

The Future of Talent: Reflections from the World Future Society Conference

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In July 2015 Wendy McGuinness, Sun Jeong and I attended the annual conference of the World Future Society (WFS) held in San Francisco. This year's conference was titled Making the Future 2015: Envisioning and creating the conditions to drive revolutionary change and the main focus for the sessions I attended related to our Project *TalentNZ*. My particular focus was on education, as the conference provided the opportunity to further the Institute's resource and knowledge base around what people are doing internationally to grow talent.

This think piece details my reflections from the conference, paying particular attention to four trends that resonated with me. These trends are (i) radical, transformative technological advancement; (ii) the transition to a post-work society, (iii) a modern overhaul of education systems, and (iv) incorporation of foresight and futures thinking into classrooms.

When talking about 'talent' I am referring to an inclusive idea of the term – one which holds that every person has unique talents that must be fostered. Growing talent is about ensuring that every single person's talents are recognised and given the space to flourish. It is about providing every person with equal opportunity to participate in society and to lead a happy and fulfilled life.

TREND 1:

Radical, transformative technological advancement

A remarkable proportion of the WFS conference sessions described the potential of technological advancements occurring today to radically change the future landscape of society.

Moore's Law (also known as the law of exponential growth) states that computer processing power (CPU) will double every two years, and was referred to repeatedly throughout the conference.¹ Technological progress is growing exponentially over time meaning that the number of technological advancements made in the 21st century will be almost a thousand times greater than that of the

20th century.² This will have major implications for society. As co-founder and chancellor of Singularity University Ray Kurzweil stated, 'if you understand the potential of these exponential technologies to transform everything from energy to education, you have a different perspective on how we can solve the grand challenges of humanity.'³

It was not a surprise to hear about the potentials of artificial intelligence, augmented reality, wearable devices, robots and automation, and the potentials of 3D printing at the conference. These are realities which are becoming increasingly visible in our societies; in 2015 the examples are numerous. We have fitbits to monitor daily fitness levels, algorithms that perform complex calculations, data processes and automated reasoning, and mobile phones that allow us to access unlimited amounts of information and also offer us intelligent voice assistants. In California Google's self-driving cars are cruising the streets, with human error being noted as the most dangerous aspect of this new automotive technology.⁴ Recently in the field of biomedicine, the world's first surgery to implant a 3D printed sternum and rib cage was performed at the Salamanca University Hospital in Spain.⁵ These advancements are changing the way that we interact and engage with our world, and will have massive implications for society in the future.

It is important that we explore the implications of these changes as well as investigating how New Zealand might leverage these developments to better our economy. Sir Paul Callaghan stated that 'New Zealanders are good at really weird stuff'.⁶ So why not create a place which provides the space for these 'weird' ideas and concepts to develop? The Singularity University is an example of a learning environment that New Zealand could replicate or partner with. The Singularity University's mission is to 'educate, inspire and empower leaders to apply exponential technologies to address humanity's grand challenges.'⁷ It is specifically concerned with this trend, focusing on creating innovative technology that will radically change the future landscape of society. The university is funded by Google

and NASA, encouraging talented individuals to pursue their dreams of advancing humanity through technological invention.

Creating an equivalent to the Singularity University in New Zealand would not only attract young people to continue their tertiary studies here, but it would also expose young people to niche industries. In New Zealand The Mind Lab by Unitec is already doing this for children between the ages of 7 and 12. It runs courses which allow children to experience 'a broad spectrum of creative and scientific technologies including: coding, 3D design and printing, science and engineering, web and graphic design, robotics and animation'.⁸ Imagine the possibilities for innovation and for growing talent if we carried this further into a tertiary learning environment similar to that of the Singularity University.

This could act as a hub for innovation start-ups and could create new technology industries in New Zealand, as well as giving us access to experimental technologies. At the WFS conference I heard a Singularity University alumni, 22-year-old Anielle Guedes speak about her mission to eradicate global houselessness (as a result of experiencing favelas in Brazil, her native country).⁹ Anielle's start-up company Urban3D aims to use 3D printing techniques to reduce the time and cost of construction – 'the idea would be to print the houses in a few weeks and at a cost up to 80% lower than is practiced by traditional companies, thanks to cheaper machinery and a more sustainable and affordable material'.¹⁰

Imagine the effects of a technology such as this on the current housing issue in Auckland. Automation of the construction industry would solve some of the issues we are facing around housing but it would also change the nature of employment within this industry. Automation should be seen as a positive as long as it allows for the enhancement of knowledge and skills in an industry. If this is not occurring then it will have a significant impact on employment. This is where the second trend from the conference comes in – the post-work society.

TREND 2:

The transition to a post-work society

The idea of the post-work society is a response to the increasing automation of jobs and exponential growth of technology. A post-work society would see individuals ceasing to be employed in a traditional sense and instead taking up work they find meaningful. At the WFS conference there was a sense of excited optimism about the possibilities of this post-work society, with minimal acknowledgement of the negative implications that it would have for different sections of society.

To stop 'work' in a traditional sense does not necessarily imply idleness; rather, it implies the possibility of choosing one's work for pleasure. It means that individuals will not need to work in order to earn money, provide for their families or improve their circumstances. 'Meaningful work' implies that the individual is able perform work they find fulfilling as opposed to work that they must do in order to gain financial stability. A return to freelance, artisan work could be the way for many if they are provided with the opportunity to develop the necessary skill sets and the freedom to take risks.¹¹

The idea of a post-work society is one that I have reservations about because it threatens to benefit a few whilst being detrimental to many if not managed well. The balance between financial needs and 'meaningful work' must be stabilised before any form of post-work society can be actualised.

Automation of jobs is a reality that will be disruptive. In the UK 35% of jobs are at risk of being automated in the next two decades.¹² This figure is 47% for the same time period in the United States.¹³ A recently released report by future[inc] states that 46% of jobs in New Zealand are at risk of being automated in the same time frame.¹⁴ Unless there are societal mechanisms in place that allow those left unemployed to take risks and enter into 'meaningful' work then unemployment in a negative sense will continue to rise. There is an opportunity for governments to show long-term progressive thinking around policies that allow this form of post-work society to develop.



Societal mechanisms could include a set of government policies and strategies which ensure that every person receives equal opportunity from an early age. For New Zealand this is a real challenge that must be addressed. At the moment there is rising income inequality, which precipitates inequality of opportunity. The *Child Poverty Monitor 2014 Technical Report* states that a quarter of New Zealand children are living in poverty.¹⁵ Living in poverty does not affect a child's talents; however, it does affect their opportunities and outcomes.¹⁶

Society consistently fails to recognise the talents of individuals with low socio-economic backgrounds, curtailing their potential contribution to the economic growth of society.¹⁷ A recent study in the United States by Raj Chetty demonstrates the correlation between upward social mobility through innovation and childhood environments (determined by parental income). He illustrates this by comparing a child's ability (through test scores from maths students aged 8 to 9) with the parental incomes of patent holders (as an indicator of innovation) in the USA. Chetty found that for children who scored within the top 10% of test scores only 'about 2.2 of every 10,000 children born to parents with below-median income will have a patent by the time they are 35 years old. In contrast, those who are born to parents in the top 1% of the income distribution are ten times as likely to have a patent by the same age'.¹⁸ This difference was not seen in students who scored below 90%. The implications of this are wide, as Chetty explains:

*This analysis implies that improving equality of opportunity is of interest not only to those who begin at the bottom of the income distribution, but potentially to all families, since increasing the overall amount of innovation could benefit society as a whole.*¹⁹

If we want to create a vibrant talent-based economy it is essential that we address the inequality in New Zealand. Until we are able to meet the basic needs of all individuals, increasing job automation is likely to create additional problems. On the other hand, suppose that the post-work society consisted of technological advancements designed to benefit all of society rather than simply to increase profit

margins. This utopian idea forms the basis of the concept of 'fully automated luxury communism' and could change the perception of a post-work society. 'Luxury communists believe that this era of rapid change is an opportunity to realise a post-work society, where machines do the heavy lifting not for profit but for the people.'²⁰

This movement towards a focus on community is already taking shape through open source technology and software as well as the sharing-based economy. In an interview with *The Guardian*, Aaron Bastani (co-founder of Novara Media) explains what this possible future may look like:

*The demand would be a 10- or 12-hour working week, a guaranteed social wage, universally guaranteed housing, education, healthcare and so on ... There may be some work that will still need to be done by humans, like quality control, but it would be minimal.*²¹

So, in a world where jobs are automated and technological changes are occurring at an exponential pace, we must assess whether our current education system is equipped to grow the talent that is required for the 21st century.

TREND 3:

A modern overhaul of education systems

There is a need for learning facilities and systems that reflect the changing nature of society and that encourage behaviour that will contribute to such change. Our current education system is outdated; it teaches 19th century objectives which are incongruent with 21st century needs.²²

Defining the future goals of our education system will be difficult. Kevin Robinson, in his book *Creative Schools: Revolutionising Education from the Ground Up* argues that the aim of education should be 'to enable students to understand the world around them and the talents within them so that they can become fulfilled individuals and active, compassionate citizens.'²³

There appears to be general feeling that the current education system in New Zealand stifles individuals' talents when they do not conform to its outdated and restrictive structure. I agree with this sentiment and believe that growing talent is about providing an environment that develops diversity of thought, creativity and skills and that this diversity will allow a talent-based economy to flourish.

We can assume that our world is going to continue to change and that technological advancements will be one of the drivers of this change. We need to be thinking about what skills are needed to understand this evolving world, but also to be cautious with how we approach teaching these skills.

Given that we now have instant access to information via the internet, Victorian-era requirements for knowledge recall are almost entirely redundant. No longer is the role of the education system to teach specific information; rather, it is to teach children how to access and use information in a way that builds their knowledge and skill. This is likely to best develop through problem-solving activities which are hands on and experimental, and where children are provided with space to direct their own learning.

This is the environment that Sugata Mitra, Professor of Educational Technology at the School of Education, Communication and Language Sciences at Newcastle University, wants to create.²⁴ He has developed a creative online space called the 'School in the Cloud' where children learn on their own through access to computers

and the internet – what Mitra calls SOLE (self-organised learning environments).²⁵ The 'School in the Cloud' is based on three core elements – broadband, collaboration and encouragement – and allows children to go on 'intellectual learning adventures' driven by big questions.²⁶ Mitra states that if we 'allow the education process to self-organise, then learning emerges. It's not about making learning happen. It's about letting it happen. The teacher sets the process in motion and then stands back in awe and watches as the learning happens.'²⁷

Mitra was the winner of the 2013 TED Prize which provided him with the resources to create the first 'School in the Cloud' in England. Since then it has expanded to seven schools (five in India and two in England).²⁸ Adopting the concept of teaching SOLE is an idea that should be investigated further in New Zealand.

Taking advantage of technological advancements and the way that we engage with technology is essential for updating our education system according to William Crossman. William spoke at the WFS conference and is the founder and director of CompSpeak 2050: Institute for the Study of Talking Computers and Oral Cultures. During his presentation he made an argument for curriculums to move away from the traditional reading, writing and arithmetic and move towards critical thinking, creative thinking, 'compspeak' (skills needed to access information using all-sensory talking computers) and calculators.²⁹

William discussed the declining importance of reading, writing and arithmetic and stated that although these shouldn't be completely removed from curriculums they should receive a reduced focus. This would allow more time for analysing complex problems, devising creative solutions to these problems and developing the adaptive skills to interact with technology. By the mid-22nd century William envisages a world that relies solely on 'Voice In/Voice Out (VIVO) talking computers, using online voice-recognition technology, [which] will allow all people to access the world's storehouse of information merely by speaking, listening, and viewing graphics.'³⁰

It is obvious that programming, engineering and other industry-specific skills will be necessary in our 21st century learning environments. But what will be next? With the rapid advancements in technology we need to be continuously evaluating and reassessing what the future holds for us. One way to embed this into society is by incorporating foresight and future thinking into the curriculum.

TREND 4:

Incorporation of foresight and futures thinking into classrooms

This trend is about teaching the skills of foresight and problem-solving to young people. Strategic foresight is a way to prepare for potential opportunities or disruptions, and by teaching this discipline to young people it is effectively building resilience in our society. Further, it is a tool that can contribute to the behavioural characteristics mentioned in discussion of Trend 3.

Futures thinking is not about predicting the future; rather, it provides you with different frameworks to analyse trends and to interpret where they fall within these alternative futures (possible, probable and preferable).³¹ This empowering tool not only provides a framework for understanding the future, but also allows for an understanding of what has led us to the present. However, this shouldn't be taught as a tool on its own; foresight and futures thinking should be incorporated into the way that teachers conduct their classes.

This is the goal of Peter Bishop, executive director of Teach the Future and former director of strategic foresight at the University of Houston.³² Teach the Future aims to encourage and support educators to introduce futures thinking into their classes and schools at all levels. Peter believes that we should be teaching the future as we do the past, so young people can understand the ways the world has changed and the potential changes that are to come. Further, students should ‘understand that the past is not determined, that it is contingent on things that did not have to turn out the way that they did.’³³

By teaching our young people futures thinking and foresight, we can grow talent that is critical, adaptive and resilient. These are key characteristics that we want to develop for a talent-based economy.

CONCLUSION

These four trends are all pointing in the direction of possible futures, not certain futures. We cannot ignore them because of this; we need to prepare and build a resilient New Zealand which can adapt to any one of these possible futures.

For New Zealand, this means we must actively progress policies that encourage technological growth as well as ones that safe-guard what is important to us. As mentioned earlier, a well-managed balance between financial needs and psychological needs could result in a society where individuals can perform meaningful work without endangering their livelihoods. In order for this to be beneficial for everyone we need to ensure that our basic needs will be met by progressive policies that protect the most vulnerable in society against negative outcomes from these possible futures. Further, we need to foster talent and growth in our students in new and exploratory ways. We need to decide whether we want to adapt our education system to new technologies and skill sets or whether we want to redesign it completely. Either way, it is time to move away from the 20th century education system towards one that creates curious, focused and critical individuals.

This new learning environment needs to teach strategic foresight and futures thinking so that our young people are adaptive and resilient. Change is occurring exponentially and this must be taken into account when we think about the future of talent. A talent-based economy for New Zealand needs to build on the foundation of a vibrant, creative and resilient society that is adaptive to change. We need to be thinking now about how we can give our society the space to cultivate these qualities, in order that we can position ourselves to move towards our preferred future as a nation.

End Notes

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