the job market. It wasn’t STEM and digital skills that the executives desired. Instead the premium was placed on creativity-based skills such as critical thinking and collaboration. It seems that technological advances are making human skills more important than ever. “In the world of work, high value is given to the non-cognitive, character skills that a person has,” explains Suzanne Lindley, secondary assistant principal of Bangkok Patana School, the oldest British International School in Thailand. “With the knowledge that Artificial Intelligence is fast-developing, students will increasingly need to demonstrate the skills that robots do not have.”

Developing skills

So, how are schools preparing students for a future in which the sands are constantly shifting? Whilst it has been widely publicised that employers are seeking skills that school-leavers and graduates are often lacking (the Chartered Management Institute reports that 85 per cent of business managers believe that work experience should be embedded into courses to help develop skills and make students more employable), the mind-set that students develop at International Schools is likely to place them at a distinct advantage. Our shrinking world and global connectivity means that individuals who can work across cultures and disciplines will be poised to take advantage of the opportunities.
International mindedness

According to Mark London, head of marketing at ACS International Schools, a group of four private schools – three in London and one in Qatar – an international school will teach different subjects in an international context, according to the nationalities of class members. “For example, educators won’t teach history from the perspective of one country but use examples of historical themes and change from across the world. Students develop a global mind-set and learn about many different cultures.” It is this global mind-set or ‘international mindedness’ that will give international school pupils the edge in applying for jobs in the future workplace. “We recognise that international pupils today need to be able to find what ‘home’ means to them and through our unique blend of Thai and British humanities we support children to come to their own conclusions about this,” says Matthew Woodhead, head of Pre-Prep at Brighton College Bangkok, a sister school to Brighton College, one of the UK’s top independent schools. “Pupils with this grounding are ideally suited to apply this to any global situation.” The importance of global mindedness has become such a focus in recent years that it is being incorporated into the OECD’s 2018 Programme for International Student Assessment.
The triennial international survey aims to evaluate education systems worldwide by testing the knowledge and skills of 15-year-olds in over 70 countries. This year a new ‘assessment of global competence’ has been added to the test. The OECD says that this will enable them to “report on how well students are prepared to live and succeed in today’s global economy and multicultural societies.” They highlight four key traits of globally competent students:

1. They investigate the world beyond their immediate environment by examining issues of local, global and cultural significance
2. They recognise, understand and appreciate the perspectives and world views of others
3. They communicate ideas effectively with diverse audiences by engaging in open, appropriate and effective interactions across cultures
4. They take action for collective well-being and sustainable development both locally and globally

According to the OECD, the global competence test will require students to answer questions about extracts from newspapers or short stories to assess whether they can understand the information and the perspectives of the people involved. For relocating families, adapting to new cultures and adjusting to new experiences is part and parcel of the lifestyle. Children attending international schools mix with children from many different nationalities and learn to work with peers who are different to them. What schools teaching international students have in common is a level of adaptability and flexibility – skills that will become vital in the complex times ahead. “One of the most effective strategies to plant the seeds of a global mind within students is to provide them with different cultural encounters first-hand,” says Roel Scheepens, head of school at Strothoff International School, a private day school for students aged from 3–18 in Germany. “These experiences build real-life relationships and provide exposure to the countless components that make up a culture. When students get to know other people in their given environments, they shy away from the single story of any given culture and not only expand their
own awareness of that particular culture, but also become more conscious that there’s more to every other culture or individual than meets the eye. “This is not only a state of mind, but a skill that can be developed in children today.”

The International Baccalaureate

Choosing a curriculum which is internationally transferable is a key aspect of the globally mobile lifestyle as it enables a smooth transition from one country to the next. The International Baccalaureate (IB) was one of the first curricula to truly focus on the concept of 'international mindedness' as Courtney Knight, head of admissions at the International School of Paris, explains, “Students (and everyone in our learning community) strive to be: inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced and reflective. “These are the ten attributes of the IB profile; the backbone of the IB curriculum. This curriculum was created to develop internationally minded people who recognise a common humanity and who help to create a better world. “An example of how this looks in practice is our Intergenerational Learning Programme. Students in both primary and middle school spend time in retirement homes teaching computer skills, languages and culture to the...
residents. In return they receive language lessons, learn patience and empathy and improve their communication skills.” Praveen Muruganandan, director of admissions and advancement at the York School, the first school in Canada to become an IB Continuum School, agrees. “The IB is structured to create global learners who consider their place within their communities and also the world,” he says. “Our Junior School students, learning within the IB Programme’s Primary Years Programme (PYP), are educated with a common curricular base with 1,472 other schools in 109 countries. Some of the most important transdisciplinary themes include, ‘How the world works’, ‘Where we are in place and time’ and ‘Sharing the planet.’”

But it is not just IB schools that are helping students to become global learners. Schools and education associations around the world are seeking to develop global networks that foster cultural understanding in students. The World Leading Schools Association (WLSA) is an international network of secondary schools that aims to promote cooperation, academic exchange and culturally diverse programmes between leading secondary schools around the world. Merchiston Castle School, an independent school for boys in Edinburgh, was accepted into the association earlier this year. It is the first school in Scotland. Membership provides students with some exceptional opportunities such as attending the WLSA Student Conference – this year in South Korea – where workshops and keynote speakers help them to learn on a global scale. “In modern education it is crucial to have a global perspective, and membership of the WLSA really helps us achieve this,” explains Merchiston’s assistant head academic, Fraser Newham. “Only last week the WLSA arranged for a delegation of senior examiners from Shanghai Municipality in China to visit school as part of a research trip – it was fantastic to have the opportunity to learn more about current educational reform in one of the highest achieving educational systems in the world and discuss attitudes to attainment. “At Merchiston we have students from a diverse range of backgrounds and there is no doubt that this kind of opportunity helps us cater to their diverse needs and strengths.”
In addition to the ‘soft skills’ required by successful global leaders, for some time there has been a drive to encourage students to take science, technology, engineering and maths (STEM) subjects in order to supply the talent pipeline for the technologically-orientated careers of the future. The British International School of Chicago – part of the Nord Anglia Education group – has embraced art and design within its STEM movement as critical to successful innovation. Proponents of the STEAM (science, technology, engineering, the arts and maths) movement believe that today’s students should be encouraged to develop the “creativity and critical thinking, making and problem-solving skills needed for the entrepreneurial and innovation-driven jobs of the future.”

Director of admissions, marketing and communications, Erin Woodhams, explains, “Our school collaborates with MIT to develop our STEAM curriculum which is focused on helping our students to invent the future. Cross curricular learning and transferable skills are key to preparing students for jobs that have yet to be created.” Nord Anglia Education has over 50 schools across the globe, which means relocating students can often continue within the same education system. “Students enrolled in any of
our schools have the ability to move into another of our sister schools upon a relocation,” explains Ms Woodhams. “This means students can continue to benefit from our bespoke collaborations with institutions such as Juilliard, MIT or Unicef despite having to move to another city or country. This contributes tremendously to the continuity of a student’s education.” With schools around the world rising to the challenge of nurturing global citizens, globally mobile students will be well placed to take advantage of the opportunities that the future workplace will afford. As Klaus Schwab says, “Neither technology nor the disruption that comes with it is a force over which humans have no control. All of us are responsible for guiding its evolution, in the decisions we make on a daily basis as citizens, consumers, and investors. In the end, it all comes down to people and values. We need to shape a future that works for all of us by putting people first and empowering them.”

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